Second-position clitics, from morphosyntax to semantics: The ʔayʔaǰuθəm (Comox-Sliammon) perspective

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Abstract

In this dissertation, I examine the second-position clitic system in ʔayʔaǰuθəm, a Central Salish language traditionally spoken along the northern Georgia Strait in British Columbia. The system includes subject agreement markers, modals, evidentials, discourse particles, and a scalar exclusive. I examine both the morphosyntax of these clitics and their semantic contributions.

This dissertation has three parts. In Part I, I argue that the clitics occupy a series of functional heads above the verb phrase. When linearized, however, they occur in 'second position', following the first word of the verb phrase. Based on evidence from coordinate structures, I argue that the clitics' host does not move above the clitics, since doing so would violate the Coordinate Structure Constraint. Instead, I argue that the clitics are lexically specified as enclitics and linearized with respect to their host in the morphology, following the first morphosyntactic stage of a two-stage lexical insertion operation. The morphological unit consisting of the clitic string and its host then serves as the input to a second morphophonological stage of lexical insertion, accounting for a range of allomorphy effects.

In Part II, I examine the semantics of modal and evidential enclitics. I argue that two indirect evidentials, a reportative and an inferential, are strong epistemic modals. These contrast with two direct evidentials, labelled clausal demonstratives because they involve spatio-temporal deixis, which test as non-modal. I also propose a unified analysis for the future enclitic, which is used to make both claims about the future and inferences about past and present eventualities, and extend the analysis to English *will*.

In Part III, I examine a variety of discourse-sensitive enclitics. I provide an analysis of the domain widening effect of a scalar exclusive particle when it associates with universally quantified phrases. I also discuss three discourse particles with contributions relating to common ground management, discourse coherence, and speaker commitment.

This dissertation represents the first comprehensive analysis of the second-position clitic system in a Salish language. As such, it contributes both to the documentation of an endangered language and to the theoretical literature on the morphology, syntax, and semantics of second-position clitics.

Lay summary

In this dissertation, I examine a set of seventeen small, unstressed words with grammatical functions – known as clitics – in ʔayʔaǰuθəm, a Central Salish language. The clitics always occur following the initial non-clitic word of a sentence.

The clitics have varied meanings. They include a question marker, evidentials (items which indicate the speaker's source of evidence for the sentence), modals, clausal demonstratives (items which locate the event described by the sentence in space and time), and discourse particles, which help structure discourse.

In general, ʔayʔaǰuθəm word order reflects the organization of meaning. Words that occur earlier apply to words that follow, so determiners precede nouns and adverbs precede verbs, for instance. The clitics are an exception: they have meanings that apply to the sentence as a whole, but occur following the first word of the sentence. They carry a requirement to attach leftward, disrupting the usual linear correspondence with meaning.

Preface

This dissertation is based both on independent research and on several collaborations. Below, I document where research included in this dissertation appears elsewhere, moving chronologically through the chapters.

- The analysis presented in Chapter 2 is based on joint work with Henry Davis, which has been presented at the West Coast Conference on Formal Linguistics (WCCFL) 39 and will appear in the proceedings as:

  Davis, Henry, and Marianne Huijsmans. Clitics and coordination in two Salish languages. *Proceedings of the West Coast Conference on Formal Linguistics* (*WCCFL*) *39*.

  St'át'imcets examples are from Henry Davis's fieldwork, while ʔayʔaǰuθəm examples are from my own. Development of the analysis was shared. For the proceedings paper, I wrote the initial draft and subsequent work on the proceedings paper was shared.

- The content of Chapter 6 appearing in Sections 6.5–6.7 and parts of Section 6.10 has been accepted for publication in a peer-reviewed volume on modals in underdescribed languages and will appear as:

  Huijsmans, Marianne. Analyzing ʔayʔaǰuθəm evidentials: Evidence for epistemic modality. In Jozina Vander Klok, Núbia Rech, Simone Guesser, and Eduardo Soares (eds.), *Modality in underdescribed languages: A methodological perspective.* Berlin: Mouton de Gruyter.

  A condensed version of the arguments for the modal nature of the inferential and reportative in Chapter 6, Section 6.6 also appeared in a joint presentation with Daniel Reisinger at Semantics and Linguistic Theory (SALT) 31 and in the subsequent proceedings as:

  Huijsmans, Marianne, and D. K. E. Reisinger. Modal and deictic evidentials in ʔayʔaǰuθəm. In Nicole Dreier, Chloe Kwan, Thomas Darnell, and John Starr (eds.), *Proceedings of Semantics and Linguistic Theory* (*SALT*) 31: 629–646.

  I contributed this aspect of the SALT presentation and proceedings as it was based on independent work leading to the chapter in *Modality in underdescribed languages*, as detailed above.

- Chapter 7 is based on co-authored work with Daniel Reisinger, originally presented at WCCLF 38 and SALT 31 and appearing in the proceedings as:

Huijsmans, Marianne, and Daniel Reisinger. 2021. Deixis meets evidentiality: Clausal demonstratives in ʔayʔaǰuθəm. In D. K. E. Reisinger and Marianne Huijsmans (eds.), Proceedings of WCCLF 38 (pp. 152–159). Somerville: Cascadilla Proceedings Project.

Huijsmans, Marianne, and D. K. E. Reisinger. Modal and deictic evidentials in ʔayʔaǰuθəm. In Nicole Dreier, Chloe Kwan, Thomas Darnell, and John Starr (eds.), Proceedings of Semantics and Linguistic Theory (SALT) 31: 629–646.

While both authors contributed equally to the fieldwork and writing for the WCCFL 38 presentation and proceedings paper, I took the lead for the SALT 31 presentation and paper, since it drew on my independent work on the ʔayʔaǰuθəm inferential and reportative, in addition to our joint work on the clausal demonstratives. Chapter 7 moves beyond the work that appears in these proceedings in significant ways, providing more extensive documentation and analysis of the spatio-temporal deixis of the clausal demonstratives and updating the analysis of their direct evidence contribution. The arguments for the non-modal nature of the CLDs in Section 7.9 are taken almost directly from the SALT 31 proceedings paper, however.

- In Chapter 11, the analysis of the discourse particle *ga* in Section 11.6 is based on an analysis of *ga* in declaratives from joint work with Daniel Reisinger, presented at Sinn und Bedeutung (SUB) 24, and appearing in the proceedings as:

  Reisinger, Daniel, and Marianne Huijsamns. 2020. *ǰaqa: A generalized exclamation operator in ʔayʔaǰuθəm*. In M. Franke et al. (eds.), Proceedings of Sinn und Bedeutung (SUB) 24: 183–200.

  In Chapter 11, I both support this analysis with additional data and extend the analysis to *ga* in imperatives and questions.

The works above are all cited where applicable within the text of the dissertation. Otherwise, this dissertation is original work that has not appeared elsewhere and is based on previously unpublished documentation of ʔayʔaǰuθəm.

This research was conducted with approval from the UBC Research Ethics Board, under the titles Dictionary Project (H15-01026) and BC FNL Grammar Project (H20-02664-A002), both with Henry Davis as principal investigator.

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Abbreviations

1	first person
2	second person
3	third person
ACT.INTR	active intransitive
ADHORT	adhortative
ADVER	adversative
ANTI	antithetical
AUT	autonomous
AUX	auxiliary
CAUS	causative
CDE	current direct evidence
CERT	certain
CHAR	characteristic reduplication
CLD	clausal demonstrative
CLF.PRT	cleft particle
CN	common noun connective
CNJ	conjunctive
COMP	complementizer
CONJ	conjunction
COP	copula
COS	change-of-state reduplication
CTR	control transitive
DE	direct evidence
DEIC	deictic
DEM	demonstrative
DEON	deontic modal
DESID	desiderative
DET	determiner
DIM	diminutive
DIR	directive transitivizer
DIST	distal
DM	determinate marker
DPRT	discourse particle
EMPH	emphatic
EPEN	epenthetic
EPIS	epistemic modal
EPST	epistemic uncertainty
ERG	ergative
ESTB	established
EXCL	exclusive
EXCLAM	exclamative
EXIS	wide-scope existential
EXP	expectable
FUT	future
HAB	habitual
IMP	imperative
IND	indicative
INDEF	indefinite
INDIR	indirective
INDPRO	independent pronoun
INFER	inferential
INS	instrumental
INT	intensifier
INTR	intransitive
IPFV	imperfective
IRR	irrealis
MD	middle
MOD	modal
NCTR	non-control transitive
NDIST	near distal
NEG	negative
NLQ	negation-licensed *qəɬ*
NMLZ	nominalizer
OBJ	object

OBL	oblique
OPT	optative
PASS	passive
PDE	previous direct evidence
PERC.EVID	perceived evidence evidential
PFV	perfective
PL	plural
POSS	possessive
PP.CIRC	past-perspective circumstantial modal
PRF	perfect
PRO	pronoun
PROG	progressive
PROX	proximal
PRT	particle
PST	past
Q	question particle
QUEX	quexistential
REAS	reassuring
RECP	reciprocal
REFL	reflexive
REL	relative
RPT	reportative
SBJ	subject
SBJV	subjunctive
SBRD	subordinate
SG	singular
STAT	stative
SUB	subordinating complementizer
SUBJ	subjunctive
TR	transitive
TRSP	transpire

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I have been extremely fortunate with my dissertation committee. Throughout my time at UBC, Henry has been extremely generous sharing his time, vast knowledge of Salish, fieldwork experience, and wide-ranging knowledge of linguistics. He has also constantly challenged me to develop the same rigour and creativity in fieldwork and analysis that first struck me about his own research.

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Throughout my PhD, I was also lucky to develop friendships with many kind and generous individuals in the four sister nations. Over time, arriving in Tla'amin felt more and more like arriving home, while travelling from there to visit one of the sister nations felt like visiting relatives, with so many good friends to see in these places. I cannot hope to name all the individuals who have been friends and collaborators throughout these years, but I want to thank Koosen Pielle and Hoss Timothy in particular, who were research assistants working with me on the e-dictionary project through which I first connected with the four sister nations. I learnt a lot about the culture, communities, and documentation process through working with them, and their friendship made the work very enjoyable. Koosen and Zoë Ludski, with their company Jehjeh media, and Jacqueline Mathieu have been key supporters and organizers keeping the dictionary project going as I finished my PhD. Ann Paul, Gail Blaney, and Cathy Paul were present for many of my documentation sessions and asked excellent questions that also helped move this research forward.

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Finally, I want to acknowledge my sources of funding throughout my years in the PhD program, fellowships from SSHRC and the UBC Linguistics Department, a SSHRC Insight grant to Henry Davis (435-2016-1694), and the Jacobs Research Funds.

Dedication

This dissertation is dedicated to all the Elders who have shared their language with me, both in the context of research for this dissertation and for other documentation projects. In a special way, this dissertation is dedicated to those who have now passed away: late Marion Harry, late Joanne Francis, late Dave Dominick, late Maggie Wilson, and late Karen Galligos. It is also dedicated to all those language champions carrying ʔayʔaǰuθəm forward into the future.

Chapter 1

Introduction

The focus of this dissertation is the grammar of second-position clitics (2PCs), viewed from the perspective of the set of second-position clitics in ʔayʔaǰuθəm (a.k.a. Comox-Sliammon; ISO: coo), a Central Salish language. 2PCs crosslinguistically have been a prominent topic of research, at least since Wackernagel (1892), because their classification depends on a linear designation – second-position – that often does not correspond to a uniform syntactic position or reflect the order of semantic composition. In this dissertation, I argue that the linearization of 2PCs in ʔayʔaǰuθəm is driven by a morphological enclitic feature, rather than being derived by movement of the host in the syntax (see e.g., Franks and Progovac 1994, Progovac 1996 for Serbo-Croatian; Jelinek 1996 for Xwlemi'chosen (Lummi, Northern Straits; ISO: str); Gerdts and Werle 2014: 256, fn.18 for Hul'q'umi'num' (Island Halkomelem; ISO: hur)) or driven by the phonology (see e.g., Radanović-Kocić 1996 for Serbo-Croatian; Chung 2003 for Chamorro; Kaufman 2010 for Tagalog; Huijsmans (2015) for SENĆOŦEN (Saanich, Northern Straits Salish; ISO: str); Czaykowska-Higgins 2019, Lyon and Czaykowska-Higgins 2020 for Nxa̓amxčín (Moses Columbian; ISO: col)). My account also contrasts with accounts where the order between 2PCs and their host is primarily derived via movement of the clitics' host but with a post-syntactic readjustment rule or filter to derive certain cases (see e.g., Bošković 2001, Halpern 1992 for Serbo-Croatian). One of the central contributions of this dissertation is therefore to argue that *morphology* plays a crucial role in 2PC placement in ʔayʔaǰuθəm.

I develop this model of clitic placement through examining the syntactic position of the 2PCs in ʔayʔaǰuθəm, their linear order, the allomorphy they participate in, and the semantic contribution of each clitic. I argue that examining evidence from these aspects of their grammar together points to an architecture where linearization and allomorph selection takes place post-syntactically in the morphology. The semantic analyses of individual clitics simultaneously contribute to crosslinguistic debates concerning the semantics of modals and evidentials, scalar exclusives, future morphemes, and discourse particles.

1.1 Second-position clitics in ʔayʔaǰuθəm and beyond

1.1.1 What is a second-position clitic?

A clitic is a 'small' or 'weak' item that does not bear stress[1] and typically leans on a neighbouring 'larger/stronger' word that does bear word-level stress. English contractions such as the auxiliary verb *'s* in ***She's*** *going home* fall into this category. These small/weak items are typically functional, such as auxiliary verbs and pronouns, rather than contentful words, such as main verbs or common nouns.

Zwicky (1977) categorizes clitics such as the auxiliary verb *'s* as simple clitics, reduced forms which occur in the same position as the corresponding full form. He contrasts these with special clitics: clitics that do not alternate with a full form in the same position (and may not have a corresponding full form at all). 2PCs fall into the latter category.

2PCs are a type of special clitic that specifically occur *second* in the clause, though how 'second' is defined varies between languages: 2PCs may follow the first word or phrase, and these may be prosodic or morphosyntactic constituents. The 2PCs in ʔayʔaǰuθəm occur following the first word of the clause (which I will analyze as a morphosyntactic unit), either the predicate or a pre-predicate auxiliary. This is illustrated for the first person subject clitic in (1) and first person subject clitic plus future clitic in (2); in (1a) and (2a), the clitics follow the main predicate, while in (1b) and (2b), the clitics follow a pre-predicate auxiliary.

(1) a. *Main predicate*

ƛ̓ʊxʷegənč.
ƛ̓əxʷigan=**č**
envious=1SG.SBJ
'I'm envious.' (vf | FL.2019/06/29)

b. *Adverbial auxiliary*

hɛhɛw**č**	ƛ̓ʊxʷegən.
hihiw=**č**	ƛ̓əxʷigan
very=1SG.SBJ	envious

'I'm really envious.' (vf | FL.2019/06/29)

(2) a. *Main predicate*

gayɛt**tᶿəm**	Gloria	sqʷoƛ̓s səm	təs.
gay-at=**tᶿ=əm**	Gloria	s=qʷəƛ̓=s=səm	təs
ask-CTR=1SG.SBJ=FUT	Gloria	NMLZ=come=3POSS=FUT	arrive

'I'll ask Gloria when she arrives.' (vf | JF.2018/10/09)

[1] More precisely, clitics do not bear stress unless incorporated into a domain for stress assignment with their host. In St'át'imcets, for example, second-position clitics may be assigned stress as part of a prosodic unit with their host (e.g., Caldecott 2009: 25).

b. *Motion auxiliary*

hot**ᶿəm**	gayɛt	[ga] χanaθəs	ṫɛn.
hu=**tᶿ=əm**	gay-at	[ga=]x̌an-aθ=as	ṫin
go=1SG.SBJ=FUT	ask-CTR	[COMP=]give-CTR;1SG.OBJ=3SBJV	bbq'd.fish

'I'll go ask her to give me some barbecued fish.' (vf | EP.2018/11/17)

The freedom with which ʔayʔaǰuθəm 2PCs attach to either the main predicate or a preceding auxiliary is typical of clitics, which often do not select for hosts of specific morphosyntactic categories (unlike affixes, which typically select for stems of a specific category) (e.g. Zwicky and Pullum 1983).

ʔayʔaǰuθəm 2PCs are varied functional items, including force markers, subject agreement, modals, evidentials, discourse particles, and a scalar exclusive. There are seventeen clitics in the class of 2PCs that occur in the clitic string (not counting the subject clitics individually). These can be organized into subsitution classes based on their position in the clitic string and co-occurrence restrictions, as shown in Table 1.1; the clitics are listed below the table with their full glosses.

Table 1.1: ʔayʔaǰuθəm 2PCs

Force		Subject		EpstMod		Fut	ClDem		Other					
a	Q	č	1SG.SBJ	č̌a	INFER	səm/saʔ FUT	ti	CLD	ga	DPRT	ʔut EXCL	qał	PP.CIRC	ʔəyt DPRT
ala	EXCLAM	čxʷ	2SG.SBJ	k̓ʷa	RPT		ta	CLD	gi	DPRT		qał	NLQ	x̌ʷət DPRT
		št	1PL.SBJ				kʷi	CLD						
		čap	2PL.SBJ				kʷa	CLD						
		∅	3SBJ											

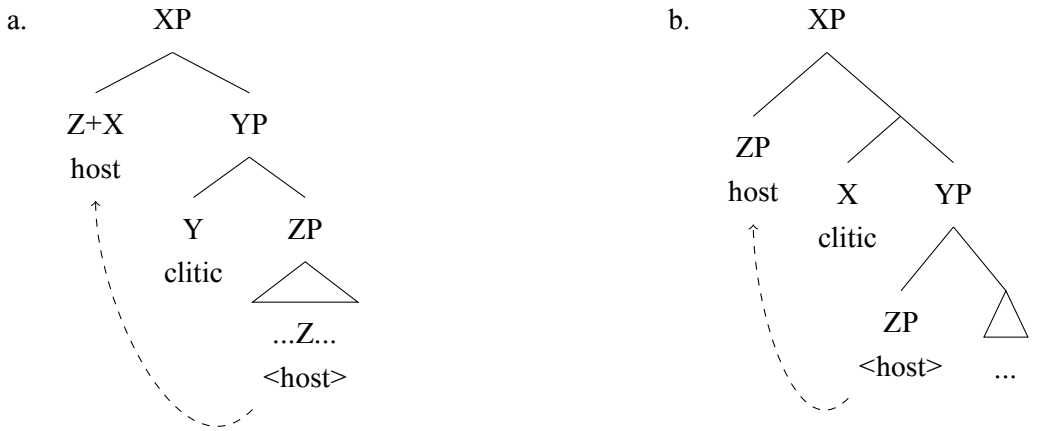
a	Q	'y/n question'
ala	EXCLAM	'exclamative'
č̌a	INFER	'inferential'
k̓ʷa	RPT	'reportative'
səm	FUT	'future'
ti	DE.PROX.CLD	'direct evidence proximal clausal demonstrative'
ta	DE.DIST.CLD	'direct evidence distal clausal demonstrative'
kʷi	PROX.CLD	'proximal clausal demonstrative'
kʷa	DIST.CLD	'distal clausal demonstrative'
ga	DPRT	'discourse particle'
gi	DPRT	'discourse particle'
ʔut	EXCL	'scalar exlusive'
qał	PP.CIRC	'past-perspective circumstantial modal'
qał	NLQ	'negation-licensed *qał*'
ʔəyt	DPRT	'discourse particle'
x̌ʷət	DPRT	'discourse particle'

1.1.2 Deriving second-position

Crosslinguistic work indicates that 2PCs are often not generated in a syntactic position corresponding to their linear position, but bear a range of syntactic and semantic relationships with the rest of the clause (e.g. Anderson 1992; Schütze 1994; Halpern 1992; Roberts 2000; Bošković 2001; Chung 2003; Kaufman 2010). A

variety of solutions have been proposed to derive the surface linear position of the clitics. Perhaps the simplest solution proposed is syntactic movement of the host to a position above the clitics (e.g. Franks and Progovac 1994; Progovac 1996 for Serbo-Croatian), so that the resulting syntactic structure maps to the attested linear order. Depending on the account and type of host, these proposals may involve head or phrasal movement of the host, as roughly schematized in (3), and may involve prior head adjunction of the clitics to a single head high in the clause as well.

(3)



a. Linear order mapped from syntax: host > clitic

Other approaches appeal to the phonological 'weakness' of clitics as elements that cannot bear word-level stress and therefore require a host. These approaches have the phonological derivation determining the linear position of the clitic string (see e.g., Radanović-Kocić 1996 for Serbo-Croatian, Chung 2003 for Chamorro, Kaufman 2010 for Tagalog). The syntactic representation of the clitics varies between these analyses, but post-syntactically the phonology determines the position of the clitics regardless of their syntactic origins.

(4) a. Pre-phonology: (clitic) ... host ... (clitic)

b. Linear order derived in phonology: host > clitic > ...

There are also analyses combining elements of both these approaches (e.g. Halpern 1992; Schütze 1994; Bošković 2001 for Serbo-Croatian). These approaches have in common that the clitics' linear position is either typically or always syntactically derived, but a post-syntactic repair strategy or filter is invoked to ensure the correct ordering in a restricted number of cases.

Finally, there are a number of proposals for clitic placement in the morphology (see e.g., Marantz 1988; Embick and Noyer 2001). Under these approaches, heads bearing a structural relation in the syntax can be rearranged post-syntactically in the morphology according to specific rules. For instance, Lowering (a subtype of Morphological Merger) adjoins the head of XP to the head of its complement YP in (5).

(5) Lowering

a. Syntax: $[_{XP} \ldots X \ldots [_{YP} \ldots Y \ldots]]$

b. Morphology: $[_{XP} \ldots [_{YP} \ldots [_{Y} Y + X]]]$

This latter approach is the closest to the analysis that I propose in this dissertation, but differs in important ways, as detailed below.

1.2 Main claims and contributions

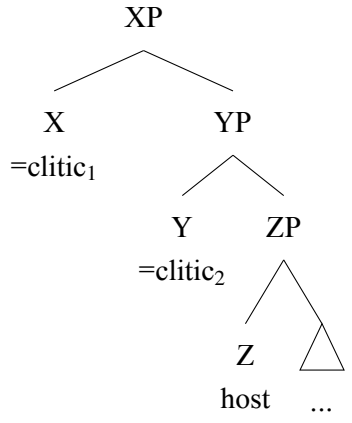
This dissertation has two main theoretical goals:

- to provide an account of how 'second position' is derived in ʔayʔaǰuθəm, drawing on evidence from the clitics' syntactic behaviour, allomorphy, and semantic contributions.
- to provide semantic analyses for the at-issue and not-at-issue contributions of each 2PC, detailing how they compose with each other and the remainder of the clause.

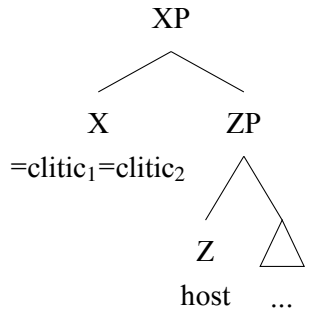
I argue that clitic placement in ʔayʔaǰuθəm occurs in the *morphology*, post-syntactically but prior to phonology. I propose that the clitics bear a lexically specified *enclitic feature*. This feature causes successive encliticization of the clitics to each other, deriving the *clitic string*, a morphological constituent (6a-b). The clitic string then encliticizes to an appropriate host as a whole (6c). This disrupts the canonical mapping from syntax to linear order.

(6) Morphology operating on output of syntax:

a.



b.



c. [host=clitic$_1$=clitic$_2$]

My account therefore more closely resembles accounts of clitic placement as Morphological Merger (see e.g., Marantz 1988; Embick and Noyer 2001), than accounts where clitic placement occurs in the syntax or phonology, but differs in formalizing the role of lexical information in encliticization.

This model accounts for key aspects of the clitics' behaviour:

- The clitics' sensitivity to syntactic hierarchy yet ability to interrupt syntactic constituents (Chapter 2)
- The clitic string's status as a unit for linearization (Chapter 2)
- The resolution of clitic allomorphy following linearization, but prior to phonology (Chapter 3)

I argue that these aspects of the clitics' behaviour cannot be captured under models of clitic placement where the linear order of clitics relative to their host is derived in the syntax, nor by models where encliticization is purely driven by the phonology. While the encliticization process proposed here resembles the rule of post-syntactic Lowering proposed by Embick and Noyer (2001), encliticization is crucially driven by a property of the individual lexical entries of enclitics, not a rule operating on certain syntactic heads, like Lowering. Evidence favouring a lexical approach is provided by the fact that lexical items occupying the same head can vary as to whether they are enclitic or not (see Sections 2.6.2 and 9.5.1).

With respect to the semantic contribution of the clitics, this dissertation makes different contributions regarding different subsets of clitics.

- I argue that the inferential and reportative clitics are evidential epistemic modals, providing additional crosslinguistic evidence for overlap between the categories of evidentiality and epistemic modality (Chapter 6).
- I propose clausal demonstratives as a novel grammatical category (drawing on Huijsmans and Reisinger 2018, 2021a) with spatio-temporal deictic contributions and evidential contributions relating to events rather than entities (Chapter 7).
- I propose a unified semantics for the future clitic, which is used in claims about future eventualities and for inferences about present and past eventualities; I argue that this modal carries a restriction on the timing of the evidence for the modal claim and extend this analysis to account for the similar distribution of English *will* (Chapter 8).
- I argue that the association of the scalar exlusive clitic with the universal quantifier contributes domain widening, and extend the analysis to account for similar collocations in English (Chapter 10).
- I give a preliminary analysis of the discourse particles which provides generalizations that begin to illuminate where the ʔayʔaǰuθəm particles exhibit parallels and differences to the types of meanings encoded by better-studied discourse particles in e.g., German (Chapter 11).

In addition to contributing to the theoretical literature concerning 2PCs, this work is the first comprehensive syntactic and semantic analysis of a 2PC string in a Salish language. As such, it also provides the groundwork for investigations 2PC systems in other Salish languages. While ʔayʔaǰuθəm has one of the most extensive 2PC systems of any Salish language, similarly extensive 2PC systems have been documented for other northern Central Salish languages, such as Halkomelem (Suttles 2004; Gerdts and Werle 2014) and

Straits (Montler 1986). St'át'imcets, the Northern Interior language geographically closest to ʔayʔaǰuθəm, also has a comparable 2PC system (Van Eijk 1997; Davis and Huijsmans 2022). Even in languages from other parts of the family without comparable 2PC strings, however, it is common to find clitics with similar functions to those found in ʔayʔaǰuθəm.[2]

The theoretical goals of this dissertation have provided the framework for continued documentation of ʔayʔaǰuθəm, focussing on an aspect of the language that has not received much attention in previous literature (see Section 1.5 below). Central to this contribution are the language examples. The Elders who have worked with me have been incredibly careful, generous, and good-humoured in working through these many examples, providing endless judgments and often volunteering key examples and critical insightful comments that have guided this investigation. In undertaking this work, their goal has been to create a documentary record of the language for future generations, especially for future language learners. While this work is not a pedagogical one, I hope that the documentation throughout this work will prove useful in language revitalization programs underway and in years to come.

1.3 Organization

The organization of the remainder of this chapter is as follows. In Section 1.4, I provide background on the language and its position in the Salish language family. In Section 1.5, I discuss previous literature on the language and how this dissertation contributes to this literature. In Section 1.6, I provide some clarifications concerning the scope of this dissertation. In Section 1.7, I give a brief overview of the methodology used in this investigation. In Section 1.8, I explain the conventions used in the language examples. In Section 1.9, I describe basic facts about the organization of ʔayʔaǰuθəm grammar that will be useful in reading the examples throughout this dissertation. In Section 1.10, I lay out theoretical assumptions regarding the models of syntax, semantics, and morphology that I adopt. In Section 1.11, I provide more specific background on ʔayʔaǰuθəm tense and aspect, including formal semantic analyses which will be especially relevant in Chapters 6–8 of this dissertation. Finally, in Section 1.12, I provide a summary of the various chapters of this dissertation and some pointers for readers with differing interests in the material covered here.

1.4 Language background

1.4.1 ʔayʔaǰuθəm in the Salish language family

ʔayʔaǰuθəm (a.k.a. Comox-Sliammon) is a Central Salish language, traditionally spoken by the Tla'amin, Homalco, Klahoose, and K'ómoks peoples along the Northern Georgia Strait in British Columbia, Canada. ʔayʔaǰuθəm is one of 23 Salish languages, listed in Figure 1.1. The language family is divided into two main branches: Interior Salish and Coast Salish (see Davis 2019 for an overview). Nuxalk (a.k.a. Bella Coola) diverged separately. Within the Interior branch there are two subbranches, Northern Interior and Southern Interior Salish, while within the Coast Salish branch there are subbranches for Tillamook, Tsamosan, and Central Salish. ʔayʔaǰuθəm belongs to the Central Salish branch of the family (along with nine other

[2]Clitics are organized differently in the Southern Interior languages, typically procliticizing to a following host in Nsyilxcn (Okanagan Salish) and showing variable behaviour in Nxaʔamxčín (Moses-Columbian) (Czaykowska-Higgins 2019; Lyon and Czaykowska-Higgins 2020), for instance.

languages) and is the northernmost Central Salish language.[3]

There are two main dialects of the language, the Island and Mainland dialects. The Island dialect is associated with speakers from K'ómoks and the Mainland dialect with speakers from Tla'amin, Homalco, and Klahoose. Smaller dialect differences between speakers of the Mainland dialect from the different speach communities have not been studied systematically (Watanabe 2003: 2). With the diminished number of speakers, it is now difficult to tell whether differences between speakers represent differences between dialects, generations, families, or individuals. This dissertation is based on fieldwork with six Elders whose first language is the Mainland dialect of ʔayʔaǰuθəm, including speakers from Tla'amin, Homalco, and Klahoose.

1.4.2 Language situation

In 2018, the First Peoples' Cultural Council reported approximately 47 first language speakers of the Mainland dialect, all over 60 years of age; this number has continued to decline in the intervening years. The Island dialect no longer has first language speakers.

The current language situation is the result of decades of colonial oppression. Residential schools in particular, which became central to the government's policy of assimilation in the 1880s, had a devastating effect on ʔayʔaǰuθəm and other Indigenous languages in Canada. Children were usually forbidden to speak their languages at these schools and punishment could be very harsh (see the Truth and Reconcilition Commission of Canada 2015 for more information on the oppression of language and culture, abuse, and harsh conditions that these children faced).

Even at a young age, however, some of these children showed great resilience and determination in finding ways to continue speaking their mother tongues, sometimes finding friends with whom they could continue speaking their language in secret. One of the Elders I worked with recounts: 'Her and I always stuck in school…And we go look for a corner where we can sit. And we speak our language, talk to each other, y'know? But if they caught us, we get strapped…' (PD.2018/08/21). This seems to have been in part due to instructions of their grandparents who wanted to still be able to speak to their grandchildren when they came home. The same Elder recounts her grandfather telling her, before she was taken to residential school: 'But never forget your language. You're going to get strapped. You're going to get punished. But, no matter what they do to you, never forget your language. You know when you come home, you talk to us. I don't want you to say "what are you talking about"' (PD.2018/08/21). Another speaker recounts: "And that's what she said to me: I'm quite surprised you still know our language. I said: yeah, my grandmother told me not to forget" (JF.2018/08/21).

The last residential school closed in 1998.

Though there are few remaining Elders whose first language is ʔayʔaǰuθəm, there is hope for the future of the language. Within the four sister nations (Tla'amin, Homalco, Klahoose, and K'ómoks) there is a strong push for language and culture revival, building on the courage and resiliency of the Elders who have continued to speak their language and pass on the teachings of their culture despite their time in residential school and the various forms of oppression they have faced.

This revival of language and culture has taken many forms. Notable language initiatives include extensive language documentation undertaken by members of the nations which can be found on FirstVoices,[4] documen-

[3] Dialect divisions are only shown for the Central Salish branch of the family in Figure 1.1.

[4] www.firstvoices.com (accessed Dec. 29, 2022).

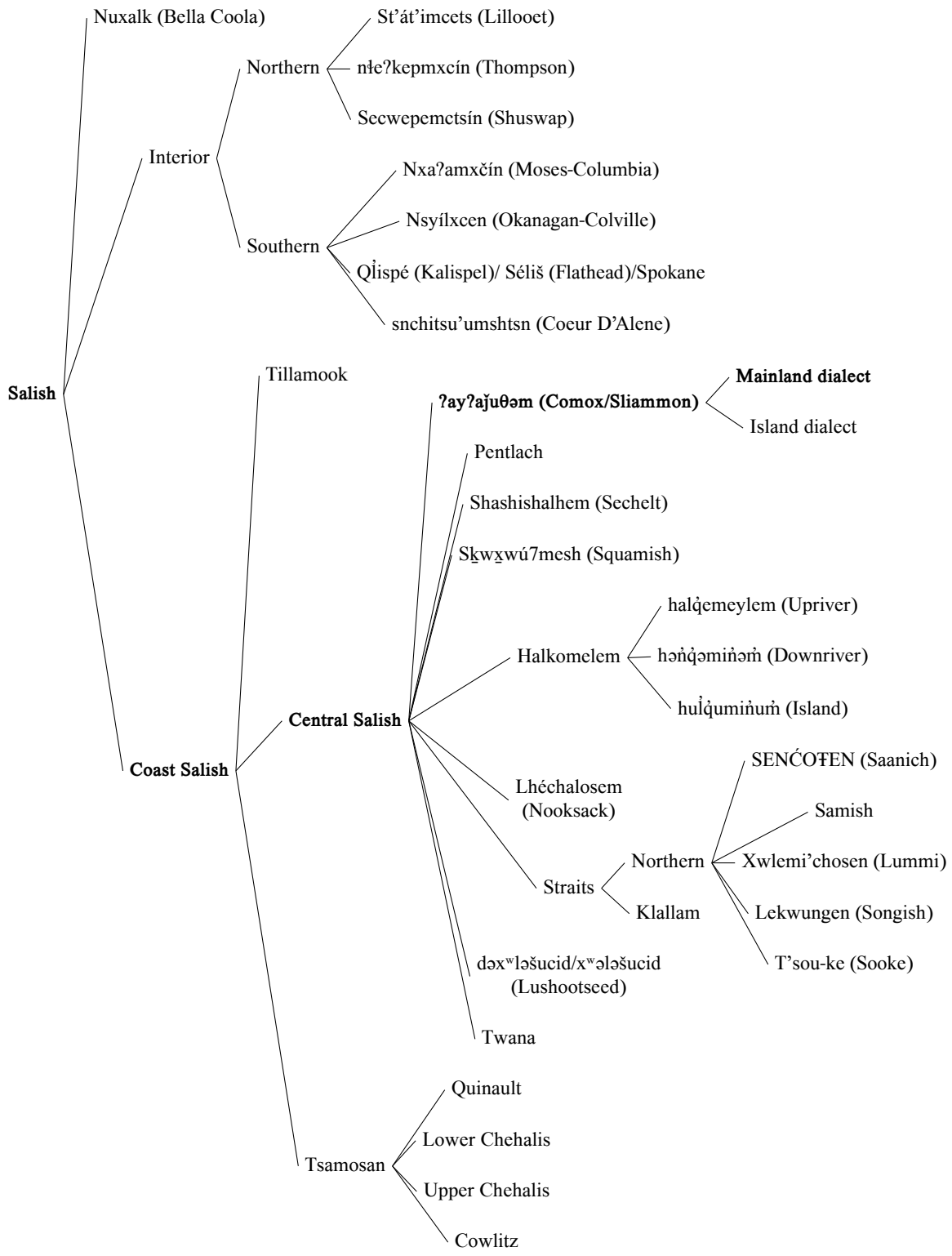


Figure 1.1: The Salish language family (based on Davis 2019)

tation leading towards an e-dictionary, pairs of Elders and adult learners engaging in the mentor-apprentice program,[5] a language nest in Homalco,[6] lanaguage lessons in local elementary and high schools, and adult language lessons offered at various points as well. In addition, a dedicated group of language champions in Tla'amin is currently working towards immersion programming. There is also a teaching grammar project underway as a partnership between linguists at the University of British Columbia and the four nations. The documentation presented in this dissertation will feed into this project.

1.5 Previous literature on ʔayʔaǰuθəm

While there are a number of early wordlists recorded for ʔayʔaǰuθəm, transcriptions of narratives and other notes from Boas in the 1880s, and a single early paper on reduplication (Sapir 1915), linguistic documentation began in earnest in the 1970s. Work in the 1970s–early 2000s primarily focused on phonology and morphology (see e.g., J. Davis 1970; Harris 1977; Hagège 1981; Blake 1992; Watanabe 1994; Blake 2000; Watanabe 2003) with shorter works or sections of works devoted to the documentation of ʔayʔajuθəm syntax (J. Davis 1973, 1978, 1980; Harris 1977; Blake 1997; Watanabe 2003). Most early work did not focus on semantics, with the exception of Kroeber (1988).

More recently, a variety of aspects of the semantics of ʔayʔajuθəm have been the focus of investigation, including pluractionality (Mellesmoen 2018a; Mellesmoen and Huijsmans 2019c; Mellesmoen et al. 2020; Huijsmans and Mellesmoen 2021a), plurals (J. Davis 2020), statives (Andreotti 2018a; Davis et al. 2020b), transitivizers (Mellesmoen and Andreotti 2017; Huijsmans and Mellesmoen 2021b), demonstratives and determiners (Huijsmans et al. 2018b; Huijsmans and Reisinger 2022a; Reisinger and Huijsmans 2021; Reisinger et al. 2021), evidentiality and modality (Reisinger 2018; Huijsmans and Reisinger 2018, 2021a,b; Huijsmans 2022), exclamatives (Reisinger and Huijsmans 2020), degree constructions (Lo and Reisinger 2019; H. Davis and Mellesmoen 2019), discourse particles (J. Davis 2012b), and presuppositions (Griffin 2019). There has also been more recent work on syntax, including argument structure in transitive clauses (H. Davis and Huijsmans 2017) and possessive constructions (Davis et al. 2020a), and on phonetics (Caldecott and Mellesmoen 2018; Mellesmoen and Huijsmans 2019a; Mellesmoen and Babel 2020) and morphophonology (Mellesmoen 2017a,b, 2018b; Huijsmans et al. 2018a; Mellesmoen and Huijsmans 2019b; Mellesmoen 2020).

In terms of documentation of the 2PCs, most early work only contains brief descriptions of individual clitics, though Watanabe (2003) provides a useful list with brief descriptions of each of the 2PCs. H. Davis and Huijsmans (2022) provide an account of 2PC placement in St'át'imcets and ʔayʔaǰuθəm, which I will build on in Chapter 2. Huijsmans and Reisinger (2018, 2021a,b) and Huijsmans (2022) explore the semantic contributions of the evidential clitics; I build on this work in Chapters 6 and 7. Finally, J. Davis (2012b) provides description of one of the discourse particles, which I build on in Chapter 11, while J. Davis (2019) gives a brief description of the combination of the future with another particle he lists as *t* (but I analyze as a contraction of the scalar exclusive *ʔot* /ʔut/ or discourse particle *ʔit* /*ʔəyt*/). For the most part, the descriptions and analyses of the 2PCs presented in this dissertation are the first in-depth analyses proposed for these items.

[5] https://fpcc.ca/program/mentor-apprentice-program/ (accessed Dec. 29, 2022).
[6] https://fpcc.ca/resource/language-nest-handbook/ (accessed Dec. 29, 2022).

1.6 Scope of this dissertation

This dissertation is focused on the seventeen clitics in Table 1.1. All of these clitics figure in the discussion of the morphosyntax of the clitics (Chapter 2). The semantic contribution of the question and exclamative clitics do not receive direct attention in this dissertation, however, but are only discussed in relation to other clitics. Compared to the other 2PCs, the semantic contribution of these clitics is relatively easy to characterize, at least descriptively. The question clitic is added to a proposition to create a polar question (a question that can be answered with 'yes' or 'no'):

(7) a. q̇aq̇aθot**a**?
q̇aq̇a-θut=**a**
hungry-CTR;REFL=Q
'Is she dieting?' (vf | FL.2019/07/01)

b. kʷukʷtəm**a**?
kʷə∼kʷt-əm=a
PROG∼sick-MD=Q
'Is he sick?' (vf | EP.2021/08/27)

The exclamative clitic is added to a proposition to create a polar exclamative, an exclamative that expresses surprise at the content of the utterance because it is unexpected, often compared to its opposite (e.g. for (8a) the speaker expected the opposite: that Freddie *didn't* go on a trip):

(8) a. *Context: You tell me that Freddie went on a trip and I wasn't expecting that.*
θohoɬ**ala**?!
θu-h-uɬ=**ala**
go-EPEN-PST=EXCLAM
'He went on a trip?!' (vf | EP.2021/09/04)

b. *Context: I didn't know that Hoss runs, so I'm surprised when I see him out running.*
tat**ala** ǰiƛ̓!
taʔat=**ala** ǰə∼ǰƛ̓
HAB=EXCLAM PROG∼run
'Oh, he runs!' (vf | EP.2018/09/11)

Since these generalizations are sufficient to capture their basic function and distribution, they do not immediately raise the same types of puzzles for documentation and analysis as the other clitics (though theoretically there are many open questions about the nature of polar questions and polar exclamatives). For this reason, they are not analyzed in the same depth.

In the list of clitics that Watanabe (2003: 509) provides, he includes several additional items beyond those in Table 1.1 that I treat as contractions of a variety of preceding clitics and the scalar exclusive *ʔot* /*ʔut*/: contractions of clausal demonstratives with the scalar exclusive, *kʷit* and *kʷut*, the contraction of the reportative with the scalar exclusive, *k̓ʷot* /*k̓ʷut*/, and the contraction of the discourse particle *ga* with the

scalar exclusive, *gut*.[7] Watanabe also lists *t*, which I treat as a reduced form of the scalar exlusive *ʔot* /*ʔut*/ or discourse particle *ʔit* /*ʔəyt*/. Watanabe notes that certain adverbs such as *ʔaǰu* 'also' and *qǰi*, the reduced form of *qəǰi* 'still, again', also sometimes occur as clitics. Since they also show freedom of word order associated with adverbs and can occur elsewhere in the clause, they are not included in the core set of 2PCs under investigation.

The remaining clitics all are given semantic analyses in the course of this dissertion, though various combinations of clitics await future research.

1.7 Methodology

The data reported throughout this dissertation were shared by six first language speakers of ʔayʔaǰuθəm. While I give examples from individual speakers, parallel examples are often available from other speakers, differing in whether they were volunteered or suggested and sometimes with parallel contexts and structures but different lexical items. Where judgments differ in important ways between consultants, I note this in the text.

I used a variety of semantic fieldwork methods for this dissertation, but relied especially on two types of tasks: suggesting forms in a verbally presented context and asking for consultants' judgments concerning whether the form fit the context, or providing a context and asking consultants to provide an appropriate utterance (following semantic fieldwork methodology advocated in, e.g., Matthewson 2004). Contexts were largely presented in English, but I sometimes created short ʔayʔaǰuθəm dialogues that would introduce the target examples. On occasion, when judgments were particularly subtle, I would also ask consultants whether one form was preferable to another in a given context; where such judgments were used, this is discussed in the text. In addition, I used storyboards and pictures to create controlled contexts to test specific hypotheses in some cases (Burton and Matthewson 2015). Storyboards are comic-like strips of pictures intended to be narrated by the consultant. These were first presented to the speaker and the storyline explained in English. Then the speaker was asked to tell the story back in ʔayʔaǰuθəm using their own words. The storyboards and pictures were used both to prompt initial positive data and subsequently as visual contexts for obtaining negative judgments.

I also provided contexts when asking for syntactic grammaticality judgments. In these cases, the verbally-provided contexts aided with understanding the example and controlled for relevant contextual factors. The judgments in these cases were not about the fit of the example to the context, however, but whether the example was a good sentence (i.e., whether it was grammatical).

I worked with six speakers in the course of this dissertation, but especially closely with two speakers on the detailed grammaticality and acceptability judgments required for the final stages of this work. While the broad strokes of the second-position clitic system seems to be consistent across speakers, there are differences in some of the judgments for specific examples, and I make note of these where they occur.

The question naturally arises of how to treat such variation among a small number of speakers. The question is particularly acute in contracted language situations where speakers are not interacting daily with a broader group but likely only with a few family members and friends. Without the checks of maintaining communication across a larger group, language change may progress especially rapidly.

[7] Where orthographic and phonemic representations of in-text ʔayʔaǰuθəm forms differ, I include both. See Section 1.8 for more details.

In the generative tradition, the investigation of grammar is always an investigation of a speaker's mental representation of a language, however, and each speaker's grammar tells us something about language (see Matthewson 2022 for discussion). Typically we make the simplifying assumption that findings that are consistent across a set of speakers can be generalized to all speakers of a language (or of a specific dialect), but this assumption should be treated with caution here. The conclusions here represent the grammars of the speakers I worked with and cannot necessarily be generalized to all speakers of ʔayʔaǰuθəm. While the broad strokes of the conclusions seem likely to generalize to most speakers, details of the grammar are likely to differ.

1.8 Language examples

The language examples all are represented in four lines, as in (9).

(9) *Context: From a narrative about the speaker's childhood, talking about her grandmother.*

payɛ ʔot	ʔi	k^w q^wayɪgəns.	
paya=ʔut	ʔəǰ	k^w=q^wayigan-s	
always=EXCL	good	DET=feeling-3POSS	
'She was always happy.'			(vf | PD.2019/01/25)

The italicized top line gives the context for the example, sometimes constructed by the researcher, but sometimes identifying the source of the utterance within a larger narrative or conversation, as above. This line is not always included if the context is not relevant to the discussion or not available (i.e., because the example was not elicited in a specific context or, for examples cited from the literature, no context is provided in the original source). The second line gives the example in the orthography adopted by the four nations and taught in language classes at local schools. This orthography is based on the North American Phonetic Alphabet (NAPA) and was developed in conjunction with linguists some 30 years ago. Rather than representing underlying forms, the orthography tends to privilege surface representations. The third line is a phonemic representation given in NAPA. Differences between the second and third lines are especially found in the representation of the vowels. The pronunciation of vowels varies predictably with neighbouring consonants and the orthography represents the surface phonetic values of the vowels, while the NAPA line represents the underlying phonemes. There are also cases of consonant allophony where the orthography shows an allophone which differs from the underlying phoneme represented in the NAPA line, but this is less common.[8]

The third line also contains morpheme boundaries. I employ Leipzig glossing conventions: the hyphen '-' marks affixal boundaries and the equals sign '=' marks clitic boundaries. The boundary between a reduplicant and its stem is indicated with '∼', and infixes are enclosed in angle brackets '<>'. The glosses of two irreversibly fused elements are separated by ';'. Finally, I also employ '+', not found in the Leipzig glossing conventions, to mark the boundary between two morphemes that form a contraction together.

The fourth line provides glosses for the examples. I employ Leipzig glossing conventions with some additions. A full list of glosses can be found on page xvi. Where a morpheme is suprasegmental and cannot be linearly separated from other material using one of the boundary symbols listed above, a backslash '\' is used to introduce its gloss.

[8] For readers unfamiliar with ʔayʔaǰuθəm, it is useful to note that /ǰ/ alternates with [y], where [y] occurs in coda position, and /g/ alternates with [w], where [w] occurs in coda position (see e.g., Blake 2000: 46; Watanabe 2003: 14).

The final line gives a free English translation either provided by the speaker or checked with the speaker.

Examples are marked as volunteered by the consultant 'vf' (volunteered form) or suggested to the consultant by myself or another linguist 'sf' (suggested form). Occasionally, where this is relevant, a translation may also be marked as volunteered by the consultant 'vt'. The speaker's initials and the date the example was recorded are also provided for examples elicited by the author. Where examples are cited from other sources, slight adjustments are often made to the glossing so that it is consistent with the glossing used throughout the dissertation. I also add an orthographic line if one is not provided.

A number of morphemes are frequently elided in present-day ʔayʔaǰuθəm. These include determiners, the oblique marker, and the clausal nominalizer. Where they can be confidently reconstructed or have been checked with a speaker, I include elided elements in square brackets '[]'.

For examples employed in the body of the text, I give both the orthographic form and the phonemic form where these are different, as for *c̓ɛṅo* /c̓aṅu/ 'dog'. Where they are the same, I give only the orthographic form, as in *ʔasxʷ* 'seal'.

When indicating consultants' judgments, I use * to indicate ungrammaticality and # to indicate infelicity; examples marked with the latter are grammatical utterances, but are not felicitous (i.e., they do not fit the context provided). When acceptability judgments are gradient, a ? or ?? may be used to indicate that an utterance is degraded or dispreferred for a given context without being totally rejected. I sometimes also employ a combination of parantheses and judgment indicators. A sequence such as (*word) means that the utterance is not grammatical with the word inserted at that point in the sentence. Conversely, a sequence such as *(word) means that the word *must* be included at that point in the sentence, otherwise the sentence is ungrammatical.

I also frequently include consultants' comments about the examples and judgments that they have provided; these appear under the translation line.

1.9 Relevant aspects of ʔayʔaǰuθəm grammar

In this section, I provide some brief background on word order, argument structure, and clause types that will be useful in reading the examples throughout this dissertation.

1.9.1 Basics of word order

ʔayʔaǰuθəm is predominantly head-initial. Verbs precede their complements (10a), for instance, determiners precede nouns (10a), complementizers precede their complement clauses (10b), etc.[9]

(10) a. k̓ʷʊnʊxʷəs$_V$ [tə mɛχaɬ]$_{Obj}$.
k̓ʷən-əxʷ-as tə=miχaɬ
see-NCTR-3ERG DET=bear
'She saw the bear.' (vf | FL.2022/02/17)

[9]There are no movement operations that place DPs or adverbials preceding the predicate within the clause. *Wh*-questions, for instance, involve a *wh*-predicate followed by a headless relative clause argument (e.g., Jelinek 1998; Davis and Matthewson 2009). This means that these phrasal elements such as DPs are never potential clitic hosts.

b. qʷayɪgən ʔoʔomat ʔot kʷ[s qʷol̓s].
qʷayigan ʔuʔumat=ʔut kʷ=s=qʷəl̓=s
maybe reluctant=EXCL COMP=NMLZ=come=3POSS
'Maybe she just doesn't want to come.' (vf | EP.2018/02/18)

The main predicate may be preceded by one or more auxiliaries (11)–(12), which occur in a fixed order and form a closed class. Semantically, auxiliaries act as predicate modifiers, frequently being motion verbs or carrying adverbial meanings (see Watanabe 2003: 89–96). Auxiliaries form an inflectional unit with the main predicate: though they attract clitics, they never take inflectional affixes; note, however, that many auxiliaries are also able to serve as main predicates.[10]

(11) a. **χʷɛtč** ʔot **hiyɛ** t̓oguxʷ.
x̌ʷit=č=ʔut **hiya** t̓ug-əxʷ
right.away=1SG.SBJ=EXCL really recognize-NCTR
'I recognized it right away.' (vf | EP.2021/05/16)

b. ***hiyɛč** ʔot **χʷɛt** t̓oguxʷ.
hiya=č=ʔut **χʷit** t̓ug-əxʷ
right.away=1SG.SBJ=EXCL really recognize-NCTR
'I recognized it right away.' (sf | EP.2022/12/02)

(12) *Context: I'm speaking of my friend's habits.*

a. **payɛʔ** ʔot **ho** ʔɛʔɛmaš ʔəɬ qəǰiyəs kʷi.
payaʔ=ʔut **hu** ʔi∼ʔimaš ʔəɬ=qəǰi=as kʷəǰ̌
alway=EXCL go PROG∼walk COMP=still=3SBJV early
'He always goes walking in the morning.' (sf | EP.2022/12/02)

b. ***ho** ʔot **payɛʔ** ʔɛʔɛmaš ʔəɬ qəǰiyəs kʷi.
hu=ʔut **paya**ʔ ʔi∼ʔimaš ʔəɬ=qəǰi=as kʷəǰ̌
go=EXCL always PROG∼walk COMP=still=3SBJV early
'He always goes walking in the morning.' (sf | EP.2022/12/02)

While subject clitics occur in second position, following the first non-clitic item of the clause (13a), subject DPs typically occur following the main predicate (13b) (as do object DPs, see (10a) above).[11] Oblique phrases are also found following the main predicate, as with the locative in (13a).

[10]Certain auxiliaries such as *ho* /hu/ 'go', *qʷol̓* /qʷəl̓/ 'come', and *hɛhɛw* /hihiw/ 'really' can occur following the main predicate, though much less frequently. The claim concerning fixed ordering is therefore only meant to apply to strings of auxiliaries occurring pre-predicatively.

[11]When there is a pre-predicative auxiliary, a subject DP may occur between the auxiliary and the main predicate.

(13) a. qʷol̓**čʊxʷ** kʷanačɪm [ʔə] tə θɛwθɛtən.
qʷəl̓=**čaxʷ** kʷa-nač-əm [ʔə]=tə=θiwθitən
come=2SG.SBJ put-bottom-MD OBL=DET=table
'Come sit down at the table.' (vf | MH.2018/06/12)

b. qʷol̓ hɛwt **šɛtᶿ nuɬ**.
qʷəl̓ hiwt **šə=tᶿ=nuɬ**
come get.home DET=1SG.POSS=older.sibling
'Your older sister just arrived.' (vf | MH.2018/06/12)

1.9.2 Basics of argument structure

Argument structure is marked by affixal morphology on the main predicate, both valency marking and agreement. I assume following H. Davis (1997) for St'át'imcets that by default roots are unaccusative, having a single internal argument (with possibly a few exceptions such as the motion predicates *θo/ho* /θu/hu/ 'go' and *qʷol̓* /qʷəl̓/ 'come'); see also Andreotti (2018b) who argues that it is possible to analyze all bare roots as unaccusative in ʔayʔaǰuθəm. Many roots can appear bare as unaccusative predicates, as in (14).

(14) a. ti **c̓ɛχ** tə ǰɛnxʷ.
ti=**c̓əx̌** tə=ǰanxʷ
CLD=get.cooked DET=fish
'The fish got cooked.' (vf | EP.2020/06/20)

b. čɪgɪtəm **ƛəpxʷ** tə c̓ɪtqamɛn.
čəgətəm **ƛəpxʷ** tə=c̓ətqamin
almost get.broken DET=knife
'The knife almost got broken.' (sf | FL.2019/05/09)

Agentive intransitives ('control intransitives' in much Salish literature) are often derived via an intransitivizer suffix, either the middle *-əm*, the intransitivizer *-Vš*, or the active intransitive *ʔəm*.[12]

(15) a. θo ʔɛʔɛm**aš** [ʔə] tə selawtxʷ.
θu ʔi∼ʔim-**aš** [ʔə=]tə=selawtxʷ
go PROG∼step-INTR [OBL=]DET=tent
'They were walking to the tent.' (vf | MH.2018/06/12)

b. payɛ ʔot p̓ap̓é**m**
paya̓ʔ=ʔut p̓ap̓í-**m**
always=EXCL work\STAT-MD
'She's always working.' (vf | EP.2019/05/11)

[12]Combinations of roots with the *-Vš* intransitivizer and middle suffixes are often lexicalized at this point. The *-Vš* intransitivizer in particular only occurs in certain lexicalized combinations and so is not always separated out in the morpheme and gloss lines.

c. k̓ʷuk̓ʷuʔuxʷ**ʔəm**č.
k̓ʷu∼k̓ʷuʔuxʷ-**ʔəm**=č
PROG∼smoke.fish-ACT.INTR=1SG.SBJ
'I'm fish-smoking.' (vf | EP.2021/11/05)

By extension, I assume that unmarked agentive intranstives are also derived by a null intransitivizer (following H. Davis 1997).

Bare roots are made transitive by the addition of the control transitivizer or noncontrol transitivizer (Watanabe 2003: 179). In (16a), for instance, the door closes on its own and the unaccusative bare root is used. In (16b-c), a transitivizer is used to introduce a subject argument – the person closing the door.

(16) a. **Bare root**
ǰɛqaʔ ṫᶿiṫᶿaymot **təq** tə ʔɛmɛn.
ǰaqaʔ ṫᶿiṫᶿay-mut **təq** tə=ʔimin
EXCLAM loud-INT **get.closed** DET=door
'All of a sudden, the door closed loudly.' (vf | BW.2020/07/01)

b. **Control transitive**
tə**q**təs tə ʔɛmɛn.
təq-**t**-as tə=ʔimin
get.closed-CTR-3ERG DET=door
'He closed the door.' (vf | BW.2020/07/01)

c. **Noncontrol transitive**
tə**qʊxʷ**əs tə ʔɛmɛn.
təq-**əxʷ**-as tə=ʔimin
get.closed-NCTR-3ERG DET=door
'He managed to close the door.' (vf | BW.2020/07/01)

The control transitivizer fuses with first and second-person object agreement, while the noncontrol transitivizer has various allomorphs depending on object agreement. See Watanabe (2003) and Mellesmoen (2017b) for details. A third transitivizer, *-Vš*, only occurs with a few roots (Watanabe 2003: 236).

There is a fourth transitivizer, the causative, used to transitivize agentive intransitives (both overtly derived and unmarked) and statives (Watanabe 2003: 220).

(17) a. hɛhɛw tihmot šɛ k̓ʷaxʷa θoho**sxʷ**asoɬ.
hihiw tih-mut šə=k̓ʷaxʷa θu∼hu-**sxʷ**-as-uɬ
really big-INT DET=box PROG∼go-CAUS-3ERG-PST
'He was bringing a really big box.' (vf | EP.2021/09/04)

b. hotᶿəm k̓ʷʊnʔəm**sxʷ** nɛs ʔayɛʔs.
hu=tᶿ=əm k̓ʷən-ʔəm-**sxʷ** niʔ=s ʔayaʔ-s
go=1SG.SBJ=FUT see-ACT.INTR-CAUS be.there=3POSS house-3POSS
'I'll show him where his house is.' (vf | EP.2018/09/11)

c. qəǰɛ ʔot gaq̇ɛ́t**sxʷ**əs tə ʔɛmɛn.
qəǰi=ʔut gəq̇-ít-**sxʷ**-as tə=ʔimin
still=EXCL open-STAT-CAUS-3ERG DET=door
'He still has the door open.' (vf | BW.2020/06/30)

While argument structure is overtly marked through (in)transitivizers on the predicate and agreement clitics and suffixes, argument pronouns themselves are null (see Chapter 4 for more on subject agreement). For instance, the third person pronouns in (17a,c) are not overt but indicated through third person ergative agreement suffixes on the predicate.

In transitive clauses, if there is only one overt DP argument, it must be interpreted as the object, as shown in (18); this constraint is common among Salish languages and is known as the One Nominal Interpretation constraint (Gerdts 1988).

(18) *Context: In a short storyboard, a cat sees a dog and chases it.*
#ʔaq̇atəs tə mɛmaẇ.
ʔaq̇-at-as tə=mimaẇ
chase-CTR-3ERG DET=cat
Interpreted: 'It chased the cat.'
Impossible interpretation: 'The cat chased it.'
Comment: I thought the cat was chasing the dog. (sf | EP.2022/12/02)

In cases where the overt argument cannot be interpreted as the argument of the verb, as in (19b), the sentence is nonsensical:

(19) a. gaq̇ɛtsxʷəs tə ʔɛmɛn.
gəq̇-ít-sxʷ-as tə=ʔimin
open-STAT-CAUS-3ERG DET=door
'He has his door open.' (sf | EP.2022/12/09)

b. #gaq̇ɛtsxʷəs Daniel.
gəq̇-ít-sxʷ-as Daniel
open-STAT-CAUS-3ERG Daniel
Intended interpretation: 'Daniel has it open.' (sf | EP.2022/12/09)

In ʔayʔaǰuθəm, the presence of an overt subject DP triggers passive morphology and the subject is introduced by an oblique phrase (see Watanabe 2003 and Davis and Huijsmans 2017).

(20) a. *q̇ayɛk̓ʷat**əs** tə mɛmaẇ tə c̓ɛṅo.
q̇<a>y<i>k̓ʷ-at-**as** tə=mimaẇ tə=c̓aṅu.
scratch<PL>-CTR-3ERG DET=cat DET=dog
'The cat scratched the dog.'

b. q̇ayɛk̓ʷat**əm** **ʔə** tə mɛmaẇ tə c̓ɛṅo.
q̇<a>y<i>k̓ʷ-at-**əm** **ʔə**=tə=mimaẇ tə=c̓aṅu.
scratch<PL>-CTR-PASS OBL=DET=cat DET=dog
'The cat scratched the dog.' (Davis and Huijsmans 2017: 19)

The One Nominal Interpretation constraint and the ban on overt DP subjects in transitive clauses in ʔayʔa-ǰuθəm are both related to a strategy of topic tracking in discourse (Davis and Huijsmans 2017). Discourse topics in Salish languages are typically introduced as overt DPs in intransitive clauses and then maintained as null pronouns that are subjects of both following intransitive and transitive clauses. While other Salish languages typically employ passives when the discourse topic is the object of the verb, ʔayʔaǰuθəm instead employs passives primarily for introducing overt subject DPs (Davis and Huijsmans 2017). For more on this topic, see Kinkade (1989, 1990); Davis (1994); Gerdts and Hukari (2003), among others.

1.9.3 Clause types

There are three main clause types that employ different sets of subject agreement markers, described in detail in Watanabe (2003: 99): indicative, subjunctive, and nominalized clauses. Main clauses are typically indicative, while subjunctive and nominalized clauses are typically embedded. Subjunctive clauses appear in the complement of negation (negation is a main clause predicate taking a subjunctive complement clause – see Davis 2005b for discussion),[13] interrogative complements, and in conditionals, among other contexts.

(21) a. **Complement of negation**
xʷaʔačxʷ ʔit [yɛχat**axʷ**]?
xʷaʔ=a=čxʷ=ʔəyt [yaǎ-at=**axʷ**]
NEG=Q=2SG.SBJ remember-CTR=2SG.SBJV
'Don't you remember?' (sf | EP.2022/01/18)

b. **Interrogative complement**
gayɛttᶿəm Gail [ga c̓ɛgaθ**əs**].
gay-at=tᶿ=əm Gail [ga=c̓ag-aθ=**as**]
ask-CTR=1SG.SBJ=FUT Gail COMP=help-CTR;1SG.OBJ=3SBJV
'I'll ask Gail if she'll help me.' (sf | EP.2020/08/11)

c. **Conditional**
χʷɛt qəɬ giq̇ʷɛtəm šɩms nuxʷɛɬ [qaɬ**as** xʷaʔ θahas
ǎʷit=qəɬ giq̇ʷ-it-əm šə=ms=nəxʷiɬ [qəɬ=**as** xʷaʔ θa-h=as
really=qəɬ drift-CTR-PASS DET=1PL.POSS=boat PP.CIRC=3SUBJ NEG go-EPEN=3SBJV
taχʷatəs.]
taǎʷ-at-as]
get.beached-CTR-3ERG
'Our boat would have drifted away if he hadn't pulled it up. (vf | EP.2022/03/12)

[13] Subject inflection is marked twice in these structures: an indicative clitic occurs on the negative predicate itself and a subjunctive clitic occurs in the subordinate clause (Kroeber 1999; Watanabe 2003; Davis 2005b).

Nominalized clauses are used in the complement of the predicate *χaƛ̓ /x̌aƛ̓/* 'want', complements of perception predicates, and temporal clauses, among others. The pan-Salish proclitic nominalizer *s=* is frequently elided in ʔayʔaǰuθəm and does not co-occur with the proclitic possessive subject clitics (Watanabe 2003: 110), so subordinate nominalized clauses are most easily identified by the possessive clitics.

(22) a. **Complement of *χaƛ̓ /x̌aƛ̓/* 'want'**

χaƛ̓ kʷ**ʊtᶿ** tayqat tə θɛwθetən.
x̌aƛ̓ kʷ=**ətᶿ**=tayq-at tə=θiwθitən
want DET=1SG.POSS=move-CTR DET=table
'I want to move the table.' (vf | EP.2021/08/20)

b. **Complement of perception predicate**

k̓ʷʊnɛtaʔmoɬ k̓ʷa Betty qʷol̓**s** kʷa hɛwt.
k̓ʷən-ít-əm-uɬ=k̓ʷa Betty qʷəl̓=**s**=kʷa hiwt
see-STAT-CTR-PASS-PST=RPT Betty come=3POSS=CLD get.home
'Betty saw he has gotten home.' (vf | PD.2018/11/08)

c. **Temporal clause**

q̓aq̓a k̓ʷa pɪčɪm**s** skʷiǰoɬ.
q̓aq̓a=k̓ʷa pəč-əm=**s** skʷiǰuɬ
hungry=RPT wake.up-MD=3POSS morning
'She was hungry when she woke up this morning.' (vf | JF.2019/03/18)

Among Salish languages, it is common to find predicate nominalization in addition to clausal nominalization (e.g. Thompson 2012). In ʔayʔaǰuθəm, however, predicate nominalization only occurs for the extraction of oblique objects in oblique-object-centered relative clauses. The prefixal nominalizer associated with predicate nominalization in other Salish languages is never overt in ʔayʔaǰuθəm, which has lost all prefixes, but predicate nominalization can be identified by the use of possessive affixes instead of possessive clitics (Watanabe 2003: 138). See Watanabe (2003) for further discussion of these clause types and their distribution.

1.10 Theoretical background

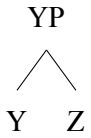
In this section, I lay out background assumptions about the models of syntax, morphology, and semantics that I am adopting. Only the broad strokes of the architecture will be outlined here. Further background will be provided in subsequent chapters as needed.

1.10.1 Syntax

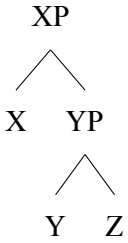
I assume a Minimalist syntax with the basic operations Merge, Move, and Agree (e.g. Chomsky 1995, 2000, 2001). Merge is the basic operation that combines two items, creating binary branching hierarchical structures. When two items combine, the label of one of the items projects. For instance, in (23), Y merges with Z and projects its label to YP (Y phrase), followed by X merging with YP, projecting its label to XP. The result is a binary branching hierarchical structure. The *terminal nodes* in the syntactic structure are X, Y, and Z; these are also referred to as *heads*.

(23) a. X, Y, Z

b. Merge, step 1



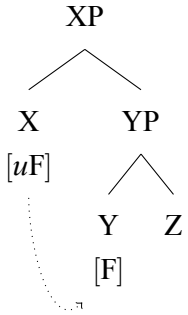
c. Merge, step 2



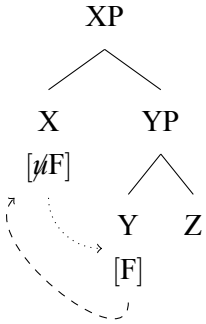
An important relation encoded in the syntactic tree is *c-command*. A head c-commands its sister and all nodes dominated by its sister. In (23c), X c-commands YP, its sister, and the heads dominated by its sister: Y and Z.

Agreement is an operation that copies features from one head to another. Specifically, it is an operation that copies features from a *goal* to a *probe*. A *probe* with an unvalued feature *u*F searches downwards for a matching feature F (24a). If it finds such a feature, this feature is copied back to the probe (24b).

(24) a.



b.

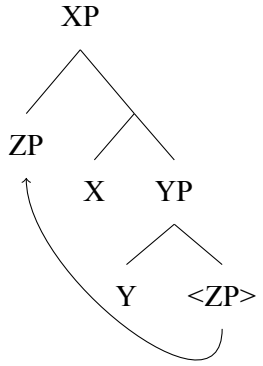


For our purposes, a probe will be an agreement head and a goal will be an argument DP. The features copied from the goal to the probe will be phi-features (person and number features).

In the analysis of subject agreement I propose in Chapter 4, I depart from (Chomsky 2000, 2001) in adopting a model of Agree where unvalued agreement features do not cause the derivation to crash (following e.g., Béjar 2003; Béjar and Rezac 2009; Preminger 2011, 2014). While a probe must always search for matching features, if no such features are found, the derivation is still well-formed. The morphological realization of the head that acts as a probe will only reflect valued features, however. I assume that phi-features of arguments are active – visible to higher probes – until they enter into an agreement relationship, after which they are inactive – no longer visible to higher probes. I further assume that arguments *must* enter into an agreement relationship in order to be licensed; this means that the phi features of null argument pronouns are made visible through agreement.

The operation Move will not figure prominently in this dissertation, since 2PCs do not undergo syntactic movement. Briefly, however, Move is an operation that takes an item already merged and remerges it at a higher level, leaving a copy behind at its original Merge site.

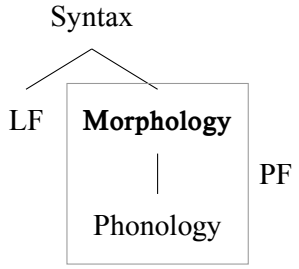
(25)



1.10.2 Morphology

I assume that the syntax manipulates abstract morphosyntactic and semantic feature bundles without phonological content (as in Distributed Morphology, e.g. Halle and Marantz 1993). These receive phonological content at *spell out*, the transfer to the interfaces with the phonological (PF; phonological form) and semantic (LF; logical form) components of the grammar (26). I further assume that the derivation proceeds in stages called *phases*. Spell out occurs at the completion of each phase.

(26)

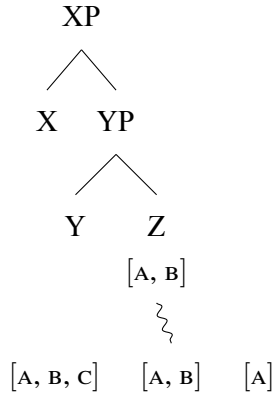


On the PF branch, the first stage of spell out takes place in the morphological component of the grammar and involves associating *lexical entries* with the syntactic terminal nodes. Lexical entries are pairings of abstract morphosyntactic features with phonological content:

(27) [ABSTRACT FEATURES] $\Longleftrightarrow$ /phonological representation/

Lexical insertion is the process of associating lexical entries to syntactic nodes. I adopt a model where lexical insertion takes place in two steps (following e.g., Bye and Svenonius 2012; Svenonius 2012). Lexical entries are first *matched* with syntactic terminals based on their features. This matching is governed by the Elsewhere Principle: a lexical entry is matched to a syntactic terminal when it matches more features on the syntactic terminal node than any other lexical entry, but does not have any features that are not on the syntactic terminal; this is illustrated in (28), where the feature set [A, B] is matched, rather than [A, B, C], which contains an extra feature, or [A], which matches one less feature.

(28)



The set of features of a matched lexical entry may be a subset of the features on a syntactic node, but never a superset (i.e., if there was no lexical entry with features [A, B] to match the structure in (28), then it would be the lexical entry with the feature [A] that would be matched). At the second stage of lexical insertion, the phonological content of the matched lexical entries is *inserted* at the syntactic terminals. These processes will be discussed in more depth in Chapter 2, Section 2.3.

I assume that syntactic trees are not associated with linear order prior to transfer to the PF branch; linearization is part of the *externalization* of the syntax. At the point of transfer, however, there is a default mapping from syntax to linear order. I will primarily be concerned with the linearization of *spans* – complement sequences of heads[14] – and assume a mapping such that a head will precede any head that it asymmetrically c-commands, except within words, where the Mirror Principle applies (reversing the mapping between c-command and linear order). I will not attempt to account for the Mirror Principle in this dissertation, but see e.g., Baker (1985); Brody (2000); Svenonius (2012) for proposals. I propose in Chapter 2 that certain morphological operations can disrupt the default mapping between asymmetric c-command and linear order, and that this takes place between the two stages of lexical insertion.

1.10.3 Semantics

Throughout this dissertation, I assume a *truth conditional* and *compositional* semantics as laid out in Heim and Kratzer (1998), for example. By truth conditional, I mean that to know the meaning of a sentence is to know (at least) the conditions under which it is true. As explained in Heim and Kratzer (1998: 1), if a speaker of English utters a sentence like *There is a bag of potatoes in my pantry*, another English speaker who knows the meaning of the sentence may not know whether it is true, but will know what the world must be like in order for it to be true – and would go check in the pantry if they wanted to determine whether it is true. By compositional, I mean that the meaning of a whole utterance is assumed to be the sum of its parts combined in a certain order consistent with its syntactic representation.

1.10.3.1 Formal ingredients

In this model of compositional semantics, items that take arguments are modeled as functions. Treating tense as part of the verb for simplicity, *whistled* is a function from individuals to truth values.[15] The denotation in

[14] That is, an uninterrupted sequence of heads projecting the syntactic spine: each head takes the next head in the sequence as its complement; this assumes that complementation relationships exist between heads (as in e.g., Brody 2000; Bye and Svenonius 2010; Svenonius 2012).

[15] Of course, in reality, tense enters the derivation after the subject argument *Ali*.

(29) will combine with an individual to return a truth value: true if the individual whistled at the relevant past time and false if the individual did not whistle. Formally, this is represented as:

(29) $[\![$ *whistled* $]\!]$ = λx. x whistled

The interpretation brackets $[\![...]\!]$ take a natural language expression and return its denotation, the meaning of that expression. For a proper name like *Ali* the denotation is assumed to be the individual with that name. For a verb like *whistled*, the denotation is a function from individuals to truth values.

Combining the denotation in (29) with *Ali* we get the following simplified truth conditions for the utterance:

(30) $[\![$ *whistled* $]\!]([\![Ali]\!])$ = $[\lambda$x. x whistled$](Ali)$ = 1 iff Ali whistled.

When checked against the world, the whole sentence has a truth value, true 1 or false 0, depending on whether the sentence matches the way things actually are.

The primary mode of composition used throughout this dissertation is functional application. Functional application takes a branching node and combines the denotations of the two daughter nodes where one of the daughters is a function.

(31) **Functional application:**
If α is a branching node, $\{\beta, \gamma\}$ is the set of α's daughters, and $[\![\beta]\!]$ is a function whose domain contains $[\![\gamma]\!]$, $[\![\alpha]\!] = [\![\beta]\!]([\![\gamma]\!])$. (Heim and Kratzer 1998: 44)

The interpretation function commonly carries several parameters of interpretation, in particular the assignment function g (Heim and Kratzer 1998: 111). The assignment function is a partial function from natural numbers to individuals. Pronouns are assumed to bear an index – a natural number – and the assignment function maps this index to an individual based on information stored from the context. The rule for pronouns (and traces) is given in (32). A pronoun a bearing an index i, a natural number, is mapped to an individual $g(i)$ by the assignment function g, provided that i is in the domain of g.

(32) **Traces and pronouns rule**
If α is a pronoun or a trace, g is a variable assignment, and i $\in$ dom(g), then $[\![$ a$_i$ $]\!]^g = g(i)$
(from Heim and Kratzer 1998: 111)

Other parameters of interpretation are introduced as needed, generally representing aspects of the denotation that I assume to be contextually provided rather than represented in the syntax.[16]

The following table (Table 1.2) presents the semantic types that I employ in the logical representations in this dissertation along with the set that is their domain. In the sets, I illustrate the variables employed throughout this dissertation to range over things of that type.

Worlds and situations are assumed to be the same type: situations are parts of worlds at a particular time and location, while worlds are maximal situations (e.g. Kratzer 2020). I assume eventualities are a special

[16]This is not meant to imply that an item cannot be both contextually provided and represented in the syntax, but only that it is sometimes convenient to represent items that are contextually provided as parameters of interpretation rather than having overt syntactic presence.

Table 1.2: Semantic types

	Type	Set
Truth value	t	{0,1}
Worlds and situations	s	$\{w, w', w'', w'''...s', s'', s''', ...\}$
Time intervals	i	$\{t, t', t'', t''', ...\}$
Individuals	e	$\{x, y, z, ...\}$
Eventualities	l	$\{e, e', e'', e''', ...\}$

type of minimal situation that contains nothing beyond what is necessary to the eventuality; they nevertheless have their own type for the purposes of logical representation since they cannot be used interchangeably with worlds and situations due to their special status. Times are assumed to be intervals, rather than moments. I will assume times can stand in the relations shown in Table 1.3 (the table is based on Mucha 2015: 9).

Table 1.3: Temporal relations

Relation	Reads
$t_1 < t_2$	t_1 precedes t_2
$t_1 > t_2$	t_1 follows t_2
$t_1 \circ t_2$	t_1 overlaps t_2
$t_1 \subseteq t_2$	t_1 is included in t_2
$t_1 \subset t_2$	t_1 is properly included in t_2

Situations can also stand in overlap and inclusion relations, but not purely precedence relations since they also involve a spatial dimension. I adopt a *temporal trace function* τ that maps a situation or event to its temporal runtime or dimension (following e.g., Link 1998; Krifka 1989, 1998). While precedence relations cannot hold between events or situations, they can hold between the *temporal traces* of events or situations:

(33) $\tau(e_1) < \tau(e_2)$
Reads: the temporal trace of e_1 precedes the temporal trace of e_2

Following Reichenbach (1947); Klein (1994: et seq.), I assume tense to be a relation between the *utterance time* (UT) and the time the proposition is about, the *reference time* (RT). I assume aspectual relations to encode relations between the *event time* (ET) and the reference time. This is illustrated in (34). In (34a), the tense is past, encoded as the reference time preceding the utterance time. The aspect is perfective, meaning that the event occurs within the reference time interval (yesterday). In (34b), the RT is the UT (now). The aspect is progressive, meaning that the reference time interval is included in the ET: the event is ongoing at the reference time.[17]

(34) a. She skated yesterday.
Tense: RT < UT
Aspect: ET $\subseteq$ RT

[17]This is a simplification of the semantics of the progressive (see e.g., (Dowty 1979) for an analysis of the progressive involving modal semantics), but is sufficient for my purposes in this dissertation since I am not focusing directly on aspect. I give this denotation to the ʔayʔaǰuθəm progressive in Section 1.11.2.

b. She is skating now.
Tense: RT = UT
Aspect: RT ⊆ ET

I will introduce the ʔayʔaǰuθəm tense and aspect system in Section 1.11.

While I have provided brief background on temporal semantics here, modality is introduced in Chapter 5. Modality is given its own introduction as it figures prominently throughout Part II of this dissertation and the components of analysis require a more lengthy introduction.

1.10.3.2 Useful semantic terms

In addition to the formal semantic ingredients introduced in the preceding section, there are also a number of semantic terms that will be important to reading this dissertation. I lay out some commonly used terms for reference here.

A *proposition* is the semantic content of a sentence and may be true or false. The truth or falsity of a proposition will be relative to the world it is evaluated in. Propositions are therefore modelled as functions from worlds to truth values.

(35) a. Sentence: Freddie is home.

b. Denotation: λw. Freddie is home in w

The term *prejacent proposition* refers to the proposition that a semantic operator applies to; this term is sometimes shortened to just 'the prejacent'. For instance, the prejacent proposition of the modal *might* in (36) is the proposition *Freddie is home*.

(36) Freddie **might** be home.

Might applies to its prejacent proposition to create the modal claim that it is possible that Freddie is home.

The *scope* of a semantic operator is the part of the formula on which it performs its characteristic action (Szabolcsi 2011: 1605-6). A semantic operator X is *in the scope* of a semantic operator Y when X operates before Y. Given the compositional semantics adopted here, the scope of an operator should be, by hypothesis, its c-command domain in the syntax.Or, its c-command domain at LF, if LF movement occurs post-syntactically. I will not be examining any cases of LF movement in this dissertation.

I also frequently make a distinction between different types of semantic content. The primary distinction is between *at-issue* and *not-at-issue* content. *At-issue* content is the 'main point' of an utterance. It can be felicitously challenged with 'that's not true' and negated. *Not-at-issue* content refers to aspects of meaning conveyed by the utterance that are not the main point and cannot be negated or felicitously challenged with 'that's not true.' There are multiple types of not-at-issue content (e.g. Stalnaker 1973; Potts 2005; Tonhauser et al. 2013). Commonly distinguished subtypes include *presuppositions* and *conventional implicatures*, which are encoded as part of the meaning of the utterance, and *conversational implicatures* (often referred to simply as 'implicatures'), which are not directly encoded as part of the meaning of the utterance; instead, conversational implicatures arise through the use of the utterance in the context of the conversation.

A presupposition places a pre-condition on the contexts in which the utterance is felicitous. For instance, English *the* presupposes a unique individual matching the description of the noun phrase (see e.g., Heim and

Kratzer 1998). A phrase like *Please pass me the cup* is *felicitous* (i.e., appropriate to the context) if there is a single cup on the counter near the addressee, but is *infelicitous* (i.e., not appropriate to the context) if the discourse participants are looking at multiple cups in a dishwasher. It is also infelicitous if there is no cup in the context. If an utterance's presuppositions are not met, the utterance will lack a truth value.

Conventional implicatures provide new information, rather than placing preconditions on the context, and also differ from presuppositions in being independent from the at-issue contribution of the utterance (Potts 2005): the truth value of the conventional implicature does not affect the truth value of the at-issue contribution. Classic conventional implicatures are appositive relative clauses: *My cousin, who(m) I've always looked up to, just got engaged.*

Conversational implicatures arise through assumptions about what constitutes cooperative speech (Grice 1975). Scalar implicatures are a common subtype. Utterances such as *I have two dogs* standardly imply that I do not have three dogs; if I did have three (or more) dogs, I should have said so. These implicatures arise because speakers are assumed to use the most informative and relevant item on a scale – in this case a scale of numbers – not leaving out information that is relevant, like owning another dog.

Presuppositions and conventional implicatures also differ from (conversational) implicatures in that the latter are cancellable whereas the former two types are entailments of the utterance. Presuppositions and conventional implicatures also project – their contribution is not affected by higher semantic operators such as negation.

1.11 ʔayʔaǰuθəm tense and aspect

In this section, I provide an overview of ʔayʔaǰuθəm tense and aspect, which will be especially relevant to Chapters 6–8. I begin with a brief introduction to ʔayʔaǰuθəm tense (Section 1.11.1) and then discuss three major aspectual categories: perfective, progressive, and stative (Section 1.11.2). Finally, I provide formal analyses of these aspects (Section 1.11.3).

1.11.1 ʔayʔaǰuθəm tense

Propositions with a present reference time do not have an overt marker of tense (37) and propositions with a past reference time also often lack an overt marker of tense (38a). There is an optional past tense suffix *-oł* /-uɬ/, which is used to unambiguously refer to a past reference time (38b).[18]

(37) *Context: Someone calls and wants to talk to Daniel, but he is not awake yet. I tell them:*

qəǰi ʔot	ʎ̓ic̓t	Daniel.
qəǰi=ʔut	ʎ̓<i>c̓t	Daniel
still=EXCL	fall.asleep<STAT>	Daniel

'Daniel is still sleeping.' (vf | EP.2021/02/19)

[18] See Bochnak 2016 for discussion of an optional past tense marker in Washo.

(38) a. tawθəs hɛs Piš mʊkʷtoɬ ǰɛnxʷs.
taw-θ-as hiɬ=s Piš məkʷ-t-uɬ ǰanxʷ-s
tell-CTR;1SG.OBJ-3ERG COP=3POSS Piš eat-CTR-PST fish-3POSS
'He **told** me that Piš ate his fish.' (vf | JF.2018/07/24)

b. tawθas**oɬ** ġaġa?os skʷiǰoɬ.
taw-θ-as-**uɬ** ġaġa-?-uɬ=s skʷiǰuɬ.
tell-1SG.OBJ-PST hungry-EPEN-PST=3POSS morning
'She **told** me she was really hungry this morning.' (vf | JF.2019/03/18)

Following Matthewson (2006) on St'át'imcets, I analyze the ?ay?aǰuθəm tense system as consisting of a null non-future tense. I assume that the null tense in ?ay?aǰuθəm can be represented as in (39). It is pronomimal, involving a free variable over times which is restricted by a non-future presupposition. In (39), the non-future tense bears a temporal index i which is interpreted by the contextually provided assignment function g. The definedness condition prevents the time $g(i)$ from following the utterance time t_0.

(39) $[\![\text{NON-FUT}_i]\!]^{g,c} = g(i)$; defined only if no part of $g(i)$ is after t_0 (Matthewson 2006: 680)

Unlike the present and past, the future is always overtly marked. This is shown in (40) and (41); the (a) examples without (*s*)*əm* cannot receive a future interpretation, but the (b) examples with (*s*)*əm* can.[19,20]

(40) *Context: I'm making a plan for dinner since someone gave me a fish.*

a. #c̓ɛχatč tə ǰɛnxʷ snanat.
c̓əx̌-at=č tə=ǰanxʷ s=nanat
cook-CTR=1SG.SBJ DET=fish NMLZ=evening
'I'll cook the fish tonight.'

b. c̓ɛχattᶿ**əm** tə ǰɛnxʷ snanat.
c̓əx̌-at=tᶿ=**əm** tə=ǰanxʷ s=nanat
cook-CTR=1SG.SBJ=FUT DET=fish NMLZ=evening
'I'll cook the fish tonight.' (Huijsmans and Mellesmoen 2021b: 106)

(41) *Context: We are at an event together and you ask me what I'll do when I go home:*

a. tamsəm kʷʊθ yɛθot tiṅ kʷʊtayɪtən?
tam=səm kʷ=θ=ya-θut tiṅ kʷətayitən
what=FUT DET=2SG.POSS=do-CTR.REFL DEM afternoon
'What are you going to do this afternoon?'

To which I reply:

[19]There are a few principled exceptions, which will be discussed in Chapter 8.

[20]The infelicitous examples in (40a) and (41bi) would be felicitous if said as the agent is initiating the action described by the prejacent. See Huijsmans and Mellesmoen (2021b) and Chapter 8, Section 8.4.1 for further discussion.

bi. #šuʔotč tətᶿ kʷaʔamnač.
šəẇ-ut=č tə=tᶿ=kʷaʔamnač
sort-CTR=1SG.SBJ DET=1SG.POSS=root
'I'm gonna sort my roots.'

bii. šuʔottᶿ**əm** tətᶿ kʷaʔamnač.
šəẇ-ut=tᶿ=**əm** tə=tᶿ=kʷaʔamnač
sort-CTR=1SG.SBJ=FUT DET=1SG.POSS=root
'I'm gonna sort my roots.' (Huijsmans and Mellesmoen 2021b: 106)

I provide an analysis of the future in Chapter 8.

1.11.2 ʔayʔaǰuθəm aspect

1.11.2.1 Basic aspectual distinctions

The aspectual categories that will be important for this dissertation are perfective, progressive, and stative aspect. The perfective is null (as elsewhere in Salish, see e.g. Matthewson 2006), while the progressive is marked by reduplication of the first consonant, plus the first vowel for strong roots, i.e., roots with a full (non-schwa) vowel.[21]

(42) **Strong root**

a. *Perfective*
Context: We're bird watching, and I see a heron take off and fly away. I tell you:
łukʷ̓ kʷa šɛ paḷ̓.
łukʷ̓-∅=kʷa šə=paḷ̓
fly-PFV=CLD heron
'A heron flew off.' (vf | EP.2022/08/20)

b. *Progressive*
Context: We're bird watching, and I see a heron flying. I tell you:
kʷ̓ʊt gi! **łu**łukʷ̓ tə paḷ̓
kʷ̓ə[n]-t=gi **łu**∼łukʷ̓ tə=paḷ̓
look-CTR=DPRT PROG∼fly DET=heron
'Look! There's a heron flying.' (sf | EP.2022/08/20)

(43) **Weak root**

a. *Perfective*
qʷoḷ̓ c̓ɛ səm c̓ɩł.
qʷəḷ̓=c̓a=səm c̓əł-∅
come=INFER=FUT rain-PFV
'I guess it's going to rain.' (vf | EP&FL.2018/04/08)

[21] See Kroeber (1988: 109), Blake (2000: 254–257), Watanabe (2003: 391–395) for discussion, under the label 'imperfective'.

b. *Progressive*

Context: I think I hear raindrops outside.

c̓ɪc̓ɬ c̓ɛ	ʔasq
c̓ə∼čɬ=c̓a	ʔasq
PROG∼rain=INFER	outside

'It must be raining outside' (vf | JF.2018/08/31)

There is more than one type of stative in ʔayʔaǰuθəm, including both predicates lexically specified as stative and derived statives. In this dissertation, when discussing stative aspect, I will focus on one type of derived state, resultative statives. This is for convenience, as it is the only type of stative whose semantics have been previously investigated in any depth (see H. Davis et al. 2020b).

The resultative stative has a variety of allomorphs: a suffix *-ít*, an infix *-í-*, or pitch accent ´, conditioned by the shape of the stem with which it combines. See Watanabe (2003: 410) and Mellesmoen and Huijsmans (2019b) for further discussion.[22]

(44) a. *Context: We were hoping to get to the store before it closed, but when we arrived, it had already been closed for 10 min.:*

yɛqawšt	ʔi	təq**ít**.
yaqaw=št	ʔiy	təq-**ít**
late=1PL.SBJ	CONJ	get.closed-STAT

'We're late, and it's closed.' (vf | EP.2022/08/20)

b. *Context: I see a friend about to sit on a chair with a broken leg. I tell her:*

xʷačxʷ	kʷanačɪmɛtaxʷ!	λ̓əp**é**xʷ	tan̓	θukʷnačtən.
xʷaʔ=čxʷ	kʷanač-əm-mi-t=axʷ	λ̓əp<**í**>xʷ	tan̓	θəkʷnačtən
NEG=2SG.SBJ	sit-MD-REL-CTR=2SG.SBJV	get.broken<STAT>	DEM	chair

'Don't sit on it! That chair is broken.' (vf | EP.2022/08/20)

c. *Context: Picture of a man pushing on the wall of a shed that's being built to keep it in place.*

ǰu:θótəs	tə laplaš.
ǰuθ-út-əs	tə=laplaš
push-CTR\STAT-3ERG	DET=plank

'He's holding the board in place (by pushing on it).' (vf | EP.2020/07/07)

1.11.2.2 Interpretation of basic aspects

Stative and progressive eventive predicates are interpreted as ongoing at the reference time. This is shown with a present reference time in (45)–(46).

[22]Primary stress is predictably on the initial syllable of a word and so is not marked. I mark the lexically specified pitch accent associated with the stative with the acute accent ´. Secondary stress assignment is complex, though following a roughly trochaic pattern (see Blake 2000: 168-178 and Watanabe 2003: 21–29), and is not marked in the orthography or the NAPA lines.

(45) **Stative predicates**

a. gəq̓**ét** šukʷayɛ. təqɛpatčxʷ.
gəq̓-**ít** šukʷa-aya. təq-ipa[n]-at=čxʷ
open-STAT sugar-container close-lid-CTR=2SG.OBJ
'The sugar container is open. Put a lid on it.' (vf | JF.2018/11/01)

b. təq**ét** məmk̓eyustən sčɛʔɛt.
təq-**ít** məmk̓ayustən s=čaʔat
close-STAT window NMLZ=now
'The window is closed now.' (vf | JF.2018/05/25)

(46) **Progressive predicates**

a. k̓ʷʊt gi Betty. **č̓ɪč̓χatəs** ǰɛnxʷ.
k̓ʷə[n]-t=gi Betty **č̓ə∼č̓x̌-at-as** ǰanxʷ
see-CTR=PRT Betty PROG∼cook-CTR-3ERG fish
'Look at Betty. She's cooking fish.' (sf | JF.2018/04/03)

b. *Context: Pointing out a guy pushing out a boat, when walking on the beach with a child.*
k̓ʷʊt gi tita. **ǰuǰuθotəs** tə nuxʷis.
k̓ʷə[n]-t=gi tita. **ǰu∼ǰuθutas** tə=nəxʷiɬ-s.
see-CTR=PRT DEM PROG∼push-CTR-3ERG DET=canoe-3POSS
'Look at that guy. He's pushing his boat.' (vf | JF.2018/04/20)

c. *Context: Talking about the consultant's cat.*
k̓ʷʊt gi Patlɪk. **ʔɛʔɛɬtən**.
k̓ʷə[n]-t=gi Patlik. **ʔi∼ʔiɬtən**.
see-CTR=PRT Patrick PROG∼eat
'Look at Patrick. He's eating.' (vf | JF.2018/05/01)

While the default reference time for statives and progressives is present, stative and progressive predicates unmarked for tense may also be interpreted as occurring in the past with sufficient contextual cues, often when embedded in a larger conversation or narrative about a past time. This is shown for statives in (47) and progressives in (48).

(47) **Statives**

a. *Context: From a traditional story about a girl who has puppy children.*
ʔi χʷɛt k̓ʷa ʔit ʔuk̓ʷ ƛ̓oɬ**ét** qʷoḷ.
ʔiy x̌ʷit=k̓ʷa=ʔəyt ʔuk̓ʷ ƛ̓uɬ-**ít** qʷəḷ
CONJ really=RPT=DPRT all grow.up-STAT come
'And so they were all grown up.' (EP.2020/07/14)

b. *Context: From a narrative about the speaker's childhood.*

hɛɬ tə nɛʔs tə *fishbox* ʔəms **kʷakʷyít**.
hiɬ tə=niʔ-s tə=*fishbox* ʔəms=**kʷa∼kʷy-ít**
be DET=be.there-3SG.POSS DET=fishbox 1PL.POSS=PL∼hide-STAT
'It was in the fish box that we were hidden.' (vf | PD.2019/01/25)

(48) **Progressives**

a. *Context: Gloria tells me that she heard that her brother won bingo, but I was there and I know that it was Freddie who won.*

tatawθayɪm [ʔə] Gloria skʼʷa λ̓ʊxʷʔəm šɛ ʔayišs
ta∼taw-θay-əm [ʔə=]Gloria s=kʼʷa=λ̓əxʷ-ʔəm šə=ʔayiš-s
PROG∼tell-CTR.1SG.OBJ-PASS [OBL=]Gloria 3POSS=RPT=beat-ACT.INTR DET=brother-3POSS

ʔəkʷ bingo ʔi toχʷnɛxʷč hɛɬ Freddie λ̓ʊxʷʔaʔmoɬ.
ʔə=kʷ=bingo ʔi təx̌ʷ-n<i>xʷ=č hiɬ Freddie λ̓əxʷ-ʔəm-uɬ
OBL=DET=bingo CONJ know-NCTR<STAT>=1SG.SBJ be Freddie beat-ACT.INTR-PST
'Gloria was telling me that her brother won at bingo, but I know that Freddie won.'
(vf | EP.2018/10/18)

b. **t̓ᶿət̓ᶿχʷtəs** tə *car*s skʷiǰoɬ ʔi hɛwtəm sč̓ɪɬʔos.
t̓ᶿə∼t̓ᶿx̌ʷ-t-as tə=*car*-s skʷiǰuɬ ʔi hiwt-əm s=č̓əɬ-uɬ-s
PROG∼wash-CTR-3ERG DET=car-3POSS this.morning CONJ ahead-MD NMLZ=rain-PST-3POSS
'He was washing his car this morning before it rained. (vf | PD.2019/04/10)

Unlike progressive and stative predicates, perfective eventive predicates cannot be interpreted as ongoing at the utterance time, as shown in (49).

(49) a. qʷagi kʼʷʊnɛ́təs Betty. #**č̓ɛχətəs** ǰɛnxʷ.
qʷa=gi kʼʷən-í-t-as Betty #**č̓əx̌-at-as** ǰanxʷ
come=PRT see-STAT-CTR-3ERG Betty cook-CTR-3ERG fish
'Come see Betty. She's cooking fish.'
Consultant: *č̓əx̌atas* is already cooked. (sf | JF.2019)

b. *Context: Pointing out a guy pushing out a boat when talking to a kid at the beach.*

kʼʷʊt gi tita. #**ǰuθotəs** tə nuxʷɛɬs.
kʼʷə-t=gi təỷta #**ǰuθ-ut-as** tə=nəxʷiɬ-s
see-CTR=PRT DEM push-CTR-3ERG DET=canoe-3POSS
'Look at that guy. He's pushing his boat.' (sf | JF.2019)

c. *Context: Talking about the consultant's cat.*

kʼʷʊt gi Patlɪk. #**ʔɛɬtən**.
kʼʷə-t=gi Patlik #**ʔiɬtən**
see-CTR=PRT Patrick eat
'Look at Patrick. He's eating.' (sf | JF.2019)

ʔayʔaǰuθəm perfectives also cannot be interpreted as habituals, unlike in English: habituals must be explicitly marked with an auxiliary *taʔat*.

(50) a. *Context: Explaining someone's habits to a friend who is trying to contact him.*

qəǰimot kʷi ʔi #(**taʔat**) θo ṗaṗem.
qəǰi-mut kʷəǰ ʔiy #(**taʔat**) θu ṗaṗ-im
still-INT early CONJ HAB go work-MD
'He goes to work early.' (vf | EP.2020/12/18)

b. *Context: I'm tell you about my habits.*

hoy ʔot ʔəł ǰɛʔɛməs tᶿ #(**taʔat**) waχwaχ.
huy=ʔut ʔəł=ǰaʔam=as tᶿ=#(**taʔat**) waǰwaǰ
finish=EXCL COMP=sometimes=3SUBJ 1SG.POSS=HAB smoke
'I only smoke once in a while.' (vf | EP.2021/02/19)

Instead, perfectives must be interpreted as preceding the utterance time, as shown in (51) (unless they co-occur with the future *səm*, discussed in Chapter 8).[23]

(51) a. *Context: I had a big roast and I could have frozen some of it, but I decided to cook it all.*

ʔukʷ ʔot **c̓ɛχətən**.
ʔukʷ=ʔut **c̓əǰ-at-an**
all=EXCL cook-CTR-1SG.ERG
'I cooked it all.' (vf | EP.2019/02/19)

b. *Context: From a story where children outwit the wild man of the woods t̓al who captured them.*

ǰuƛ̓mɛtɛw k̓ʷa ʔi **ǰuθotəs**.
ǰəƛ̓-mi-t-iw=k̓ʷa ʔiy **ǰuθ-ut-as**
run-REL-CTR-PL=RPT CONJ push-CTR-3ERG
'They ran towards him and pushed him. (vf | EP.2020/06/16)

c. **łaq̓atəm** [ʔə] Gloria Marianne hos hɛwt ʔi čɛt **ʔɛłtən**.
łaq̓-at-əm [ʔə=]Gloria Marianne hu=s hiwt ʔiy ča ʔat **ʔiłtən**.
wait-CTR-PASS Gloria Marianne go=3POSS home CONJ then eat
'Gloria waited for Marianne to get home and then ate. (vf | JF.2019/06/18)

The lack of ongoing readings at the utterance time for perfective eventive predicates in ʔayʔaǰuθəm is parallel to the behaviour of perfective eventive predicates in English; this phenomenon is known as the Bennett and Partee Effect (Bennett and Partee 1978). The basic idea behind the analysis of this behaviour is that

[23] Perfective activities and non-culminating accomplishments (transitives taking the control transitivizer) frequently occur with the past tense suffix *ʔoł* /*ʔuł*/ for past interpretations, though they need not, especially when embedded in a larger conversation or narrative that sets up a past reference time, as seen in (51). Predicates that entail culmination (bare roots and transitives taking the noncontrol transitivizer) occur with the past tense suffix much less frequently. See Huijsmans and Mellesmoen (2021a,b) for further discussion of aspectual classes in ʔayʔaǰuθəm and Bar-el et al. (2005) on non-culminating accomplishments in St'át'imcets and Sḵwx̱wú7mesh.

perfective predicates place the event as a whole within the reference time. However, the utterance time is a fleeting interval more or less coinciding with the utterance itself. If the reference time is the utterance time, it will therefore be generally too small to contain a whole event. As a result an event described by a perfective predicate in ʔayʔaǰuθəm must precede the utterance time (or occur in the future if in combination with the future clitic *səm*).[24]

1.11.3 Formal analysis of perfective, progressive, and stative aspect

I analyze the perfective as encoding that the temporal trace of the event e takes place within the reference time t. (52) reads: there is an event matching the description of the predicate P in w that takes place within the temporal interval t.

(52) $[\![PFV]\!] = \lambda P.\lambda t.\lambda w.\exists e[P(e)(w) \wedge \tau(e) \subseteq t]$

For the progressive, I will adopt a simplified semantics where it encodes only that the event e is ongoing throughout the reference time t; the semantics of the progressive likely involves modal semantics (e.g. Dowty 1979), but this will not be important here. (53) reads: there is an event e matching the description of the predicate P in w such that the temporal trace of e contains the reference time t.

(53) $[\![PROG]\!] = \lambda P.\lambda t.\lambda w.\exists e[P(e)(w) \wedge t \subseteq \tau(e)]$

Following H. Davis et al. (2020b), I adopt a target state semantics for the resultative stative, following Kratzer (2000). This stative morpheme combines with a predicate that has both an event argument e and a target state argument e', existentially closing the event argument so that the result is a predicate of states (as in Kratzer 2000). For simplicity, I assume that this stative is associated with imperfectivity so that the target state e' is then claimed to hold throughout the reference time interval t. (54) reads: there is an eventuality e' and an eventuality e, such that P describes a transition from e to e' in w and the temporal trace of the target eventuality e' contains the reference time t.

(54) $[\![STAT]\!] = \lambda P.\lambda t.\lambda w.\exists e'.\exists e[P(e)(e')(w) \wedge t \subseteq \tau(e')]$

1.12 Overview

This dissertation has three major parts. Part I will especially be of interest to syntacticians and morphologists, while Parts II-III will be of interest to semanticists. For those interested in the documentation of the language, the examples will be of interest throughout, as well as the introduction of the puzzles and more informal characterizations of the solutions found in introductions, conclusions and summary sections. Readers who are not interested in formal linguistic analyses will likely want to skip sections including the label 'formal analysis' in the title, as well as the sections introducing formal apparatus.

[24] This is not the case in St'át'imcets, however, where perfective eventive predicates *can* be interpreted as ongoing at the utterance time (Matthewson 2006); this is also true for perfective activities in Sḵwx̱wú7mesh (Bar-el 2005). How to capture this difference between the languages, which have similar tense and aspect systems, remains to be seen. One possibility is that ʔayʔaǰuθəm has two null tenses: a null instantaneous present and a null past, while St'át'imcets and Sḵwx̱wú7mesh have only a null non-future tense. Reis Silva and Matthewson (2007) propose that Blackfoot has a null instantaneous present to account for similar facts, for instance, in addition to a null past. They contrast Blackfoot with St'át'imcets which has a null-nonfuture and does not restrict a present reference time to an instantaneous interval. This is a matter for future research.

Part I discusses the morphosyntax of the 2PCs. Chapter 2 establishes the syntactic representation of the clitics and relates this to their linear position. In this chapter, I argue that the clitics occur above the verb phrase in the syntax and that their linear position does not match their syntax. I develop a model where the 2PCs are linearized relative to their host in the morphology, with encliticization driven by a morphological enclitic feature. In Chapter 3, I show how the morphological model of clitic placement proposed, paired with a two-step model of lexical insertion, captures a range of allomorphy facts that could not be captured under a phonological account of clitic placement without giving up important assumptions about modularity. Finally, in Chapter 4, I examine the subject agreement clitics, proposing formal mechanisms for subject agreement and developing a solution for a puzzle involving subject agreement in coordinate structures.

Part II discusses the semantic contribution of modal and evidential 2PCs. Chapter 5 provides background on the theoretical apparatus I will use in analyzing modality. In Chapter 6, I examine the inferential and reportative clitics and argue that these are epistemic modals, providing evidence to support the position that the categories of evidentiality and epistemic modality overlap. In Chapter 7, I introduce a new category: the clausal demonstratives, which encode spatio-temporal deictic and evidential relations that interact with aspect and relate to events. In Chapter 8, I examine the use of the future clitic for inferences about past and present eventualities and propose an analysis where the future is a modal which places a presupposition on the timing of the evidence for the modal claim. Finally, in Chapter 9, I examine the contribution of two homophonous clitics *qał*, arguing that one is a circumstantial modal with past temporal perspective, while the other is licensed by negation and is a quantifier over times.

Part III discusses the remaining clitics, which are all discourse-sensitive items. Chapter 10 discusses the scalar exclusive clitic, especially in combination with the universal quantifier. I argue that it contributes domain widening in these cases and extend the analysis to account for the similar collocation *just every* in English. Finally, in Chapter 11, I provide preliminary analyses for the discourse particles that belong to the 2PC string.

Part I

Syntax and morphology

Introduction to Part I

Part I of this dissertation is concerned with the syntax of the 2PC string and how the syntactic structure of the clitic string relates to its linear position in the clause.

In Chapter 2, I lay out a model for a morphological account of clitic placement. I argue that the 2PCs occupy a series of heads in the upper part of the clause and that the linear order of the clitics within the 2PC string reflects asymmetric c-command. I also argue that the linear order between the 2PCs and their host is not directly derived in the syntax: it is derived post-syntactically at the point of linearization in the morphology.

Chapter 3 provides additional support for this conclusion, drawing on allomorphy involving the 2PCs. I show that the 2PCs and their host must be adjacent within the morphological component preceding allomorph selection in order to derive a range of allomorphy facts. I show how these facts can be accounted for with a two-step model of lexical insertion where linearization occurs between the two stages.

In Chapter 4, I propose an analysis of the subject clitics as agreement markers. The analysis of subject agreement proposed in this chapter is used to provide an explanation for a puzzle regarding subject agreement clitics in coordinate structures that arises in Chapter 2.

Chapter 2

The morphosyntax of 2PCs

2.1 Introduction

The purpose of this chapter is to provide an account of how 'second position' placement of the 2PCs is derived in ʔayʔaǰuθəm. I first show that the clitics c-command the verb phrase, including the predicate, its arguments, and any pre-predicate auxiliaries. While default linearization would have the clitics preceding the verb phrase, they instead occur in 'second-position': the 2PCs follow the initial element of the predicate complex, either the predicate or a pre-predicate auxiliary. This is illustrated with the subject agreement clitic and the future clitic in (55) (repeated from (2)).

(55) a. *Main predicate*

gayɛt**tᶿəm**	Gloria	sqʷoḷs səm	təs.
gay-at=**tᶿ=əm**	Gloria	s=qʷəḷ=s=səm	təs
ask-CTR=1SG.SBJ=FUT	Gloria	NMLZ=come=3POSS=FUT	arrive

'I'll ask Gloria when she arrives.' (vf | JF.2018/10/09)

b. *Auxiliary*

ho**tᶿəm**	gayɛt	[ga] χanaθəs	ṭɛn.
hu=**tᶿ=əm**	gay-at	[ga=]x̌an-aθ=as	ṭin
go=1SG.SBJ=FUT	ask-CTR	[COMP=]give-CTR;1SG.OBJ=3SBJV	bbq'd.fish

'I'll go ask her to give me some barbecued fish. (vf | EP.2018/11/17)

It is apparent from the literature on second-position clitics that similar mismatches between syntactic structure and expected linearization are found both in other Salish languages and crosslinguistically. For languages from the Salish language family, see: Jelinek (1996) on Xwlemi'chosen (Lummi), Davis (2013) on St'át'imcets (Lillooet), Gerdts and Werle (2014) on huḷq̓uminṁum̓ (Island Halkomelem), Huijsmans (2015) on SENĆOŦEN (Saanich), Lyon and Czaykowska-Higgins (2020) on Nxaʔamxčín (Moses-Columbian). The cross-linguistic literature is especially rich for Serbo-Croatian: see e.g., Halpern (1992), Schütze (1994), Radanović-Kocić (1996), Progovac (1996), Embick and Izvorski (1998), and Bošković (2001),[1] but also includes discussion of

[1] Gerdts and Werle (2014), Progovac (1996), and Bošković (2001) among these references propose that the linear position of the clitics is expected from the syntax, rather than arguing that, at least in some cases, there is a mismatch between the two.

many other languages: Roberts (2000) on Pashto, Chung (2003) on Chamorro, Legate (2008) on Warlpiri, and Kaufman (2010) on Tagalog, for instance, among many others.

I argue that 2PC placement in ʔayʔaǰuθəm takes place in the *morphology*. I propose a morphological enclitic feature encoded in the lexical entries of 2PCs. This feature causes successive encliticization of the clitics to each other, forming a morphological constituent: a *clitic string*, followed by encliticization of the clitic string to the closest available host in the *span* of heads consituting the spine of the clause. I show that this novel model of 2PC placement correctly predicts: 1) the sensitivity of the clitics to syntactic hierarchy in determining a suitable host; 2) the clitics' ability to interrupt syntactic constituents; 3) the behaviour of the clitic string as a unit; and 4) the fact that encliticization feeds allomorph selection. I support each of these points with data from coordination and allomorphy, highlighting coordination as a test for the syntactic position of 2PCs where other tests for constituency are not applicable. I show that attempting to derive 2PC placement in the syntax or phonology would lead to problematic predictions unless important assumptions about the grammatical architecture are abandoned. This chapter therefore points to the importance of morphology as a post-syntactic module in the organization of the grammar.

2.2 Outline of the chapter

I lay out the structure of the model I am assuming in Section 2.3. In Section 2.4, I argue for a syntactic representation of the clitics whereby they occupy a series of heads in the upper part of the clause, using novel data from coordination. I also argue against a syntactic or phonological account of clitic placement. Then, in Section 2.5, I lay out my morphological account and show how it correctly predicts the behaviour of the clitics in coordinate structures. Finally, in Section 2.6, I discuss evidence for the clitic string as a unit and discuss how this supports the architecture of the model developed in this chapter.

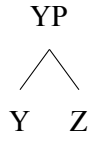
2.3 Architecture

2.3.1 Syntax and spell-out

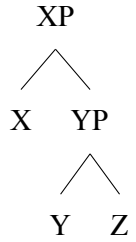
As previewed in Chapter 1, Section 1.10.1, I assume a Minimalist model of syntax where syntactic structure is built through Merge, which joins two elements into a new branching element. The label of one of these elements will project to the phrasal level. This creates hierarchical binary branching trees. For instance, three items X, Y, and Z in (56a) are merged in (56b-c): first Y and Z merge and the label of Y projects to create a phrasal unit labelled YP, then X and YP merge and X projects to create a phrasal unit labelled XP.

(56) a. X, Y, Z

b. Merge, step 1



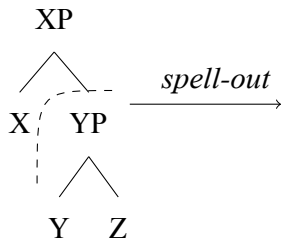
c. Merge, step 2



I assume a model where the syntax manipulates abstract morphosyntactic feature bundles without phono-

logical content, as in Distributed Morphology (e.g. Halle and Marantz 1993); this assumption is also adopted by others such as Svenonius (2012) and Bye and Svenonius (2012), whose model of lexical insertion I build on here. The syntactic derivation takes place in intervals called *phases*. Upon completion of a phase, the derivation undergoes *spell-out* where it is transferred to the interfaces with phonology (PF = phonological form) and semantics (LF = logical form). At spell-out, the phase is associated with phonological content and interpreted by the semantics.

(57)



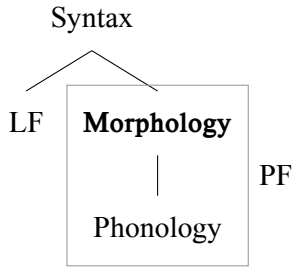
Following the spell-out of a phase, only the phase edge – the outermost head in the phase – is visible to the next stages of the derivation; in (57), this would be the head Y, while Z would no longer be visible.

In my analysis, I treat the V/*v*P/VoiceP complex as a phase: I assume that the predicate is spelled out prior to the derivation of the upper phase, where the heads occupied by the clitics are found. The morphosyntactic features of the outermost head of the predicate complex remain visible during the derivation of the upper phase. I also assume CP to be a phase, although this figures less prominently in what follows.

2.3.2 A morphological component

I assume a *morphological component* that occurs at the interface between the syntax and the phonology. The morphological component is the point at which items in the tree are associated with phonological content and linear order is read off of the syntactic tree. Purely phonological processes occur after this stage.

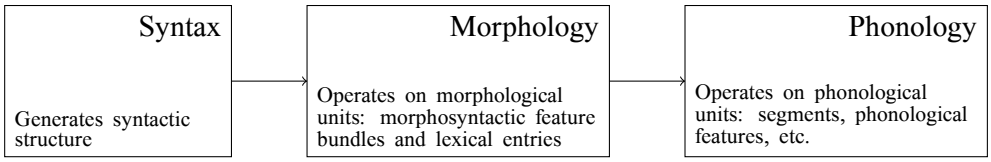
(58)



I adopt a modular model of morphology and phonology, as advocated in e.g., Bermúdez-Otero (2012). In this model, the morphology makes reference to morphosyntactic information such as the features of individual syntactic nodes and lexical entries but cannot manipulate phonological representations such as segments or prosodic units.[2] In contrast, the phonology operates on purely phonological information such as segmental and prosodic units but cannot make reference to information that is not phonetically interpretable such as the morphosyntactic features of individual morphemes.

[2] Allomorph selection does take place in the morphology: the choice between different phonological representations of a morpheme is a morphological operation, but the morphology cannot alter these representations.

(59)



The role of morphology in this model is to associate the syntactic structure with the exponents that are the input to the phonological derivation. Linearization is a morphological operation that occurs during the process of providing exponence to the output of the syntax.

2.3.2.1 Linearization

Following Svenonius (2012), I assume that the domain of morphology is the *span*: complement sequences of heads. Complement sequences of heads are linearized such that a c-commanding head precedes its complement. For the tree in (57), the linear order of the first phase would be as in (60a) and the linear order of the whole as in (60b);[3] where Y > Z represents the linear relationship such that Y precedes Z.[4]

(60) a. Y > Z

b. X > Y > Z

2.3.2.2 Lexical insertion

Following Bye and Svenonius (2012) and Svenonius (2012), I refer to the association of lexical entries with the syntactic structure as *lexical insertion*. *Lexical entries* are pairings of morphosyntactic features with phonological content. For instance, (61) has the phonological content /z/ associating with the feature bundle [A, B].

(61) $[\textsc{a}, \textsc{b}] \iff$ /z/

Following Bye and Svenonius (2010) and Svenonius (2012), I adopt a two-step model of lexical insertion. In the first step, *L-match*, lexical entries are associated with terminal nodes based on matching features. In the second step, *Insert*, the phonological content of lexical entries is associated with the structure. I propose that linearization takes place between the two steps. Insert is therefore sensitive to linear order, unlike L-match. Both L-Match and Insert proceed from the most embedded head up and are governed by the Elsewhere Principle: more specified forms are chosen over more general ones where both are compatible with the environment.

L-match associates lexical entries with syntactic terminal nodes based on match between the morphosyntactic features of a lexical entry and the morphosyntactic features of a syntactic terminal node. Where more than one lexical entry matches the features of a syntactic terminal node, L-match will favour the most highly specified lexical entry whose features stand in a subset relation with the features on this syntactic node (e.g.

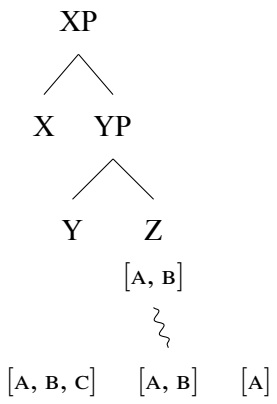
[3] Where the Mirror Principle applies for series of suffixes (Baker 1985), the opposite linearization applies: a c-commanding head follows its complement. In this dissertation I set aside the word domain to focus only on the linearization of clitics. For analyses of the suffixal domain and how to derive the Mirror Principle, see e.g., Baker (1985); Brody (2000); Svenonius (2012). I also will not examine the linearization of phrases in this dissertation, focussing only on the linearization of heads in spans.

[4] The symbol > should not be interpreted as meaning 'greater than' here. Note that I also use this symbol for temporal precedence relations later in this dissertation (and where I introduce temporal precedence relations in Section 1.10.3.1).

Halle and Marantz 1993); that is, L-match associates to the terminal node the lexical entry whose feature set matches all of the features of the terminal node, or a larger subset than any other available lexical entry, without containing any features that do not match the features of the terminal node.[5]

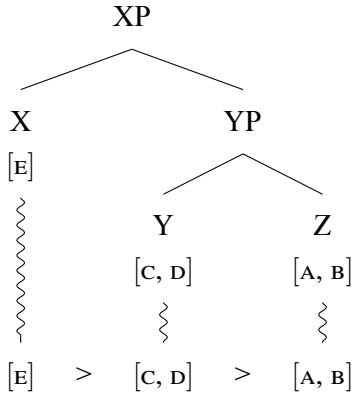
L-match is illustrated in (62). If syntactic head Z has the feature set [A, B], for instance, a lexical entry such as (61) will match this head. A lexical entry with features [A, B, C] will not match, because [C] is not a feature on Z. A lexical entry with feature [A] could match, but (61) is chosen since it matches more features; Match is represented with a squiggly line, following Bye and Svenonius (2012) and Svenonius (2012).

(62)



Once the terminal nodes in a phase are matched with lexical entries, a linear order is established between them.

(63)

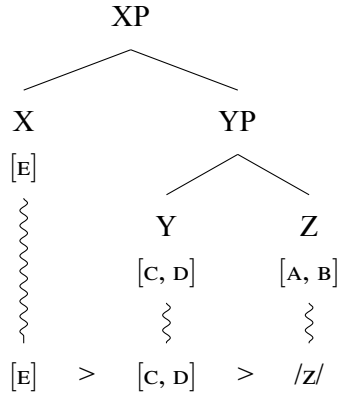


The second step of lexical insertion, Insert, follows linearization (64a) and is the point at which phonological content is associated with the derivation. For (63), first the phonological content of (61) is associated with the most embedded syntactic head Z, as in (64).[6]

[5] In this, I depart slightly from Svenonius (2012) who proposes that all lexical entries with feature sets that stand in a subset relation with the feature bundle on the syntactic terminal node are matched, even if one is a subset of the other; the choice between them occurs later in the derivation. On the other hand, Bye and Svenonius (2012) adopt the 'best-fit' type of competition between forms found here. They also discuss how competition involving portmanteaus – which can associate with a series of heads in a span – is resolved. I will not discuss such cases here as I will not be analyzing any portmanteau forms in this dissertation.

[6] I do not assume that hierarchical information is immediately erased as linear precedence is established. Rather, linear precedence is read off of the hierarchical structure at the first stage of lexical insertion: both hierarchical relationships and their linear mappings are available. As phonological content is added at the second stage of lexical insertion, syntactic structure is replaced by prosodic structure and syntactic hierarchical information becomes unavailable. This incremental process allows the mapping to prosody to be sensitive to constituency (largely read off the syntax, but in some cases disrupted by morphological operations), since constituency determines the order of insertion for phonological content.

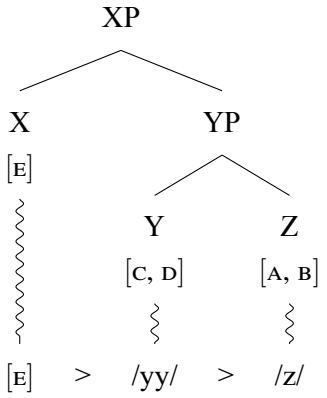
(64)



If a lexical entry has multiple allomorphs, this is the stage at which allomorph selection occurs. If (65a) is the lexical entry matched for Y, for instance, and has a special allomorph preceding phonological content /z/, this allomorph will be inserted, as in (65b).

(65) a. $[\text{C}, \text{D}] \Longleftrightarrow \left\{ \begin{array}{l} \text{/y/} \\ \text{/yy/} \quad / \quad ___\text{/z/} \end{array} \right\}$

b.



Only the phonological properties of an adjacent item that has already been inserted can play a role in conditioning the allomorphy for another item. This type of conditioning can therefore only play a role in one direction given the assumption that Insert starts from the most embedded item.

Allomorph selection can also be sensitive to the morphosyntactic features of adjacent lexical entries. For instance, a lexical entry like (66) would also result in the allomorph /yy/ being inserted at Y.

(66) $[\text{C}, \text{D}] \Longleftrightarrow \left\{ \begin{array}{l} \text{/y/} \\ \text{/yy/} \quad / \quad ___[\text{A}, \text{B}\,] \end{array} \right\}$

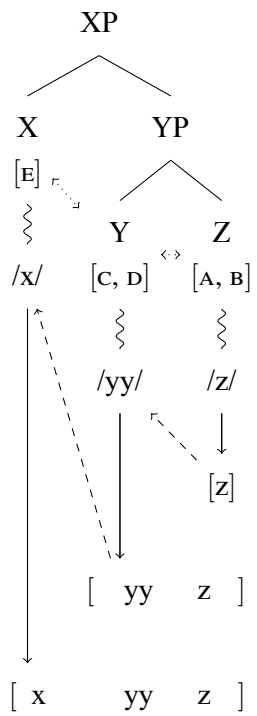
It is also possible for both types of conditioning environments to play a role at the same time, as in (67). Here, the phonological environment adjacent to the right and the morphosyntactic environment adjacent to the left condition the choice of the /yy/ allomorph.

(67) $[\text{C}, \text{D}] \Longleftrightarrow \left\{ \begin{array}{l} \text{/y/} \\ \text{/yy/} \quad / \quad [\text{E}\,]___/z/ \end{array} \right\}$

As the phonological content of lexical entries is inserted, the derivation cycles through the phonology cyclically. Since the phonology does not refer to morphosyntactic features, these will disappear as the derivation enters the phonology. I assume that only the outermost lexical entry in the derivation associated with phonological content will still be associated with morphosyntactic features. This means that while the morphosyntactic features matched with Z are visible at the point when /yy/ is inserted, they will not be visible after this point.

The model developed here makes predictions concerning what aspects of the derivation will be available at each step. This is schematized in (68). Prior to Stage 2 lexical insertion no phonological content is visible for any node. Once phonological content is inserted (schematized with the squiggly lines), the lexical item enters the phonological derivation (schematized with plain arrows), which is built cyclically and visible at the interface only to the immediately adjacent lexical item (schematized with dashed arrows). Throughout lexical insertion, the local morphosyntactic environment is visible: that is, the immediately adjacent head on either side of the target item in the span (schematized with dotted arrows). No morphosyntactic information beyond this is available.[7]

(68)



2.3.3 Preview of clitic placement

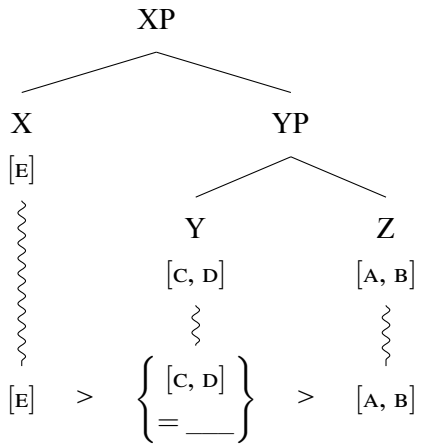
In the model I developed above, linearization is calculated on the feature bundles of lexical entries matched in the first stage of lexical insertion. While post-syntactic, linearization therefore precedes the association of nodes with phonological content. I propose that there are purely morphological features stored in lexical entries that can play a role during linearization. Specifically, I propose an *enclitic feature* that causes a lexical entry to rebracket leftward.

[7] Thank you to Gunnar Hansson for helping me visualize the model in this way.

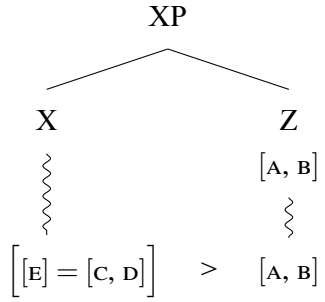
(69) $[\text{C, D}] \Longleftrightarrow \left\{ \begin{array}{c} /y/ \\ = ___ \end{array} \right\}$

By default, this rebracketing will target the next highest head in the span without disrupting linear order, but it will target the closest lower head in the span if there is no higher head. For instance, if the lexical entry matched to Y in (70a) has an enclitic feature, then following L-Match, the lexical entry matched at Y rebrackets with the lexical entry in X, creating a morphological unit with these two lexical entries (70b).[8] Following L-Match, syntactic heads are not treated as distinct from associated lexical entries. When Y encliticizes to X, no Y head is left behind and since YP exists only as a projection of Y, it disappears.

(70) a.

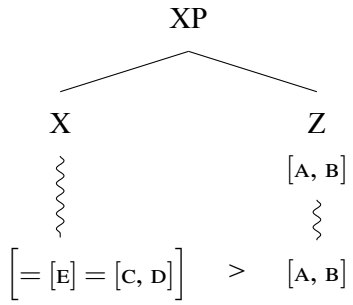


b.



This creates a morphological unit that does not directly reflect syntactic constituency. If the lexical entry inserted at the c-commanding head X also bears a clitic feature, the result of encliticization is a *clitic string*, as in (71).

(71)



[8] By rebracketing, I mean that the bracketing that is the output of the syntactic derivation is altered to produce updated bracketing reflecting the morphological process of encliticization.

If there is no higher head in the span, encliticization forces leftward rebracketing with the closest *lower* head in the span. For our schema in (71), this is the lexical entry in Z:

(72) $\Big[[\textsc{a}, \textsc{b}]= [\textsc{e}] = [\textsc{c}, \textsc{d}]\Big]$

Having encliticization driven by a lexical feature visible prior to the phonological content of the item is a departure from Distributed Morphology, where such processes are handled by rules, which may or may not be sensitive to the lexical specifications of individual items (see e.g., Embick and Noyer 2001).[9] It is also a departure from the model of Bye and Svenonius (2012), who aim to do away with a morphological component (apart from lexical insertion), instead handling linearization as part of the syntax and exceptions to default linearization in the phonology. In the following sections, I will show that the behaviour of the clitics is not reducible to syntax or phonology and must be specified as part of their lexical entries. Since this involves a morphological, rather than a syntactic or phonological specification, encliticization is modelled as a morphological process. In subsequent sections, I show that this model predicts both the ways in which 2PC placement in ʔayʔaǰuθəm is sensitive to syntactic structure and the fact that it can ignore syntactic constituency. In the following chapter (Chapter 3), I show that this model correctly predicts that linearization of the clitics feeds allomorph selection at the second stage of lexical insertion.

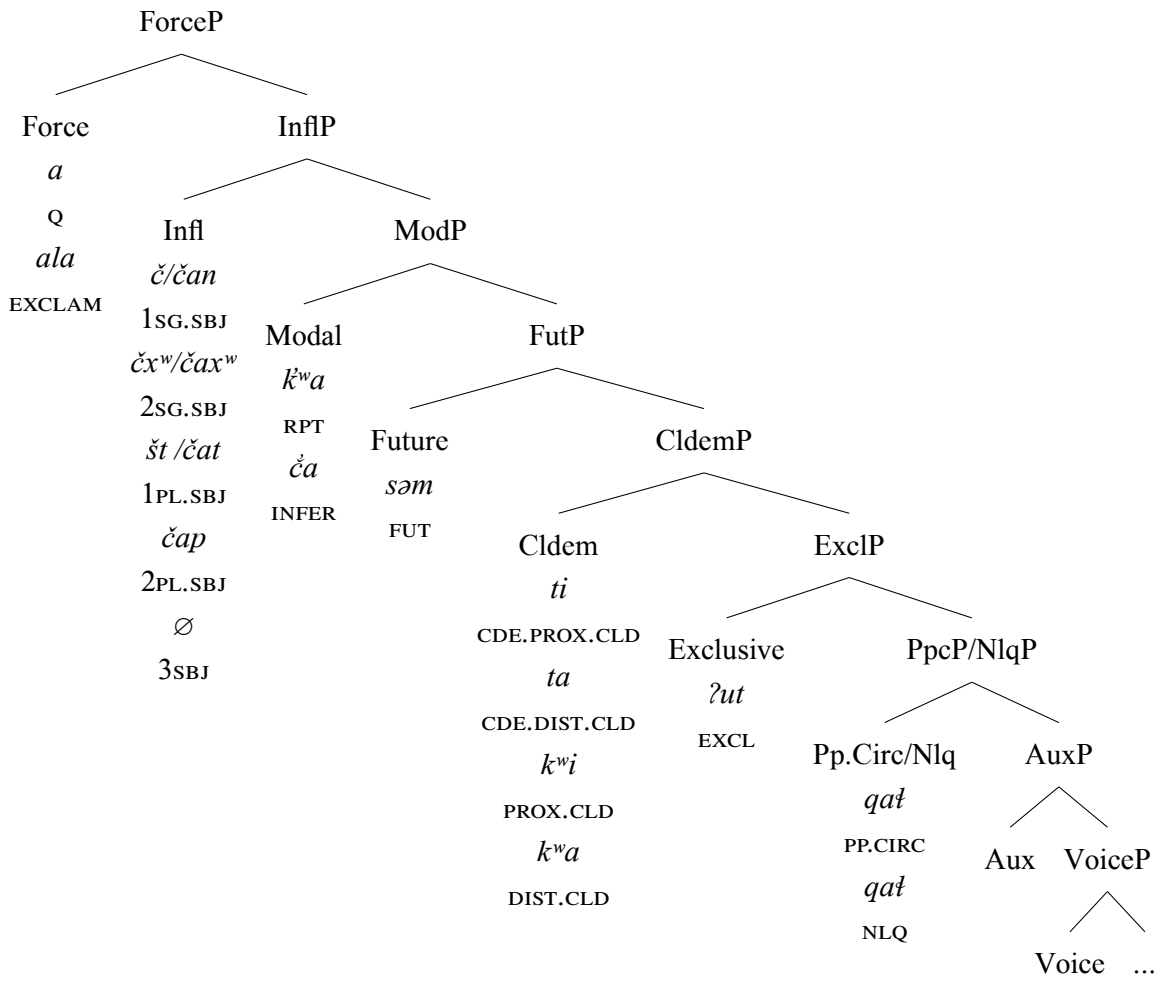
2.4 Syntax of the 2PCs

The purpose of this section is to motivate the syntactic representation of the clitics shown in (73). I argue that the clitics occupy a series of heads in the upper part of the clause and c-command the verb phrase (here the VoiceP constituent) in the syntax.[10]

[9] Lowering, for instance, takes place prior to Vocabulary insertion (here, lexical insertion) and so prior to association of information carried by the lexical entry. Nevertheless, since encliticization is sensitive to hierarchical structure, Lowering would be the closest operation in Distributed Morphology to what is required for clitic placement in ʔayʔaǰuθəm.

[10] In subjunctive and nominalized subordinate clauses, Infl is occupied by subjunctive or possessive subject agreement clitics respectively, but these other subject agreement paradigms are not included in the tree in (73) for ease of exposition.

(73) **Syntax of 2PCs in ʔayʔaǰuθəm**



There are several aspects of this representation that need empirical motivation: 1) the representation of the clitics as heads; 2) the position of the clitics above the verb phrase and associated auxiliaries; 3) the position of the clitics relative to each other. I begin by presenting some basic linear and co-occurrence facts about the clitics (Section 2.4.1) and then discuss the syntactic evidence for their position within the clause (Section 2.4.2), as well as syntactic and semantic motivation for their hierarchical arrangement within the clitic string (Section 2.4.3).

2.4.1 Basic ordering and co-occurrence facts

The clitics are rigidly ordered relative to each other and can be divided into substitution classes according to their position and function, as in Table 2.1 (repeated from Table 1.1).[11]

Clitics from the same column cannot co-occur, but clitics from different columns can co-occur (except in a few cases of semantic incompatibility, such as between direct and indirect evidentials). The clitics are all monomorphemic, though contractions can occur between clitics (contractions are represented with + in the morpheme and gloss lines). The position of the discourse particle *χʷot* /*x̌ʷət*/ in the table is tentative since I

[11] As in the tree in (73), subjunctive and possessive subject agreement clitics are excluded for ease of exposition.

Table 2.1: Linear order of ʔayʔaǰuθəm 2PCs

Force		Subject		EpstMod		Fut		ClDem		Other							
a	'Q'	č	'1SG.SBJ'	c̆a	'INFER'	səm/saʔ	'FUT'	ti	'CLD'	ga	'DPRT'	ʔut	'EXCL'	qał	'PP.CIRC'	ʔəyt	'DPRT'
ala	'EXCLAM'	čxʷ	'2SG.SBJ'	k̓ʷa	'RPT'			ta	'CLD'	gi	'DPRT'			qał	'NLQ'	x̆ʷət	'DPRT'
		št	'1PL.SBJ'					kʷi	'CLD'								
		čap	'2PL.SBJ'					kʷa	'CLD'								
		∅	'3SBJ'														

have not yet been able to elicit or find it co-occurring with the circumstantial modal or negation-licensed *qał* (two homophonous morphemes) or the discourse particle *ʔit* /ʔəyt/.

The co-occurrence restrictions that hold between clitics of the same position class are illustrated with the inferential *c̆ɛ* /c̆a/ and reportative *k̓ʷa* in (74), and the clausal demonstratives in (75).[12]

(74) a. ho **k̓ʷa** səm.
hu=**k̓ʷa**=səm
go=RPT=FUT
'They say he'll go.' (sf | EP.2019/11)

b. ho **c̆ɛ** səm.
hu=**c̆a**=səm
go=INFER=FUT
'I guess he'll go.' (sf | EP.2019/11)

c. *ho **c̆ɛ k̓ʷa** səm.
hu=**c̆a**=**k̓ʷa**=səm
ho=INFER=RPT=FUT
Intended: 'I'm guessing they said he would go.' (sf | EP.2019/11)

d. *ho **k̓ʷa c̆ɛ** səm.
hu=**k̓ʷa**=**c̆a**=səm
ho=RPT=INFER=FUT
Intended: 'They said they thought he would go.' (sf | EP.2019/11)

(75) a. **kʷi** c̆ɛχ
kʷi=c̆əx̆
CLD=get.ripe
'They've gotten ripe.' (vf | EP.2021/04/09)

b. **ti** c̆ɛχ tə čɩtʊxʷən.
ti=c̆əx̆ tə=čətəxʷən
CLD=get.ripe DET=blackberries
'The blackberries have gotten ripe.' (vf | EP.2021/08/27)

[12]See Section 2.6.2 for discussion of pre-predicative clitics.

c. ***tikʷi** c̓ɛχ
ti=kʷi=c̓əx̌
CLD=CLD=get.ripe
'They've gotten ripe.' (sf | EP.2021/08/27)

d. ***kʷiti** c̓ɛχ
kʷi=ti=c̓əx̌
CLD=CLD=get.ripe
'They've gotten ripe.' (sf | EP.2021/08/27)

Clitics occupying different positions frequently co-occur: it is common to have two to three 2PCs in a clause ((76)–(77)) and strings of four or five are possible, as seen in (78)–(80).[13]

(76) xʷaʔ **ʔot qəɬ** hoǰəs tᶿ pɩču.
xʷaʔ=**ʔut=qəɬ** huǰ=as tᶿ=pəču
NEG=EXCL=IRR finish=3SBJV 1SG.POSS=basket
'My basket is just not quite done.' (vf/st | EP.2021/07/30)

(77) *Context: I missed the news, but I know that you listened to the news.*
c̓ɩɬ**a k̓ʷa səm** snatʔ
c̓əɬ=**a=k̓ʷa=səm** snat
rain=Q=RPT=FUT tonight
'Is it going to rain tonight (according to the report)?' (vf | PD.2018/11/08)

(78) hɛ **c̓ɛ saʔ ga hit** kʷ λ̓oχʷay ʔəms ɬaʔq̓əm.
hiɬ=**c̓a=saʔ=ga=ʔəyt** kʷ=λ̓əx̌ʷay ʔə=ms=ɬaʔq̓-əm
COP=INFER=FUT=DPRT=DPRT DET=dog.salmong CLF.PRT=1PL.POSS=wait-MD
'I guess we'll just have to wait for the dog salmon.' (Watanabe 2003: 527)

(79) ho**tᶿa gut** qəmɛθɛ.
hu=**tᶿ=a=ga+ʔut** qəm-iθi
go=1SG.SBJ=FUT=DPRT+EXCL accompany-CTR;2SG.OBJ
'I guess I'll go with you.' (vf | EP.2019/02/21)

[13]The future often has the form *əm* in combination with the first and second person subject clitics; see Chapter 3, Section 3.3.3 for discussion. It also has a special allomorph *saʔ* in combination with the discourse particle *ga*. Between a first person subject clitic and *ga*, the future is *a*(*ʔ*).

(80) θo**č č̓ε sa? gut**.

θu=**č**=**č̓a**=**sa?**=**ga**+**?ut**

go=1SG.SBJ=INFER=FUT=DPRT+EXCL

'Yeah, I guess I'll go.' (sf/vt | EP.2021/07/16)

If we assume a direct correspondence between linear order and hierarchical organization, the surface distribution of the clitics suggests that the clitics realize a series of syntactic heads in a fixed hierarchy and that clitics belonging to a substitution class compete for insertion at the same head. We turn next to syntactic evidence that this characterization is correct.

2.4.2 2PCs c-command the verb phrase

The set of clitics includes elements that are crosslinguistically typically associated with functional projections in the clausal spine above the extended verb phrase, such as markers of force, modals, and discourse particles. Syntactic evidence from coordination shows that the clitics do indeed occur above the verb phrase.

Coordination is a useful test for syntactic height, since any item above a coordination site will c-command both conjuncts, while any item below the coordination site will c-command only material within the same conjunct. In (81), for instance, the modal *will* c-commands both conjoined verb phrases, taking scope over both conjuncts and placing both the stealing and burying events in the future. In contrast, the direct object DP *the treasure* in the first conjunct cannot be interpreted in both conjuncts (81b). Unlike *will*, *the treasure* is embedded in the first conjunct and so takes scope only within this conjunct.

(81) a. I **will** [$_{VoiceP}$ [$_{VoiceP}$ steal the treasure] [and [$_{VoiceP}$ bury it]]].

b. *I will [$_{VoiceP}$ [$_{VoiceP}$ steal **the treasure**] [and [$_{VoiceP}$ bury]]].

Coordination is one of the few tests that can be used to diagnose clitic consituency, since other commonly applied tests such as movement and ellipsis are not applicable. Despite its utility in diagnosing clitic height, coordination is not generally used in this way in the literature on the syntax of clitics (but see Davis 2000b; Davis and Huijsmans 2021; Despić 2017).[14] Instead, coordination has primarily been used to show that 2PCs can interrupt syntactic constituents (e.g. Schütze 1994: 33). One of the contributions of this section is to highlight coordination as a potential test for establishing where clitics originate in the syntactic structure.

Applying the coordination test to 2PCs in ʔayʔaǰuθəm, we find that single clitics can take scope over multiple verb phrase conjuncts. This is shown for the question (*a*), future (*səm*), inferential (*č̓ε* /č̓a/), and reportative (*k̓ʷa*) clitics in (82). In each of these cases, a clitic appears only in the first conjunct, but is interpreted as scoping over both. The scope facts are particularly clear for the question clitic *a*, which turns the whole coordinated structure into a question (82a), and for the future clitic *səm*, which places both conjuncts in the future (82b).[15] With the inferential *č̓ε* /č̓a/, both conjuncts contribute content that is inferred (82c), while with the reportative *k̓ʷa*, both conjuncts contribute content that is known through report (82d).

[14]Kayne (1994: 62) discusses the fact that a single object clitic cannot take scope over two conjoined verbs, although he is not directly concerned with clitic constituency.

[15]One of my consultants does not accept the future scoping over multiple conjuncts but has accepted the inferential scoping over multiple conjuncts. It is not yet clear why this would be.

(82) a. *Context: I'm managing a decision-making process, and the parties involved need to talk and make a decision. I want to make sure that they're moving forward on it. I ask them:*

ḋaṫᶿaθot**a**čɛp səm ʔi qʷɛqʷaystawɬčɛp səm?
ḋaṫᶿ-aθut=**a**=čap=səm ʔiy qʷi∼qʷay-st-awɬ=čap=səm
gather-CTR;REFL=Q=2PL.SBJ=FUT CONJ PROG∼talk-CAUS-RECP=2PL.SBJ=FUT
'Are you all going to get together and are you going to have a conversation?' (sf | EP.2020/10/23)

b. ḋaṫᶿaθot **ḳʷa səm** ʔi wuwʊm.
ḋaṫᶿ-aθut=**ḳʷa=səm** ʔiy wuw-əm.
gather-REFL=RPT=FUT CONJ sing-MD
'I heard they will gather together and will sing.' (vf | EP.2019/08/26)

c. *Context: I was going to borrow a CD from Freddie. He came when I was not home and left it in a bag on my door knob. When I get home I think:*

qʷaʔloɬ **c̓ɛ** Freddie ʔi ɬawʔəmθəs ʔə tə CD.
qʷəḷ-uɬ=**c̓a** Freddie ʔiy ɬaw-ʔəm-θ-as ʔə=tə=CD
come-PST-INFER Freddie CONJ leave-IND-3ERG OBL=DET=CD
'Freddie must have come and must have left the CD for me.' (sf | EP.2021/02/13)

d. *Context: We're expecting Daniel on the 3pm ferry. At 3:15 he phones and tells me that he didn't make the ferry because he was running late.*

yɛqaw **ḳʷa** ʔi xʷaʔ ʔowuɬʔitəs.
yaqaw=**ḳʷa** ʔiy xʷaʔ ʔuwuɬ-ʔəyt=as
late=RPT CONJ NEG get.onboard-PRF=3SBJV
'He said he was late and (said) he didn't get on.' (sf | EP.2020/12/18)

These cases each involve a single c-commanding clitic with scope over both conjuncts. I argue in Section 2.4.2.1 that these facts cannot be explained as involving ellipsis of an identical clitic in the second conjunct.

With respect to the interpretation of (82b), it is important to note that future temporal reference must be overtly marked with *səm*. This is the case even where a temporal adverb places the eventuality described by the prejacent clearly in the future, as shown in (83)–(84) (see Matthewson 2006 on St'át'imcets and Section 8.4.1 for more in-depth discussion).

(83) a. **c̓ɛχəttᶿəm** tə ǰɛnxʷ tiṅ nanat.
c̓əx̌-at=tᶿ=**əm** tə=ǰanxʷ tiṅ nanat
cook-CTR=1SG.SBJ=FUT DET=fish DEM evening
'I'm going to cook the fish tonight.' (sf | EP.2021/06/19)

b. hoǰuxʷ ḳʷa **səm** kʷisəm.
huǰəxʷ=ḳʷa=**səm** kʷisəm.
finish-NCTR=RPT tomorrow
'She'll finish it tomorrow.' (vf | JF.2019/06/07)

(84) a. #c̓̌εχətč tə ǰɛnxʷ tiṅ nanat.
c̓̌əx̌-at=č tə=ǰanxʷ tiṅ nanat
cook-CTR=1SG.SBJ DET=fish DEM evening
Intended: 'I'm going to cook the fish tonight.' (sf | EP.2021/06/19)

b. #hoǰuxʷ k̓ʷa kʷisəm.
huǰ-əxʷ[-as]=k̓ʷa kʷisəm.
finish-NCTR-3ERG=RPT tomorrow
Intended: 'She'll finish it tomorrow.' (sf | JF.2019/06/07)

The single future clitic in (82b) must therefore take scope over both conjuncts in order for both to be interpreted in the future.

All of the clitics in (82) exhibit behaviour consistent with a syntactic position c-commanding the site of coordination: [clitic [XP & XP]]. Of course, this conclusion assumes that the clitics cannot take scope over material that is not in their c-command domain. This assumption seems to be empirically justified: clitics cannot scope over multiple sentences while appearing in just one, for instance, as illustrated by (85).

(85) *Context: Freddie has been away in New Westminster. This morning I saw his car in the driveway. Then I say:*
ʔamot **c̓̌ε** Freddie. #(**c̓̌ε**) kʷa qʷol̓ χəpi tawa kʷins pala.
ʔamut=**c̓̌a** Freddie #(**c̓̌a**)=kʷa=qʷəl̓ x̌əpəy tawa kʷins pala
be.home=INFER Freddie INFER=CLD=come return from kʷins pala
'Freddie must be home. He must have returned from New Westminster. (sf | BW&EP.2020/06)

Here, Freddie's being home is inferred rather than known directly. His return home must therefore also be inferred. In this case, it is obligatory to have the inferential in both sentences – the inferential in the first sentence cannot take scope over the second.

I conclude, then, that the clitics can only be interpreted as scoping over constituents that they c-command. They cannot be interpreted in a separate sentence following the sentence they appear in because they do not c-command the second sentence. In contrast, they may take scope over verb phrase conjuncts within the same clause since they c-command the conjuncts. This puts them at least above the level of the verb phrase in the syntax, consistent with an analysis where they are base-generated in the upper part of the clause.

2.4.2.1 Against an ellipsis account

Before proceeding with the analysis, I address a potential alternative account of the coordination facts above in terms of ellipsis. Examining the distribution of the Serbian future auxiliary, a 2PC, in coordinate structures, Despić (2017) argues that the clitic can be interpreted in both conjuncts but only surface in one because clitic elision occurs in a non-initial conjunct. According to an analysis along these lines, the examples in (82) would involve coordination of two full CPs with the projections hosting the clitics occurring in both conjuncts. Elision of the clitic in the second conjunct would derive the surface string. This is schematized in (86).

(86) [$_{CP}$ ... clitic... [& [$_{CP}$ ...~~clitic~~...]]]

While Despić provides convincing evidence that this analysis is appropriate for the Serbian facts, it is not a tenable explanation for the ʔayʔaǰuθəm facts.[16] Crucial counter-evidence comes from the fact that the height of coordination affects whether a single clitic can take scope over multiple conjuncts. I illustrate this using the future clitic, which is obligatory for future reference, as discussed above, and thus has a clear truth-conditional effect on any clause it takes scope over. There is an asymmetry in the ability of the future to take scope over multiple conjuncts, depending on the size of the conjunct. A single future clitic can take scope over multiple conjuncts with the same subject but different objects in each conjunct, as shown in (87).[17] In this case, the coordination is verb phrase coordination and the future morpheme occurs above the coordination site.

(87) č̓əyk̓ɛʔəm**tᶿəm** [ʔə]kʷ maq̓ʷt̓ᶿ ʔi t̓ᶿačixʷʔəm**č** [ʔə]kʷ mɛʔɛn
č̓əyk̓-aʔam=**tᶿ**=**əm** [ʔə=]kʷ=maq̓ʷt̓ᶿ ʔiy t̓ᶿ<a>č><i>xʷ-ʔəm=**č** [ʔə=]kʷ=miʔin
fry-ACT.INTR=1SG.SBJ=FUT [OBL=]DET=onion CONJ chop<PL>-ACT.INTR=1SG.SBJ [OBL=]DET=carrot
'I'm going to fry the onions and cut up the carrots.' (sf | EP.2021/01/22)

The future can also take scope over two verb phrase conjuncts sharing a single DP subject:

(88) *Context: We're planning an event. I contacted Drew about drumming and singing at the event and he agreed, so now I'm telling you:*
q̓agatɛχ **k̓ʷa səm** Drew ʔi wuwʊm.
q̓agatiǐx=**k̓ʷa**=**səm** Drew ʔiy wuw-əm
drum=RPT=FUT Drew CONJ sing-MD
'Drew is going to drum and sing.' (sf | EP.2021/01/29)

In contrast, if the two conjuncts have mismatching subjects, the future clitic must occur in each conjunct for both to be interpreted in the future. This is illustrated with mismatching pronominal subjects in (89) (I mark the null third person subject clitic for clarity), and independent DP subjects in (90).[18]

(89) *Context: We're going to get together and someone is going to demonstrate weaving.*

a. q̓atᶿɛnxʷegəs**štəm** ʔi χop̓ɛʔɛč **səm**.
q̓at̓ᶿ-ənxʷigas=**št**=**əm** ʔiy x̌up̓iʔič=∅=**səm**
gather-NCTR.RECP=1PL.SBJ=FUT CONJ weave=3SBJ=FUT
'We're going to get together and she will weave.'

b. #q̓atᶿɛnxʷegəs**štəm** ʔi χop̓ɛʔɛč.
q̓at̓ᶿ-ənxʷigas=**št**=**əm** ʔiy x̌up̓iʔič=∅
gather-NCTR.RECP=1PL.SBJ=FUT CONJ weave=3SBJ
'We're going to get together and she will weave.'

[16]Despić's account also cannot be used to explain parallel facts in St'át'imcets, as argued in Davis and Huijsmans 2021.

[17]The verbs in (87) are morphosyntactically intransitive (taking the active intransitive suffix *-ʔəm* with allomorph *-ɛʔam* /*-aʔam*/); the object is introduced by an oblique particle. This is typical for verbs where the object is nonspecific (Watanabe 2003: 188), as is often the case in clauses with future reference. The oblique object is part of the verb phrase so these are still examples of verb phrase coordination.

[18]The second conjunct in (89b) and (90b) does not easily receive an interpretation in the past or present. Activity predicates such as these generally appear with the past tense suffix when occurring in the past unless prior context has already established a past reference time. They must appear with progressive morphology in order to be interpreted in the present (as discussed in Section 1.11).

(90) *Context: We're planning an event. You arranged with Drew and Sosan that they would come.*

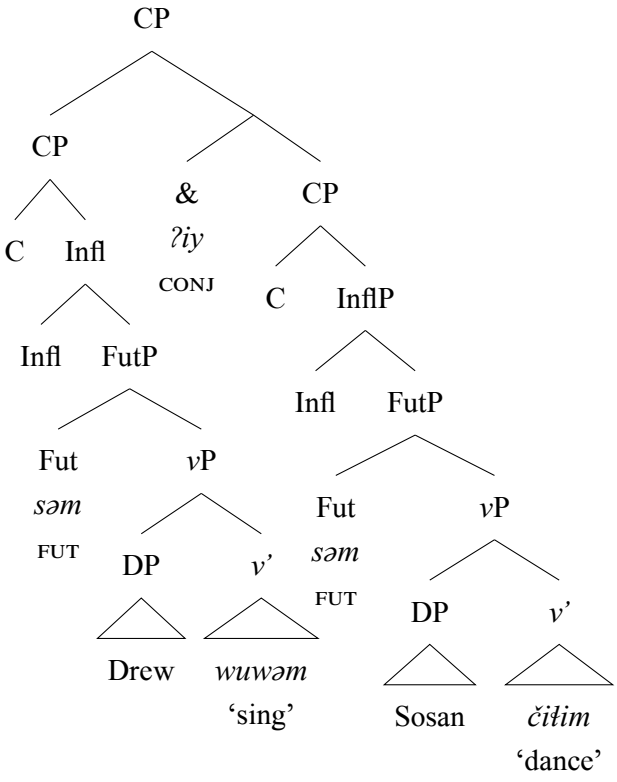
a. wuwʊm **səm** Drew ʔi čiɬɛm **səm** Sosan.
wuw-əm=**səm** Drew ʔiy čiɬ-im=**səm** Sosan
sing-MD=FUT Drew CONJ dance-MD=FUT Sosan
'Drew is going to sing and Sosan is going to dance.' (Davis and Huijsmans 2021)

b. #wuwʊm **səm** Drew ʔi čiɬɛm Sosan.
wuw-əm=**səm** Drew ʔiy čiɬ-im Sosan
sing-MD=FUT Drew CONJ dance-MD Sosan
'Drew is going to sing and Sosan is going to dance.' (Davis and Huijsmans 2021)

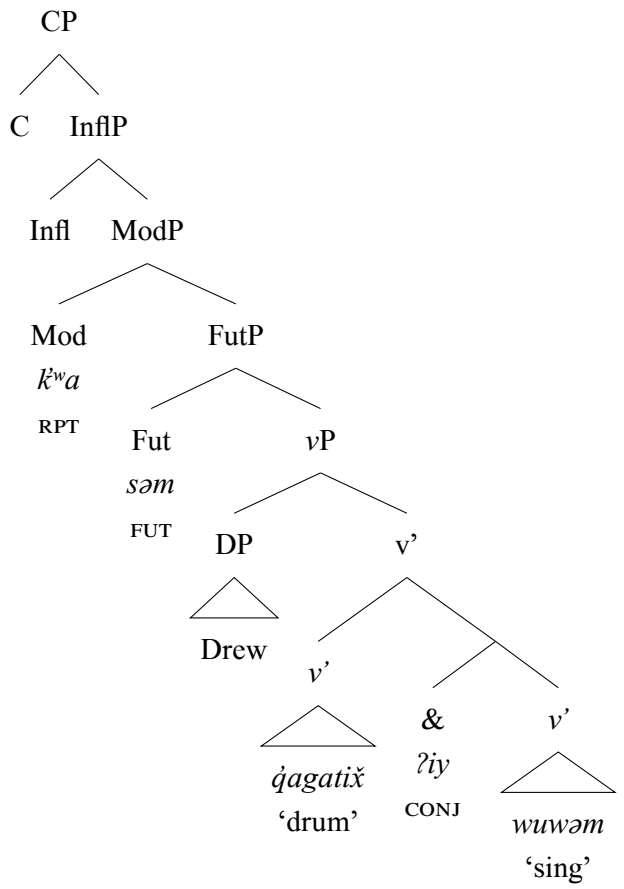
The presence of different subjects in each conjunct, as in (89) and (90), means that the conjoined constituents are larger than [verb + object] conjuncts, as in (87). The simplest explanation of the ability of the future clitic to take scope over conjoined [verb + object] constituents, but not conjoined [verb + subject] constituents, is one where the presence of the subject in each conjunct forces a higher coordination: each [verb + subject] conjunct also contains the projection for the future clitic (Davis and Huijsmans 2021). I propose that this higher coordination is at least as big as InflP, since I will argue in Chapter 4 that each subject DP needs to enter into an agreement relationship with a separate Infl.

I therefore propose that a coordinate structure with mismatched subject DPs, such as (90a), has the structure in (91a), while coordination of verbs phrases sharing a single subject has the structure in (91b).

(91) a. **Clausal coordination**



b. **Verb phrase coordination**



Under an ellipsis account we would have no explanation for the asymmetry between coordinated verb phrases, which can scope under a single future clitic, and larger coordinations containing subject arguments, which cannot: in all of these cases we would analyze the coordination as clausal coordination and the absence of the future on any conjunct as due to ellipsis. There would be no reason for subject-object asymmetries in the interpretation of a missing future marker.

There are also asymmetries within the clitic string that are predicted by an account that relies on clitic height, but not by an ellipsis account. For example, the question clitic can scope over two conjuncts containing the future, turning the whole structure into a question, as shown in (92a), repeated from (82a) above. In contrast, a future clitic cannot scope over two conjuncts containing the question clitic, placing the reference time for both conjoined questions into the future, as shown in (92b).

(92) *Context: I'm managing a decision-making process and the parties involved need to talk and make a decision. I want to make sure that they're moving forward on it. I ask them:*

a. q̓aṯᶿaθota**č**εp **səm** ʔi qʷεqʷaystawɬčεp **səm**?
q̓aṯᶿ-aθut=**a**=čap=**səm** ʔiy qʷi∼qʷay-st-awɬ=čap=**səm**
gather-CTR;REFL=Q=2PL.SBJ=FUT CONJ PROG∼talk-CAUS-RECP=2PL.SBJ=FUT
'Are you all going to get together and are you going to have a conversation?'

b. #q̓aṯᶿaθota**č**εp **səm** ʔi qʷεqʷaystawɬ**a**čεp?

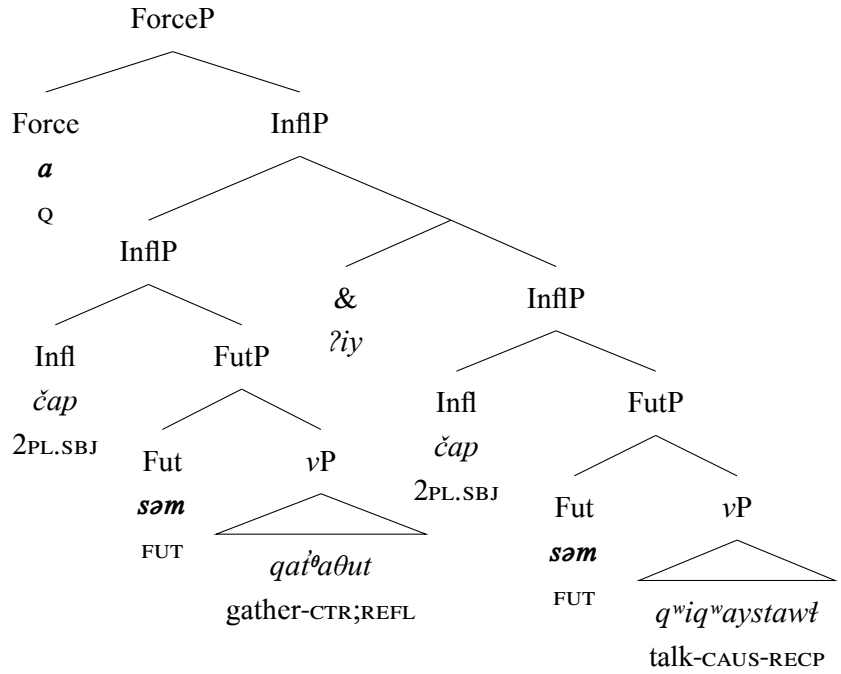
q̓aṯᶿ-aθut=**a**=čap=**səm** ʔiy qʷi∼qʷay-st-awɬ=**a**=čap

gather-CTR;REFL=Q=2PL.SBJ=FUT CONJ PROG∼talk-CAUS-RECP=Q=2PL.SBJ

'Are you all going to get together and are you going to have a conversation?' (sf | EP.2020/10/23)

This is expected based on their relative height. Since the question clitic asymmetrically c-commands the future clitic, it should be possible to coordinate below the question clitic and have the projection housing the future clitic within each conjunct. The structure for (92a) is given in (93).

(93)



The converse is not possible. The projection hosting the future clitic is below the question clitic and so cannot c-command two conjuncts each with a question clitic; this correctly derives the ungrammaticality of (92b).

While this asymmetry follows from an account where the question clitic is generated above the coordination site in (92a), it is not predicted under an account involving full clausal coordination with ellipsis. If the absence of the question clitic in the second conjunct was due to ellipsis, we would expect the future clitic to show the same behaviour, eliding in the second conjunct in (92b) but interpreted in both.

We have now seen that an account based on structural asymmetry fares better than an ellipsis analysis with respect to two important diagnostic tests. First, if a clitic must c-command the coordinate structure in order to take semantic scope over the conjuncts, we expect the size of the conjunct to matter. A single clitic can c-command and take scope over verb phrase conjuncts, but not clausal conjuncts. Second, we expect higher clitics to be able to take scope over conjuncts containing lower clitics but not the reverse. In contrast, if clitics could elide in the second conjunct, we would not expect to find either type of structural asymmetry; any clitic with an appropriate antecedent should be able to elide. An account of the interpretation of clitics in coordinate structures in terms of the height of coordination therefore fares better than an ellipsis account with respect to both diagnostics applied here.

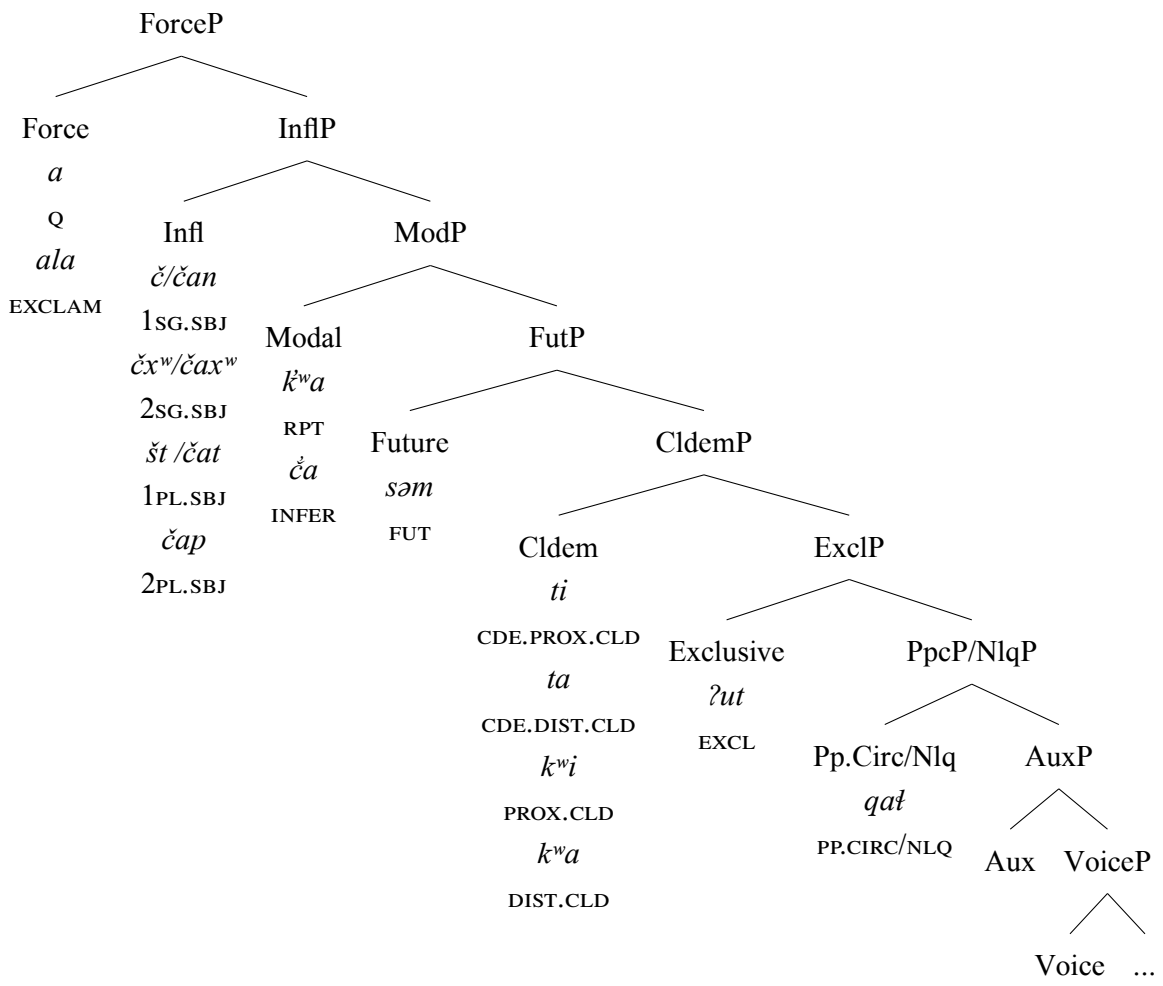
2.4.3 Scope and c-command between the clitics

In this section, I offer a brief justification for treating the linear order of the clitics as reflecting their relative syntactic height, where each clitic linearly precedes clitics it asymmetrically c-commands. Setting aside the discourse particles for the moment, the linear order of the clitics is as in (94):

(94) Force > Subject agreement > Epistemic modals > Future > Clausal demonstratives > Scalar exclusive > Past perspective *qał* (a circumstantial modal)/negation-licensed *qał*

If these linear positions map to asymmetric c-command, as in (95), repeated from above (73), this places each clitic at the height where it should compose semantically (except in the case of Infl which carries only agreement features and as such does not have semantic content).

(95) **Syntax of 2PCs in ʔayʔaǰuθəm**



For instance, (96), repeated from (92a), shows the question clitic scoping over the future to create a question about a future event.

(96) *Context: I'm managing a decision-making process and the parties involved need to talk and make a decision. I want to make sure that they're moving forward on it. I ask them:*

ḋaṫᶿaθot**a**čɛp **səm**	ʔi	qʷɛqʷaystawɬčɛp **səm**?
ḋaṫᶿ-aθut=**a**=čap=**səm**	ʔiy	qʷi∼qʷay-st-awɬ=čap=**səm**
gather-CTR;REFL=Q=2PL.SBJ=FUT	CONJ	PROG∼talk-CAUS-RECP=2PL.SBJ=FUT

'Are you all going to get together and are you going to have a conversation?'

Similarly, the inferential scopes over the future for inferences about future events, as in (97).[19]

(97)

čɩɬ **čɛ səm**.	ti qʷoḷ	ṫᶿəmṫᶿəmqʷoyəm.
čəɬ=**ča**=**səm**	ti=qʷəḷ	ṫᶿəmṫᶿəmqʷuy-əm
rain=INFER=FUT	CLD=come	cloudy-MD

'It must be going to rain. It's getting cloudy.' (sf | EP.2020/10/02)

The inferential also scopes over the scalar exclusive, often translated as 'just', for inferences about what is 'just' the case (98). It also scopes over negation-licensed *qəɬ*, translated together with negation as 'not yet' for inferences about what is 'not yet' the case (99).

(98) *Context: I saw a dorsal fin of an orca, and I'm trying to figure out if it is with its pod. It is a distance away and I keep thinking maybe I see another fin but then concluding it is actually a wave. In the end I tell you:*

pɛpayɛʔ **čot**	tə nənqəm.
pipayaʔ=**ča**=**ʔut**	tə=nənqəm
one.person.DIM=INFER=EXCL	DET=orca

'There must be just one orca.' (vf | EP.2022/05/20)

(99)

xʷaʔ **čɛ qəɬ**	ṗaṗɛʔʊxʷəs.	ṫᶿəpṫᶿapaw čɛ.
xʷaʔ=**ča**=**qəɬ**	ṗaṗi-əxʷ=as	ṫᶿəp∼ṫᶿapaw=ča
NEG=INFER=NLQ	get.fixed-NCTR=3SBJV	PL∼busy=INFER

'He must not have fixed it yet. He must have gotten busy.' (vf | EP.2021/07/30)

Subsequent chapters discuss the scopal relations between clitics in more depth. In Chapters 7–8, I show that the clausal demonstratives scope under the future clitic, composing semantically between the future and aspect, while Chapters 6–8 provide a more in-depth discussion of the scope of the inferential *čɛ* /ča/and reportative *k̓ʷa* relative to the question clitic *a* and future clitic *səm*. The picture that emerges is that in all cases where two clitics bear a scopal relation, linear order matches scope.

In the previous section, I showed that that the clitics must c-command clausal material over which they take scope. This means that by default, the clitics should have the syntax in (95) in order for the correct scopal relations to hold. In the preceding section, we also saw evidence for hierarchical asymmetry between the question clitic and the future clitic such that the question clitic could c-command two conjuncts containing the

[19] It is difficult to paraphrase what the opposite scope would be. (96) would have to displace the question into the future, while (97) would have to be an inference made at a future time. This is also the case for the other scopal relations discussed in this section.

future clitic, but not vice versa. The question clitic precedes the future clitic in the clitic string, as expected if head-complement relations map to left-to-right linear order. Similar asymmetries in coordination between the other clitics are more difficult to probe, since, unlike the question and future clitics, their at-issue contributions have a less obvious effect on the meaning of each conjunct, and not all levels of coordination seem to be available. Nevertheless, both syntactic and semantic evidence points to the linear order within the clitic string generally reflecting asymmetric c-command.[20]

The discourse particles do not fit this overall picture. Though they are not-at-issue and so do not take scope, they seem to compose at the level of the proposition (above the other clitics) or the speech act, yet occur late in the clitic string. The linearization of discourse particles is discussed further in Chapter 11, but open questions remain.

2.4.4 Summary: the syntax of second-position clitics in ʔayʔaǰuθəm

Evidence from coordination and scope both support an analysis where the 2PCs c-command the verb phrase and linear order between the 2PCs matches their syntactic height. I therefore adopt the representation in (101) (repeated from (95) above). The discourse particles behave differently from the other clitics with respect to the mapping between scope and syntactic height, so my conclusions about their syntactic position are more tentative, and I do not include them in the tree here.

[20] I have tried to replicate the coordination facts with the reportative and future, but the pattern is so far not as expected. A single future appears to take scope over two conjuncts each taking the reportative, while the opposite is not possible:

(100) *Context: I'm wondering what the plan is tomorrow evening for some people that are gathered together and staying in the Tla'amin Nation.*

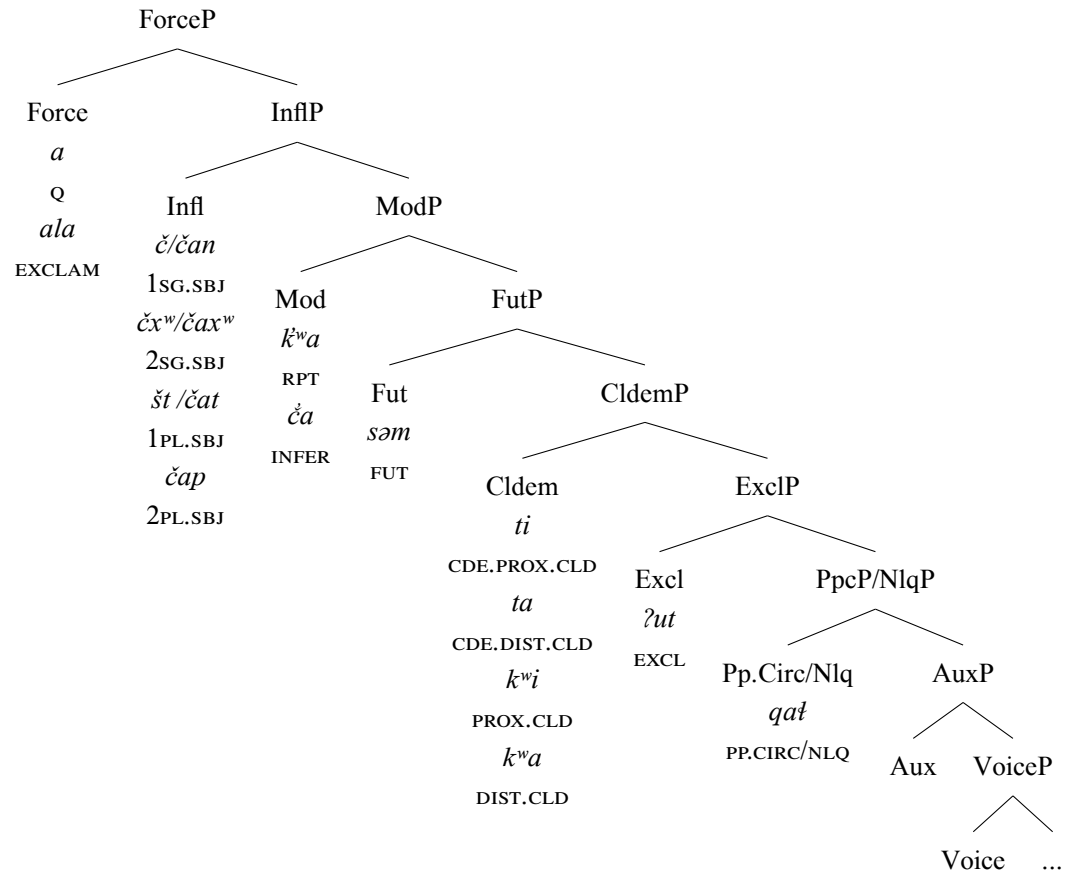
A: tam k̓ʷa səm kʷ yɛyɛθotɛt kʷisəm?
tam=k̓ʷa=səm kʷ=ya∼ya-θut=it kʷisəm
what=RPT=FUT COMP=PROG∼do-CTR=1PL.POSS tomorrow
'What are they going to do tomorrow?'

B: q̓atʲθaθot **k̓ʷa səm** ʔi wuwʊm **k̓ʷa**.
q̓atʲθ-aθut=**k̓ʷa=səm** ʔiy wuw-əm=**k̓ʷa**
gather-CTR;REFL=RPT=FUT CONJ sing-MD=RPT
'They're going to get together and sing (I heard).'

B': #q̓atʲθaθot **k̓ʷa səm** ʔi wuwʊm **səm**.
q̓atʲθ-aθut=**k̓ʷa=səm** ʔiy wuw-əm=**səm**
gather-CTR;REFL=RPT=FUT CONJ sing-MD=RPT=FUT
'They're going to get together and sing (I heard).' (sf | EP.2022/06/17)

Judgements for cases like (100B') have been somewhat variable, however, and a single reportative has sometimes been accepted with two conjuncts containing a future clitic, as expected. The pattern here for (100B-B') runs counter to the interpretation, since the contribution of the reportative applies to the proposition containing the future: the report is about a future event. These cases require further investigation.

(101)



Given the syntax in (101), however, the default linear order would have the 2PCs precede the extended verb phrase. Certain combinations of clitics that include the clausal demonstratives can occur in this position, as will be discussed in Section 2.6.2. Generally, however, the 2PCs occur following the initial nonclitic element of the clause.

As previewed in Section 2.3.3, I claim that encliticization causes re-ordering in the morphology. Before providing a more in-depth account of how this analysis accounts for the behaviour of the clitics, I first put aside two obvious alternatives: 1) that the linear position of the clitics is derived by movement of the host in the syntax to a position c-commanding the clitics, 2) that the linear position of the clitics is derived in the phonology.

2.4.5 Placement of the 2PC string does not occur in the syntax

In this section, I present evidence that clitic placement must be post-syntactic.[21] The most important evidence for this conclusion is that the clitics disrupt syntactic constituents such as coordinate structures, resulting in configurations that cannot be derived syntactically.

The 2PCs appear following the first non-clitic item of the clause, whether this is the main predicate (102a)–(103a), an auxiliary (102b)–(103b), or an adjective in a Complex Nominal Predicate (104).[22,23]

[21]This conclusion contradicts Jelinek's (1996) analysis of clitic placement in Northern Straits Salish, where the relative ordering between clitics and their host is derived by syntactic movement of the clitics' host.

[22]For analyses of Complex Nominal Predicates in Salish languages, where a nominal predicate is preceded by one or more individual-level modifiers, see Demirdache and Matthewson (1995), H. Davis and Matthewson (1999) for St'át'imcets (Lillooet), H. Davis et al. (1997) for St'át'imcets and Secwepemctsín (Shuswap), and H. Davis et al. (2004) for Northern Straits and St'át'imcets.

[23]Left branch extraction is not a good candidate for deriving sequences where modifiers precede the clitics. Where testable (e.g,

(102) a. *Main predicate*

ƛ̓ʊxʷegənč.
ƛ̓əxʷigan=**č**
envious=1SG.SBJ
'I'm envious.' (vf | FL.2019/06/29)

b. *Adverbial auxiliary*

hɛhɛw**č** ƛ̓ʊxʷegən.
hihiw=**č** ƛ̓əxʷigan
very=1SG.SBJ envious
'I'm really envious.' (vf | FL.2019/06/29)

(103) a. *Main predicate*

gayɛt**tᶿəm** Gloria sqʷoƛ̓s səm təs.
gay-at=**tᶿ=əm** Gloria s=qʷəƛ̓=s=səm təs
ask-CTR=1SG.SBJ=FUT Gloria NMLZ=come=3POSS=FUT arrive
'I'll ask Gloria when she arrives.' (vf | JF.2018/10/09)

b. *Motion auxiliary*

ho**tᶿəm** gayɛt χanaθəs t̓ɛn.
hu=**tᶿ=əm** gay-at χan-aθ=as t̓in
go=1SG.SBJ=FUT ask-CTR give-CTR;1SG.OBJ=3SBJV bbq'd.fish
'I'll go ask her to give me some barbecued fish. (vf | EP.2018/11/17)

(104) *Modifer in Complex Nominal Predicate*

tih **č̓ɛ səm** qaymɪxʷ.
tih=**č̓a=səm** qaymixʷ
big=INFER=FUT person
'He's going to be a big person.' (vf | EP/FL.2019/11/30)

Where there is a sequence of auxiliaries preceding the main predicate, the 2PCs will always follow the first auxiliary.

(105) a. *Context: I'm talking about my friend's habits.*

payɛʔ **ʔot** ho ʔɛʔɛmaš ʔəł qəǰiyəs kʷi.
paya ʔ=**ʔut** hu ʔi∼ʔimaš ʔəł=qəǰi=as kʷəǰ
always=EXCL go PROG∼walk COMP=still=3SBJV early
'He always goes walking the morning.' (sf | EP.2022/11/25)

for possessors), left-branch extraction is either marginal or impossible (Davis et al. 2020a).

b. *Context: I'm talking about my friend's habits and stressing that he never misses a day.*

χʷɛt **ʔot** payɛʔ ho ʔɛʔɛmaš ʔəɬ qəǰiyəs kʷi.
x̌ʷit=**ʔut** paya ʔ hu ʔi∼ʔimaš ʔəɬ=qəǰi=as kʷəǰ̌
really=EXCL always go PROG∼walk COMP=still=3SBJV early
'He really always goes walking the morning.' (sf | EP.2022/11/25)

The clitics always attach to the first head in the predicate complex and do not show sensitivity to the syntactic category of their host.

The crucial evidence against a head movement account of 2PC placement is the clitics' linear position inside verb phrase conjuncts, as in (106a-b). For these cases, movement of the clitics' host would violate the Coordinate Structure Constraint (Ross 1967).

(106) a. q̇aɫ̇ᶿaθot **k̓ʷa səm** ʔi wuwʊm.
q̇aɫ̇ᶿ-aθut=**k̓ʷa=səm** ʔiy wuw-əm.
gather-REFL=RPT=FUT CONJ sing-MD
'They will gather together and sing.' (vf | EP.2019/08/26)

b. *Context: We're planning an event.*

q̇agatɛχ **k̓ʷa səm** Drew ʔi wuwʊm.
q̇agatix̌=**k̓ʷa=səm** Drew ʔiy wuw-əm
drum=RPT=FUT Drew CONJ sing-MD
'Drew is going to drum and sing.' (sf | EP.2021/01/22)

Elsewhere, the Coordinate Structure Constraint holds in the language; extraction of (or out of) a conjunct is not possible (107).[24]

(107) a. *gɛt$_i$ k̓ʷʊnʊxʷaxʷoɬ t_i hega Gloria?
gət$_i$ k̓ʷən-əxʷ-axʷ-uɬ t_i higa Gloria
who see-NCTR-2SG.SBJ-PST CONJ Gloria
'Who$_i$ did you see t_i and Gloria?' (sf | EP 2017, BW.2022/02/02)

b. *gɛt$_i$ kʷ nɛʔoɬ t_i ʔi Laura ʔəkʷ *meeting*?
gat$_i$ kʷ=niʔ-uɬ t_i ʔiy Laura ʔə=kʷ=*meeting*
who DET=be.there-PST CONJ Laura OBL=DET=meeting
'Who$_i$ was at the meeting t_i and Laura?' (sf | BW.2022/02/02)

Since movement of the clitics' host would violate an otherwise robust syntactic constraint, an account that relies on syntactic head movement is untenable.

[24]The *wh*-phrase itself in questions like (107) does not move. The wh-word is a predicate, which takes a relative clause complement. Within the relative clause, an operator moves, obeying syntactic movement constraints, such as the Coordinate Structure Constraint. See Davis and Matthewson (2009) and references therein, as well as Davis (2010) for extensive discussion of relative clause structure in St'át'imcets.

2.4.6 Placement of the 2PC string is not phonologically motivated

While the linear ordering of the 2PCs and their host must be derived post-syntactically, it cannot be derived purely by the phonology. A phonological account would have to appeal to the phonological 'weakness' of 2PCs in order to motivate their need for a host. Re-ordering would then be due to a constraint such as StrongStart, which is violated when a weaker prosodic constituent precedes a stronger prosodic constituent within a larger containing prosodic constituent (e.g. Selkirk 2009, 2011; Elfner 2012; Huijsmans 2015).

However, enclitic status for the 2PCs cannot be derived solely from their phonological properties. There is nothing about the segmental content of most of the clitics that would cause them to be weak, dependent elements; most have sufficient weight for bearing word-level stress, for instance. Blake (2000: 118) proposes that a minimal word in ʔayʔaǰuθəm must contain at least one foot. A foot must be either bisyllabic or bimoraic, where full vowels and coda consonants count as moraic, while schwa and onset consonants do not. Many of the clitics are bimoraic by this criterion (e.g., the full form of first person subject clitic *čɛn* /*čan*/, the scalar exclusive *ʔot* /ʔut/, the discourse particle *ʔit* /ʔəyt/, etc.) and should therefore have sufficient weight for prosodic wordhood.

Moreover, under the assumption that schwa is mora-less (Blake 2000: 117), weak roots are only monomoraic yet are footed, standardly bearing word-level stress (which falls word-initially in ʔayʔaǰuθəm).[25] This is illustrated in (108) where *χʷoχʷ* /x̌ʷux̌ʷ/ 'long time' and the weak root *c̓ɛχ* /c̓əx̌/ 'get cooked' bear word-level stress (stress is not typically marked because it is predictable, but is shown here for illustrative purposes). In contrast, monomoraic and even bimoraic 2PCs do not function as prosodic words.

(108) χʷóχʷ səm ʔi c̓éχ.
x̌ʷúx̌ʷ=səm ʔiy c̓əx̌
longtime=FUT CONJ get.cooked
'It will take a long time to get cooked.' (vf | EP.2020/10/23)

The enclitic status of the 2PCs is therefore not phonologically predictable from their segmental content/prosodic weight and must be encoded in some other way. The allomorphy facts discussed in Chapter 3 also provide evidence against a purely phonological account of 2PC behaviour, since clitics must be linearized before allomorph selection occurs.

2.5 A morphological account of 2PC placement

2.5.1 A mismatch between syntax and linear order

At this point, I have shown that the linear position of the clitic string as a whole does not reflect the hierarchical position of the clitics relative to the rest of the material in the clause. I argued in Section 2.4.2 that the 2PCs c-command the verb phrase. Despite occurring higher than the verb phrase, the clitics in the 2PC string appear following the first non-clitic item of the predicate complex: either the predicate or a pre-predicate auxiliary. In order to linearize the clitics relative to their host, another step of derivation is required.

[25] Blake (2000: 122) derives this via an alignment constraint requiring the left edge of every morphological stem to coincide with the left edge of a foot.

I argued in Section 2.4.5 that the clitics' host does not move in the syntax to a position c-commanding the clitics, based on evidence from coordinate structures. I also argued in Section 2.4.6 that the reordering between the clitics and their host does not have purely phonological motivation. In the current section, I argue that placement of the clitic string occurs post-syntactically in the morphology.

In Section 2.5.2, I propose an enclitic feature present in the lexical entries of the clitics which drives encliticization in the morphological component of the grammar. In Section 2.5.3, I provide evidence from coordination to show that placement of the clitic string shows sensitivity to syntactic structure, despite interrupting syntactic constituency, requiring access to syntactic information available in the morphology, but no longer available in the phonology after linearization. Finally, in Section 2.5.3.2, I propose an account of these facts in the morphological model of clitic placement developed here.

2.5.2 A morphological enclitic feature

As previewed in Section 2.3, I propose that enclisis arises in the morphology, through an enclitic feature =___ found in the lexical entries of the 2PCs. The lexical entry for the question clitic has a [Q] feature paired with phonological content *a*, and also an enclitic feature, as in (109), for example.

(109) Lexical entry for the question clitic *a*: [Q] $\leftrightarrow \left\{ \begin{array}{c} \text{/a/} \\ \text{=___} \end{array} \right\}$

In deriving clitic placement through a property associated with the lexial entries of individual clitics, my model builds most directly on Bye and Svenonius (2010, 2012). Bye and Svenonius attempt to do away with the specifically morphological rules found in models such as Distributed Morphology, and handle allomorphy through lexical specifications and optimization in the phonological derivation. My model differs in including lexical specifications that are purely morphological and not simply the input to the phonological derivation. It is also a departure from Distributed Morphology, which places emphasis on morphological rules in deriving re-orderings, rather than features of specific lexical entries or Vocabulary items (and has certain operations, such as Lowering, occurring prior to the association of lexical entries with the syntactic structure, which therefore cannot be motivated by features of lexical entries) (see e.g., Embick and Noyer 2001).

The enclitic feature =___ acts as an instruction to join to the immediately c-commanding head in the complement sequence of heads, the *span* (Svenonius 2012), resulting in re-bracketing. Where there is no c-commanding head in the phase, this instruction will also cause re-ordering in order to meet the encliticization requirement. I assume that the head to which encliticization occurs must itself be associated with a morphological form – it cannot be just a morphologically empty syntactic head.[26]

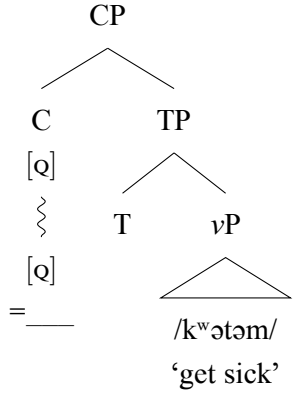
As previewed in Section 2.3, I follow Bye and Svenonius (2012); Svenonius (2012) in adopting a two-step process for lexical insertion. I illustrate the process of lexical insertion and encliticization first with the simple example in (110).

[26] In this system, there are two options for syntactic heads with semantic content but no overt realization: 1) There may be a lexical entry that is morphophonologcally present but phonologically null, or 2) there may be a lexical entry without any morphological or phonological content, though it is interpreted semantically. The first option is found in St'át'imcets, where phonologically null auxiliaries may host enclitics (Davis 2000a). I assume the second option for the T head in ʔayʔaǰuθəm, which does not play a role in the morphological or phonological derivation (see also Matthewson 2006 on T in St'át'imcets).

(110) kʷʊtəma?
kʷət-əm=a
get.sick-MD=Q
'Did s/he get sick?'

The morphological derivation proceeds bottom to top. I treat the *v*P as a phase, so the predicate is already spelled out (but visible at the phase edge in *v*) by the time the lexical insertion for the question clitic takes place. The lexical entry for the question clitic is associated with the syntactic tree through L-Match with the [Q] feature in C. Once the lexical entry for the question clitic is matched with the structure, its enclitic feature becomes visible to the morphological derivation. This gives us the representation in (111). There is no morphological form associated with T, which does not play a role in the morphological or phonological derivation.[27]

(111)



Since there is no higher head for the question clitic to join with, it will instead join to the closest head in the span associated with morphological content, the predicate. Rebracketing occurs with the clitic attaching leftward to the predicate, as per the enclitic feature of the question clitic (112).

(112) [[/kʷətəm/]$_v$=Q]$_{CP}$

The T head does not intervene because it has no morphological content.

At the subsequent stage of lexical insertion, the phonological content of the question clitic is inserted:

(113) [[/kʷətəm/]$_v$=/a/]$_{CP}$

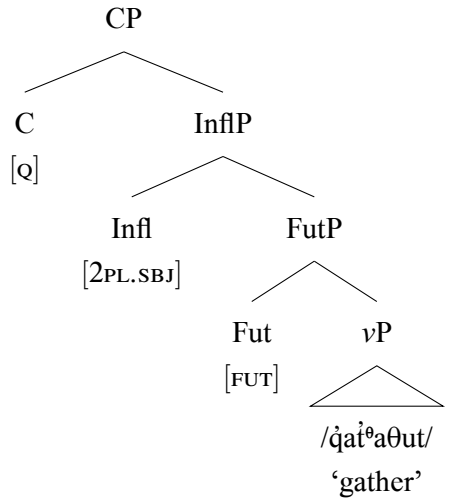
By default, encliticization occurs upwards to the closest head in the span. Where there are a series of clitics, this will cause the formation of a clitic string as the clitics successively encliticize to each other. I illustrate this using (114).

(114) q̇aṫᶿaθot**ačɛp səm**?
qaṫᶿ-aθut=**a**=**čap**=**səm**
gather-CTR;REFL=Q=2PL.SBJ=FUT
'Are you all going to come together?' (vf | EP.2018/04/08)

[27] See footnote 26 above on how null heads are handled in this model.

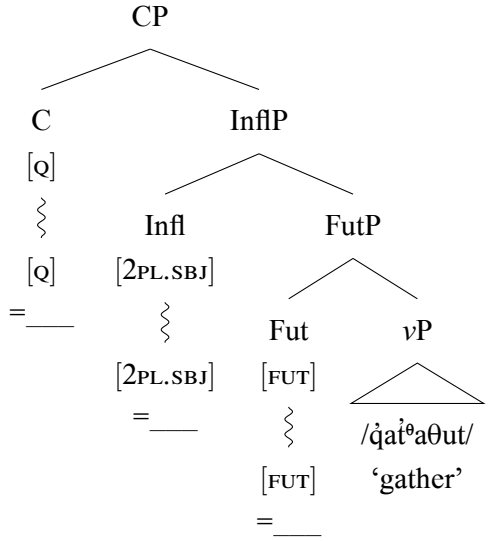
The syntactic representation for (114) is as in (115) (where the *v*P is again already spelled out).

(115)



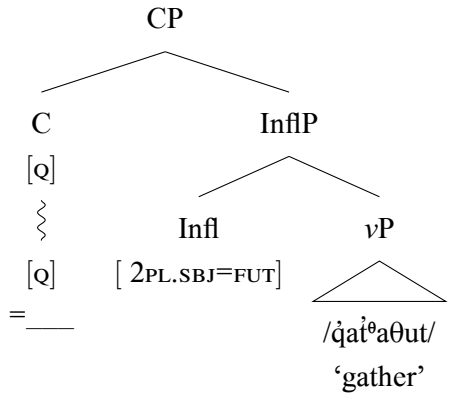
Association of lexical entries with the CP phase gives us (116).

(116)

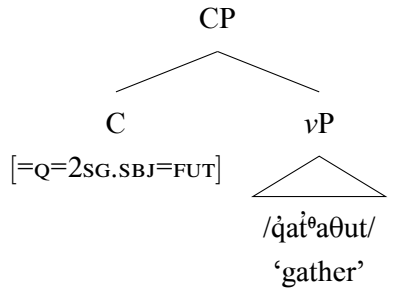


At the point of encliticization, linear relationships are established between the clitics based on the syntactic structure. At the same time, encliticization results in the erasure of leftward containing brackets for the clitics to allow rebracketing with the target of enclisis. The non-initial clitics will be able to meet their enclitic requirement through encliticizing to the next highest head in the span, another clitic. Each stage of cliticization results in rebracketing to create a unit containing the lower and higher clitic and simultaneous erasure of morphologically empty syntactic structure (nodes no longer associated with lexical entries). These steps do not disrupt default linearization.

(117)



(118)



The result is a *clitic string*: [=Q=2SG.SBJ=FUT]. The enclitic requirement of the question clitic cannot be satisfied unless the whole sequence follows the predicate, the closest remaining head in the span, as in (119). This is the point at which encliticization disrupts default mapping to linear order.

(119) [/q̇aṫᶿaθut/=Q=2SG.SBJ=FUT]

The final stage of lexical insertion then occurs, inserting the phonological content of the clitics' lexical entries.

(120) [/q̇aṫᶿaθut/=/a/=/čap/=/səm/]

When there is an auxiliary preceding the main predicate, the auxiliary will be the target for the encliticization of the clitic string. As previewed in Section 1.9, the auxiliaries are a closed class of heads that precede the predicate and, where they co-occur, follow a specific ordering.

I assume that they occupy a series of heads in the extended projection of the verb phrase.[28] For an example like (121) (repeated from (123)), the syntactic representation for the relevant portion of the tree will be as in

[28]This predicts that auxiliaries cannot be phrasal. This seems to be true, although still under investigation. Intensifiers can occur in a string of auxiliaries but appear to modify the whole predicate complex. In (i), for example, *hɛhɛw* /hihiw/ 'really' modifies the fast chasing event.

(i)	hɛhɛw	xʷixʷamot	ʔaʔaq̇atəs	šɛ *bus*.
	hihiw	xʷixʷa-mut	ʔa∼ʔaq̇-at-as	šə=*bus*
	really	fast-INT	PROG∼chase-CTR-3ERG	DET=bus

'He's really chasing fast after the bus.' (sf | EP.2022/12/02)

Attempts to form a phrasal auxiliary where an intensifier occurs non-initially to target a specific auxiliary instead of the whole complex, such as (ii), have so far been judged ungrammatical.

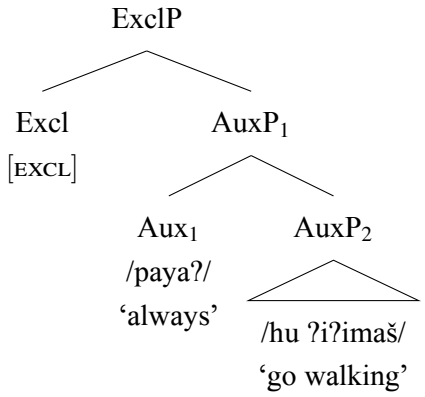
(123). I assume that only the outermost auxiliary is visible to the upper phase, but the material merged under Aux_2 is shown for clarity.

(121) *Context: I'm talking about my friend's habits.*

payɛ? **ʔot**	ho	ʔɛʔɛmaš	ʔəɬ qəǰiyəs	kʷi.
paya?=**ʔut**	hu	ʔi∼ʔimaš	ʔəɬ=qəǰi=as	kʷəǰ
always=EXCL	go	PROG∼walk	COMP=still=3SBJV	early

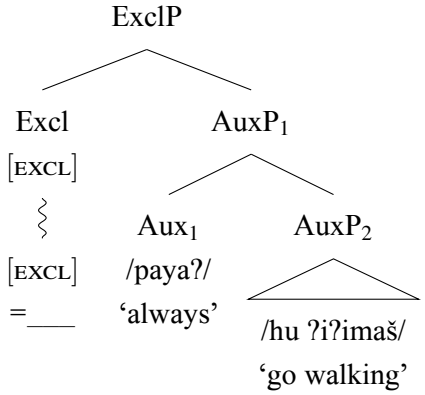
'He always goes walking the morning.' (sf | EP.2022/11/25)

(122)



Following lexical insertion for the exclusive clitic, the representation is as in (123).

(123)



The enclitic feature forces encliticization of the exclusive clitic to the nearest head in the span, the initial auxiliary *payɛ?* /paya?/ 'always'. The linear precedence between *payɛ?* /paya?/ 'always' and the second auxiliary *ho* /*hu*/ is preserved, although the exlcusive clitic now intervenes between them.

(ii)

ho	(*hɛhɛw)	xʷixʷamot	ʔaʔaḑatəs	šɛ *bus*.
hu	(*hihiw)	xʷixʷa-mut	ʔa∼ʔaḑ-at-as	šə=*bus*
go	really	fast-INT	PROG∼chase-CTR-3ERG	DET=bus

'He's gone really fast chasing after the bus.' (sf | EP.2022/12/02)

(124) [/paya?/=EXCL /hu ?i?imaš/]

The second stage of lexical insertion inserts the phonological content of the exclusive clitic, as in (125).

(125) [/paya?/=/?ut/ /hu ?i?imaš/]

The approach sketched here makes four crucial predictions for ?ay?ağuθəm clitic behaviour:

1. Clitic placement is post-syntactic
2. 'Closest' is defined hierarchically since the syntactic structure is still visible
3. The clitic string forms a unit in the morphological derivation
4. Encliticization is driven morphologically, derived prior to the clitics being associated with phonological content and prior to the clitics entering the phonogical derivation

I have already provided arguments from coordinate structures in Section 2.4.5 that the first prediction is correct. In the remainder of this chapter, I discuss the second two predictions and show that these are correct. I discuss the fourth prediction in Chapter 3, arguing that important facts about clitic allomorphy support this prediction.

2.5.3 Clitic placement is sensitive to syntactic hierarchy

In the morphological account I proposed above, the clitics follow the *highest* available nonclitic head in the span. In most cases, the prediction of this approach is empirically indistinguishable from one where the clitics follow the *leftmost* nonclitic head in a string. In coordinate structures, however, we find evidence that clitic placement is indeed sensitive to syntactic hierarchy rather than just linear order, and therefore must take place at a point in the derivation where the syntactic structure is still accessible.

For at least one of my consultants, a future clitic scoping over multiple conjuncts can appear within either conjunct (though placement in the initial conjunct is preferred).[29] This is shown in (126), where the future clitic in either conjunct takes scope over both, so that both predicates are interpreted with future temporal reference.

(126) a. wuwʊm **səm** ?i ḋagatɛχ.
wuw-əm=**səm** ?iy ḋagatiǐ
sing-MD=FUT CONJ drum
'He's going to sing and drum.' (sf | EP.2021/06/12)

b. wuwʊm ?i ḋagatɛχ **səm**.
wuw-əm ?iy ḋagatiǐ=**səm**
sing-MD=FUT CONJ drum
'He's going to sing and drum.' (sf | EP.2021/01/22)

[29] Another consultant prefers the future clitic in each conjunct (see also footnote 15); this does not contradict the account sketched here but does represent a slightly different grammar. The consultant who initially accepted the second conjunct placement for the future has also since increasingly rejected such examples. Certainly, second conjunct placement is more marked since it delays the appearance of crucial information about the temporal interpretation of the first conjunct. It may also be that these more marked cases are dispreferred as speakers become increasingly aware that the documentary record will be a tool for future learners. Given that these cases were initially accepted, and that the same pattern is found more freely in St'át'imcets (Davis and Huijsmans 2021), I still consider this data valid.

This same pattern shows up in the related language St'át'imcets, which otherwise also has rigid clitic placement (Davis and Huijsmans 2021).

(127) a. ʔíx̌əm=**kəɬ** múta? pumákʔ-am=**kəɬ**.
sing=FUT CONJ drum-MD=FUT
'S/he'll sing and drum.'

b. ʔíx̌əm=**kəɬ** múta? pumákʔ-am.
sing=FUT CONJ drum-MD
'S/he'll sing and drum.'

c. ʔíx̌əm múta? pumákʔ-am=**kəɬ**.
sing CONJ drum-MD=FUT
'S/he'll sing and drum.' [St'át'imcets] (Davis and Huijsmans 2021)

A rule for clitic placement referring to strings could not derive the second conjunct placement. Similarly, a prosodic account that derived clitic placement following the first prosodic word of the clause would not predict these cases.

A syntactic movement account might try to derive (126b) and (127c) by moving the entire coordinated VP to a position above the future clitic. Verb phrases cannot generally move to a position above/preceding the clitics, however. The clitics cannot follow other phrasal predicates, such as Complex Nominal Predicates, as shown in (128) ((128a) is repeated from (104) above); in (128) the noun *qaymɩxʷ* /qaymixʷ/ 'person' is modified by *tih* 'big' to form a complex predicate, with a null third person pronoun as the subject.

(128) a. tih **c̓ɛ səm** qaymɩxʷ.
tih=**c̓a=səm** qaymixʷ
big=INFER=FUT person
'He's going to be a big person.' (vf | EP/FL.2019/11/30)

b. *tih qaymɩxʷ **c̓ɛ səm**.
tih qaymixʷ=**c̓a=səm**
big person=INFER=FUT
'He's going to be a big person.' (sf | EP.2019/11/30)

Placement of the 2PCs following a phrase, rather than just the initial non-clitic item, is therefore only found in one syntactic environment: coordinate structures.

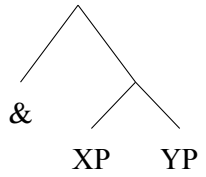
2.5.3.1 The syntax of coordinate structures

Coordinate structures are special in that the first conjunct does not select the second; instead conjunction joins two constituents of the same category, and is therefore in a sense symmetrical.[30] Here, I follow Davis and Huijsmans (2021) in adopting Chomsky's (2013) analysis of coordinate structures. Chomsky proposes that Merge initially treats the two conjuncts as symmetrical (129). The conjunction does not project. The

[30]Cross-linguistic data shows coordinate structures to have both properties indicating symmetry and properties indicating asymmetry (see e.g., Goodall 2017). Chomsky's analysis captures both the symmetry and asymmetry represented by these structures.

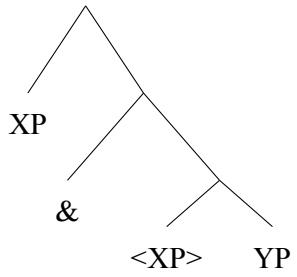
projections above XP and YP cannot be labelled since both XP and YP have a label and neither asymmetrically c-commands the other.

(129)



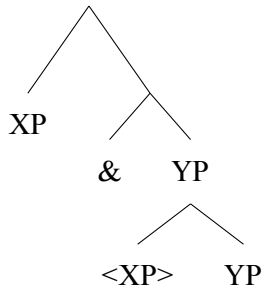
One conjunct then moves to the specifier of the conjunction.

(130)



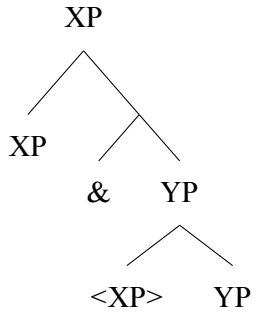
Movement of XP allows the first projection, now containing only YP, to be labelled YP.

(131)



Following the movement of XP into a position c-commanding YP, the higher projection containing XP and YP is labelled XP:

(132)



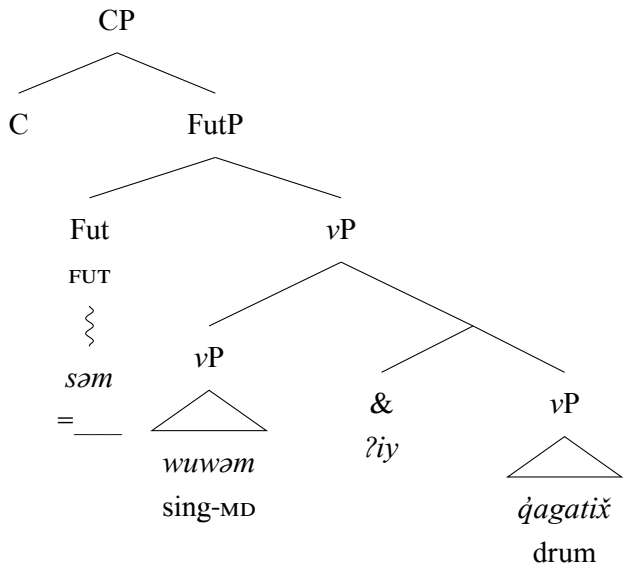
Since both XP and YP are the same category, both projections will have the same label.

2.5.3.2 Deriving 2PC placement in coordinate structures

With this analysis of coordinate structures in place, it is possible to account for the appearance of 2PCs in any lower verb phrase conjunct. Following Davis and Huijsmans (2021), I assume that the calculation of locality is sensitive to syntactic labels. Adopting the account of coordination above, the head of each conjunct will therefore count as equally local to heads higher (and lower) in the span. As a result, the head of either conjunct will be an equally suitable target for encliticization of a higher clitic.

I illustrate the proposed analysis using example (126) above. At the point when the lexical entry of the future clitic is associated with the structure, the derivation appears as in (133) (ignoring the movement of the initial conjunct and collapsing the stages of lexical insertion for simplicity).

(133)



Since there is no higher head in the span to encliticize to (C is not associated with any morphological content), the future clitic must encliticize to one of the conjoined predicates. Here, there is a point of indeterminacy. The clitic can encliticize to the head of either conjunct in *v* since both are equidistant – the next head in the span (134).[31]

(134) a. [wuwəm=**səm** [ʔi q̇agatiǐ]]

b. [wuwəm [ʔi q̇agatiǐ=**səm**]]

This sensitivity to the equidistance of conjuncts can only be captured in a model where clitic placement occurs when the syntactic structure is still visible. This provides additional evidence that clitic placement occurs in the morphology, at the point of spell-out where the syntactic structure is still visible.

2.6 The clitic string as a unit

The analysis of encliticization proposed in this chapter predicts that the clitics join together into a morphological constituent (the clitic string) prior to encliticizing to a lower predicate or auxiliary. This means that the

[31] I assume that the predicate in each conjunct joins with *v* via head-movement and is visible in *v*, the phase edge.

clitics should always pattern as a unit, regardless of the structure they occur in. I examine two types of evidence that this prediction is correct: 1) the fact that the clitic string cannot be split in coordinate structures; 2) the fact that proclitic strings are possible, but the clitic string can never be split into a combination of proclitic and enclitic elements.[32]

2.6.1 The clitic string in coordinate structures

Even though clitic placement treats the head of each conjunct as equidistant, as shown in the preceding section, a series of clitics never splits across conjuncts, with some clitics realized on the first and some on the second. This is shown in (135), where the clitics can occur on both conjuncts (135a) or just the first conjunct (135b) but cannot be dispersed between conjuncts (135c–d).

(135) *Context: There is a gathering for a week of events and I'm wondering what the plan is for everyone for tomorrow evening. I thought I heard something about getting together for singing and drumming, so I ask:* tam k̓ʷa səm kʷ yɛyɛθotɛt kʷisəm? *'What are they doing tomorrow?...'*

a. ḋaṫᶿaθota **k̓ʷa səm** ʔi wuwʊma **k̓ʷa səm**?
ḋaṫᶿ-aθut=**a**=**k̓ʷa**=**səm** ʔiy wuw-əm=**a**=**k̓ʷa**=**səm**
gather-CTR;REFL=Q=RPT=FUT CONJ sing-MD=Q=RPT=FUT
'Are they getting together to sing?' (sf | EP.2022/06/10)

b. ḋaṫᶿaθota **k̓ʷa səm** ʔi wuwʊm?
ḋaṫᶿ-aθut=**a**=**k̓ʷa**=**səm** ʔiy wuw-əm
gather-CTR;REFL=Q=RPT=FUT CONJ sing-MD
'Are they getting together to sing?' (sf | EP.2022/06/10)

c. * ḋaṫᶿaθota **k̓ʷa** ʔi wuwʊm **səm**?
ḋaṫᶿ-aθut=**a**=**k̓ʷa** ʔiy wuw-əm=**səm**
gather-CTR;REFL=Q=RPT CONJ sing-MD=FUT
'Are they getting together to sing?' (sf | EP.2022/06/10)

d. * ḋaṫᶿaθota ʔi wuwʊm **k̓ʷa səm**?
ḋaṫᶿ-aθut=**a** ʔiy wuw-əm=**k̓ʷa**=**səm**
gather-CTR;REFL=Q CONJ sing-MD=RPT=FUT
'Are they getting together to sing?' (sf | EP.2022/06/10)

This is predicted by the analysis provided here, since the clitics first encliticize with each other, and it is only the requirement of the topmost clitic that drives the whole complex to encliticize to the predicate.

2.6.2 The clitic string clause-initially

Up to this point, I have considered only cases where the clitics appear following the main predicate or pre-predicate auxiliary. However, a number of 2PCs can also occur clause-initially. When occurring clause-initially, their position and ordering matches their base-generated positions. They occur in the same order

[32] Thank you to Henry Davis, p.c., 2022 for pointing out the importance of these facts.

as found in second position, with the whole clitic string preceding the main predicate and any pre-predicate auxiliaries.

The pre-predicative position is available for the clausal demonstratives and combinations of the clausal demonstratives with the inferential, reportative, future, and subject clitics. Both pre-predicative and post-predicative ordering is illustrated below for the clausal demonstrative *kʷa* (136) and combinations of clausal demonstratives *kʷi* and *kʷa* with the inferential (137), reportative (138), future (139), and subject clitics (140).

(136) a. **kʷa** θo ta?ačiš.
kʷa=θu ta?ačiš
CLD=go travel
'They went travelling.' (vf | EP.2021/02/26)

b. θo **kʷa** gayɛtəs.
θu=**kʷa** gay-at-as
go=CLD ask-CTR-3ERG
'She went to ask him.' (vf | EP.2021/06/12)

(137) *Context: You ask me where Freddie is. His car has been missing from his driveway for several days, so I assume he's travelling. I tell you:*

a. **ḉɛkʷa** θo ta?ačɩš.
ḉa=**kʷa**=θu ta?ačiš
INFER=CLD=go travel
'He must have gone travelling.' (sf | EP.2021/09/18)

b. θo **ḉɛkʷa** ta?ačɩš.
θu=**ḉa**=**kʷa** ta?ačiš
go=INFER=CLD travel
'He must have gone travelling.' (sf | EP.2021/09/18)

(138) *Context: You ask me where Freddie is. His daughter had told me he went travelling. I tell you:*

a. **k̓ʷakʷa** θo ta?ačiš.
k̓ʷa=**kʷa**=θu ta?ačiš
RPT=CLD go travel
'He went travelling.' (sf | EP.2021/09/18)

b. θo **k̓ʷakʷa** ta?ačiš.
θu=**k̓ʷa**=**kʷa** ta?ačiš
go=RPT=CLD travel
'He went travelling.' (sf | EP.2021/09/18)

(139) *Context: We can't see the beach right now, but I know it will be really high tide. When Felipe suggests going to walk on the beach, I tell Felipe:*

a. **səmkʷi** ƛɛq̓ʷmot
səm=**kʷi**=ƛ<i>q̓ʷ-mut
FUT=CLD=tide.come.in<STAT>-INT
'The tide will be really high right now.' (sf | EP.2022/02/04)

b. ƛɛq̓ʷmot **səmkʷi**
ƛ<i>q̓ʷ-mut=**səm**=**kʷi**
tide.come.in<STAT>-INT=FUT=CLD
'The tide will be really high right now.' (vf | EP.2022/02/04)

(140) *Context: I just recovered from my second dose of Moderna.*

a. **čkʷi** qʷol̓ ʔɛǰɩm.
č=**kʷi**=qʷəl̓ ʔiǰ-im
1SG.SBJ=CLD=come get.better-MD
'I'm feeling better.' (More literally: 'I've gotten better.')

b. ʔɛǰɩm**č kʷi**.
ʔiǰ-im=**č**=**kʷi**
get.better-MD=1SG.SBJ=CLD
'I'm feeling better.' (More literally: 'I've gotten better.') (vf | EP.2021/07/10)

Crucially, clitics occurring pre-predicatively must all pattern together as a clitic string: it is not possible for part of the string to occur pre-predicatively and rest of the string to occur post-predicatively.

(141) a. *Context: You ask me where Freddie is. His daughter had told me he went travelling. I tell you:*

***k̓ʷa** θo **kʷa** taʔačiš.
k̓ʷa=θu=**kʷa** taʔačiš
RPT=go=CLD travel
'He went travelling.' (sf | EP.2021/09/18)

b. *Context: You ask me where Freddie is. His car has been missing from his driveway for several days, so I assume he's travelling. I tell you:*

***č̓ɛ** θo **kʷa** taʔačɩš.
č̓a=θu=**kʷa** taʔačiš
INFER=go=CLD travel
'He must have gone travelling.' (sf | EP.2021/09/18)

These clause-initial cases therefore provide additional evidence for the clitic string as a unit.

Even while these clause-initial clitic strings support the proposals concerning clitic placement developed here, the details of their analysis are challenging. The challenge, of course, is capturing the ability of the

clitics to occur either clause-initially or enclitic on the initial non-clitic element. I will sketch a preliminary account of how these facts can be handled in the model I have developed, but a fuller exploration of these facts will have to await future research.

As already mentioned, the clause-initial clitic strings are identical to enclitic versions with the same clitics; the ordering between the clitics is maintained. Unlike the enclitic strings, however, the clause-initial clitic strings must contain a clausal demonstrative. The inferential and reportative do sometimes occur pre-predicatively without an overt clausal demonstrative, but even then they are interpreted as if the clausal demonstrative were present. I therefore analyze these cases as involving a null clausal demonstrative.

The relevant cases are illustrated below. As will be discussed in Chapter 7, the clausal demonstratives contribute perfect-like semantics. In the following pairs, if the inferential or reportative occurs pre-predicatively, the event is interpreted as having already occurred ((142a) and (143a)), the same interpretation as when a clausal demonstrative is present ((142b-c) and (143b-c), regardless of whether the clausal demonstrative occurs pre- ((142b) & (143b)) or post-predicatively ((142c) & (143c)).

(142) *Context: Freddie's car hasn't been home for a few days.*

a. **č̓ɛ** θo ta?ačiš.
č̓a=∅=θu ta?ačiš
INFER=CLD=go travel
'Freddie has gone travelling.' (sf | EP.2022/06/17)

b. **č̓ɛkʷa** θo ta?ačiš.
č̓a=**kʷa**=θu ta?ačiš
INFER=CLD=go travel
'Freddie has gone travelling.' (sf | EP.2022/06/17)

c. θo **č̓ɛ kʷa** ta?ačiš.
θu=**č̓a**=**kʷa** ta?ačiš
go=INFER=CLD travel
'Freddie has gone travelling.' (sf | EP.2022/06/17)

(143) *Context: I hear Freddie has left on a trip and has been gone a few days.*

a. **k̓ʷa** θo ta?ačiš.
k̓ʷa=∅=θu ta?ačiš
RPT=CLD=go travel
'Freddie has gone travelling.' (sf | EP.2022/06/17)

b. **k̓ʷakʷa** θo ta?ačiš.
k̓ʷa=**kʷa**=θu ta?ačiš
RPT=CLD=go travel
'Freddie has gone travelling.' (sf | EP.2022/06/17)

c. θo **k̓ʷa kʷa** ta?ačiš.
θu=**k̓ʷa**=**kʷa** ta?ačiš
go=RPT=CLD travel
'Freddie has gone travelling.' (sf | EP.2022/06/17)

In the absence of a clausal demonstrative, the *ho* /hu/ 'go' auxiliary often gives rise to an interpretation where the event has not occurred yet ((144a) and ((145a)). This reading is only available when the inferential and reportative are post-predicative. When the inferential and reportative are pre-predicative, the clause cannot be interpreted with a future-oriented interpretation ((144b) and ((145b)). This suggests that there is a null clausal demonstrative in these cases.

(144) *Context: I see Freddie packing up his car.*

a. θo **c̓ɛ** ta?ačiš.
θu=**c̓a** ta?ačiš
go=INFER travel
'Freddie's going travelling.' (sf | EP.2022/06/17)

b. #**c̓ɛ** θo ta?ačiš.
c̓a=∅=θu ta?ačiš
INFER=CLD=go travel
'Freddie's going travelling.' (sf | EP.2022/06/17)

(145) *Freddie told me he is about to leave on a trip. I tell you:*

a. θo **k̓ʷa** ta?ačiš.
θu=**k̓ʷa** ta?ačiš
go=RPT travel
'Freddie's going travelling (he said).' (sf | EP.2022/06/17)

b. #**k̓ʷa** θo ta?ačiš.
k̓ʷa=∅=θu ta?ačiš
RPT=CLD=go travel
'Freddie's going travelling.' (sf | EP.2022/06/17)

I therefore propose a null clausal demonstrative allomorph which is present in the cases where the inferential and reportative occur pre-predicatively, and I treat all clause-initial clitic strings as uniformly involving a clausal demonstrative.

Since the clausal demonstratives are the constant element in these clause-initial clitic strings, they seem to be the 'pivot' which triggers a proclitic instead of an enclitic string. I therefore propose that the clausal demonstratives have proclitic allomorphs. The insertion of a proclitic allomorph causes subsequent clitics to also occur with a proclitic specification, forming a proclitic string. This can be accomplished in a number of ways. There may be proclitic allomorphs of the future, inferential, reportative and subject clitics that are selected in the presence of a proclitic clausal demonstrative (or perhaps in the presence of an adjacent,

previously matched proclitic, since these may not all be adjacent to the clausal demonstrative in a larger string, but will be adjacent to another proclitic if the clausal demonstrative sets off a series of insertions of proclitic allomorphs).[33] Alternately, there may be a morphological process triggered by the insertion of a proclitic clausal demonstrative that causes the direction of cliticization of subsequent clitics to switch to procliticization.[34]

Proclitic versions are not available for all clitics that occur above the clausal demonstratives in the syntax. The question clitic can never occur in these proclitic strings, either in initial (146a) or final (146b) position.

(146) *Context: Freddie's car has been gone for a few days. I ask you:*

a. ***ačɛ̌kʷa** θo ta?ačıš.
a=čɛ̌a=kʷa=θu ta?ačiš
Q=INFER=CLD=go travel
'Do you think he has gone travelling?' (cf. (137)) (sf | BW.2022/06/15)

b. ***čɛ̌kʷaha** θo ta?ačıš.
čɛ̌a=kʷa=a θu ta?ačiš
INFER=CLD=Q go travel
'Do you think he has gone travelling?' (cf. (137)) (sf | BW.2022/06/15)

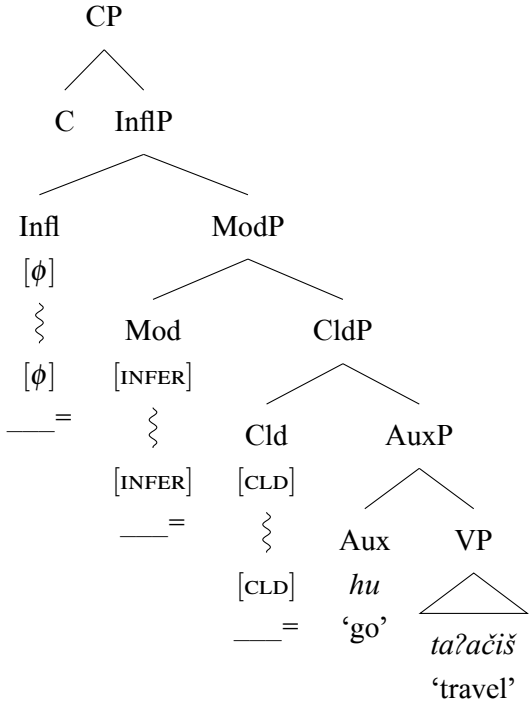
This suggests that the availability of proclitic versions may be lexically specified, more in line with the allomorph approach suggested above.

Regardless of how proclitic specifications come about, the derivation of a proclitic string for an example like (137) will proceed as in (147). First the lexical entries for the clausal demonstrative, inferential, and subject clitics are matched to the nodes in the tree. The proclitic form of the clausal demonstrative is chosen, triggering proclitic forms of the inferential and subject clitic (147a). The clausal demonstrative procliticizes to the auxiliary, the inferential procliticizes to the clausal demonstrative, and the (null) subject clitic procliticizes to the inferential (147b-d). While a clitic string is thus formed with the same ordering as found post-predicatively, there is no requirement for the clitic string to encliticize to a lower host. It remains in pre-predicate position as the derivation enters the second stage of lexical insertion.

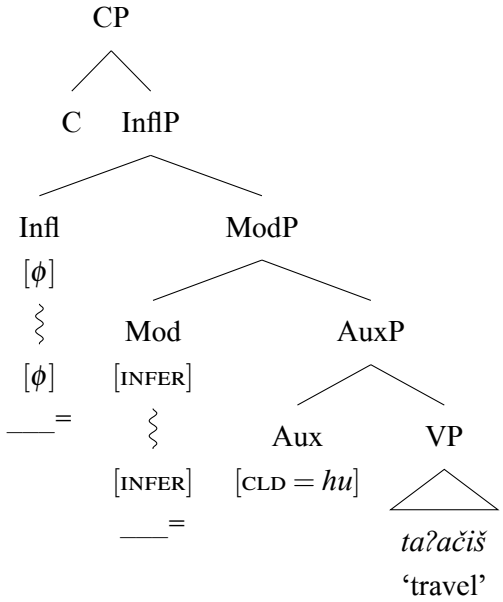
[33]This would mean that the first stage of lexical insertion L-Match can be sensitive to contexts of insertion in addition to the morphosyntactic features present on individual syntactic heads. While this would be an elaboration of the model I have proposed, it would be consistent with the model as long as the relevant contexts only involve information available at this stage of the derivation, such as pro- or enclitic features of adjacent lexical entries.

[34]Roumyana Pancheva, p.c., 2022, suggests an alternative prosodic approach. She suggests that the clitics that are able to procliticize are not pre-specified for direction of attachment, but encliticize in the absence of a clausal demonstrative due to a constraint such as Strong-Start (Selkirk 2009, 2011), which bars phonologically weaker material, such as clitics, from preceding prosodically stronger material, such as prosodic words, within the same prosodic unit – here, a prosodic phrase. Under this approach, the clausal demonstratives are able to procliticize by being incorporated into a prosodic word with their host, avoiding a Strong-Start violation, while other clitics co-occurring with a clausal demonstrative attach to it and are likewise incorporated. This is an intriguing alternative but faces some challenges in the broader context of ʔayʔaǰuθəm morphophonology. The first challenge is that ʔayʔaǰuθəm has lost all prefixes, in contrast to other Salish languages which often have rich prefixal systems (Watanabe 2003: 70); this suggests that the organization of the language does not favour functional material at the beginning of a word. The second is that ʔayʔaǰuθəm stress always falls on the initial syllable of prosodic words. If the clitics were incorporated into a recursive prosodic word with their host, we might expect stress to shift leftward to the first syllable in the proclitic sequence, contrary to fact.

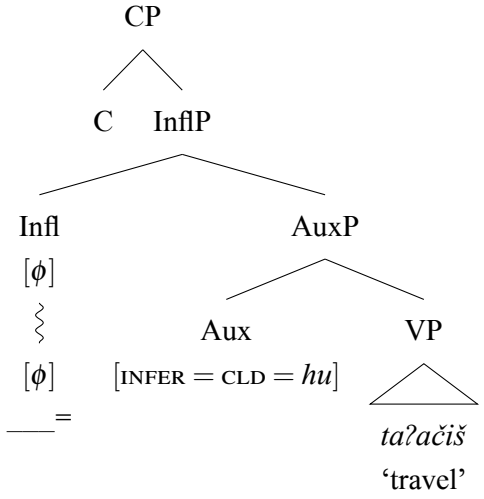
(147) a.


CP
C
InflP
Infl
[ϕ]
[ϕ]
___=
ModP
Mod
[INFER]
[INFER]
___=
CldP
Cld
[CLD]
[CLD]
___=
AuxP
Aux
hu
'go'
VP
taʔačiš
'travel'

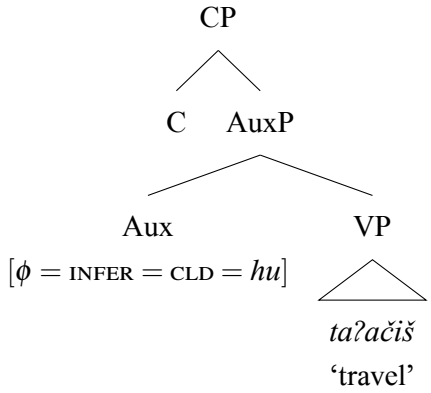
b.


CP
C
InflP
Infl
[ϕ]
[ϕ]
___=
ModP
Mod
[INFER]
[INFER]
___=
AuxP
Aux
[CLD = hu]
VP
taʔačiš
'travel'

c.



d.



The morphological account of procliticization just sketched makes a number of correct predictions, since it keeps the locus of the cliticization in the derivation preceding phonology. The first prediction is that the trigger of procliticization is not phonological. This seems to be correct. If the trigger were phonological, it would likely be a condition on the weight of potential clitic hosts, where the weight of the clausal demonstratives allowed for them to act as a host for the other clitics. The condition that a clausal demonstrative be present in order for the other clitics to procliticize cannot be stated in terms of prosodic weight, however. There are prosodically heavier clitics, namely the scalar exclusive *ʔot* /ʔut/ and the discourse particle *ʔit* /ʔəyt/, that do not occur pre-predicatively in the absence of a clausal demonstrative; furthermore, I have shown that there is a null clausal demonstrative, the lightest possible phonological weight. There is no obvious alternative phonological condition that could motivate the behaviour of this particular subset of clitics. Since the appearance of these clitics pre-predicatively does not appear to be motivated phonologically, it must be accounted for in the morphology, which fits with the architecture of the current model: given that encliticization occurs prior to Stage 2 lexical insertion, it must occur prior to phonological material being associated with the terminal nodes and so any aspect of the derivation preventing encliticization also cannot be phonologically motivated.

The second prediction is that proclisis can be associated with specific allomorphs (inserted at Stage 2 lexical insertion when Stage 1 involves a proclitic feature) and these may not be the obvious choice from a purely phonological point of view. This also seems to be a correct prediction. Only the reduced forms of the subject clitics occur in proclitic strings, as in (148a) (repeated from (140a) above) and never the full forms (140b).

(148) *Context: I just recovered from my second dose of Moderna.*

a. **čkʷi** qʷol̓ ʔɛǰɩm.
č=kʷi=qʷəl̓ ʔiǰ-im
1SG.SBJ=CLD=come get.better-MD
'I'm feeling better.' (More literally: 'I've gotten better.') (sf | BW.2022/06/15)

b. ***čɛnkʷi** qʷol̓ ʔɛǰɩm.
čan=kʷi=qʷəl̓ ʔiǰ-im
1SG.SBJ=CLD=come get.better-MD
'I'm feeling better.' (More literally: 'I've gotten better.') (sf | BW.2022/06/15)

This is surprising from a phonological point of view: use of the full forms of the subject clitics would avoid the creation of a complex onset, as in (148a), usually disallowed in the language (e.g. Blake 2000: 134). While I do not have an explanation for why the reduced forms are chosen, this fact also points toward pre-predicative clitic behaviour being motivated morphologically rather than phonologically.

2.6.3 Summary

In this section, I presented evidence that the clitic string behaves as a morphological constituent. I provided evidence both from coordinate structures, where a series of clitics cannot 'split' to occur on different equidistant hosts, and from clause-initial clitic strings which cannot 'split' to have some clitics initial and others following the closest available host. I have also provided arguments that clause-initial clitic strings are formed in the morphology, and sketched an account of how they could be derived. Future research should examine these cases in more depth.

2.7 Conclusion

In this chapter, I have argued that 2PCs in ʔayʔaǰuθəm occupy a series of functional heads that occur above the verb phrase. I have also argued that the linear order of the clitics within the clitic string maps to syntactic height, with clitics occurring earlier in the string c-commanding clitics that occur later in the string. In contrast, I argued that the position of the clitic string following its host (the first non-clitic item in the clause) is not derived syntactically, since in coordinate structures, movement of the clitics' host to a position c-commanding the clitic string would violate the Coordinate Structure Constraint. Instead, I developed an account where clitic placement occurs during the morphology and is driven by a lexical enclitic feature. I showed that this approach correctly predicts clitic placement to be sensitive to syntactic hierarchy. In coordinate structures, the head of any conjunct is equidistant (assuming distance is sensitive to labelling and the conjunction does not project, as in Chomsky 2013) and can serve as the target of encliticization. Finally, I presented evidence that the clitic string behaves as a morphological constituent. In the following chapter, I argue that a range of allomorphy facts involving the clitics and their host also provide evidence that placement of the 2PC string occurs in the morphology, at Stage 1 of a two-step process of lexical insertion.

Chapter 3

Morphophonology of 2PCs in ʔayʔaǰuθəm

3.1 Introduction

The purpose of this chapter is to account for a range of allomorphy facts that depend on adjacency between the 2PCs and their host. Having established in the previous chapter that clitic placement is post-syntactic, I argue that these allomorphy facts provide support for a morphological account of clitic placement, rather than a phonological one. These cases of allomorphy must be resolved once linearization has taken place but cannot be resolved phonologically without giving up important assumptions concerning the modularity of the morphological and phonological components. They are best resolved at the point of lexical insertion in the morphology. This means that linearization of the clitics must occur as a preceding step in the morphology.

To preview briefly, there are three forms of the first person singular indicative subject clitic: a 'full' form *čɛn* /*čan*/, a more common 'reduced' form *č*, and a third form *tᶿ* that co-occurs with the future clitic. The full form surfaces when adjacent to a weak root, i.e., a root with only a schwa vowel (see e.g. Blake 2000: 106, Watanabe 2003: 170), as in (149); schwa vowels are shorter than other vowels (Blake and Shahin 2008) and analyzed as weightless (Blake 2000).

(149) məq̇**čɛn**.
məq̇=**čan**
full=1SG.SBJ
'I'm full.' (EP.2018/06/07)

The reduced form surfaces following a strong root, i.e., a root with one or more full (non-schwa) vowels, as in (150).

(150) hoy**č**.
huǰ=**č**
finish=1SG.SBJ
'I'm done.' (EP.2018/06/07)

The *tᶿ* form occurs following a strong root and before the future clitic.

(151) wutott**tᶿəm**.
wut-ut=**tᶿ**=**əm**
bend-CTR=1SG.SBJ=FUT
'I'll bend it.' (EP.2018/09/10)

These facts are most naturally captured under an analysis where these forms are allomorphs that compete for insertion. The reduced form subcategorizes for a host with some minimal prosodic weight (I argue in Section 3.3 that this is best characterized as a prosodic word). The t^{θ} forms subcategorizes for a host that is a prosodic word and a following future clitic. The full form occurs when the subcategorization for the other forms is not met.

(152) $$\text{1SG.SBJ} \iff \left\{ \begin{array}{lll} /\text{čan}/ & & \\ /\text{č}/ & / &]_{\omega}___ \\ /\text{t}^{\theta}/ & / &]_{\omega}___\text{FUT} \end{array} \right\}$$ (to be updated)

In order for the correct allomorph to be chosen, the first person subject clitic must be adjacent to the host prior to allomorph selection and this adjacency must be derived while features such as [FUT] are visible. This means that the clitics and their host must be adjacent prior to phonological content being associated with the clitics. In this chapter, I build on proposals in the preceding chapter to develop a model of morphology with a two-step process of lexical insertion to handle these and other allomorphy facts that depend on adjacency between the clitics and their host.

3.2 Outline of the chapter

In what follows, I discuss subject clitic allomorphy (Section 3.3), ergative suffix allomorphy (Section 3.4), and subordinate passive allomorphy (Section 3.5) in turn, arguing that allomorph selection in each case must be resolved once the clitics and their host are adjacent but prior to phonology. For each of these cases, I develop an analysis where allomorph selection occurs at the second step of a two-step process of lexical insertion. I also discuss how morphology and phonology are cyclically intertwined once phonological content is associated with items in the derivation.

3.3 Subject clitic allomorphy

3.3.1 Overview of the alternation between full and reduced forms

The first morphological alternation I discuss is indicative subject clitic allomorphy, previewed in Section 3.1. Except for the second person plural subject clitic and the null third person subject clitic, each of the indicative subject agreement clitics has two forms: a full form and a reduced form, as shown in Table 3.1. The reduced forms are found more commonly – the full forms are found when the subject clitic is enclitic on a prosodically weak stem.

According to Blake (2000), a minimal word in ʔayʔaǰuθəm must contain a foot, and a foot must be binary: either bimoraic or bisyllabic. She argues that schwa is weightless, so weak roots – roots that have only a

Table 3.1: Indicative subject clitics (adapted from Watanabe 2003: 52)

	Full	Reduced
1SG	čan	č
2SG	čax^{w}	čx^{w}
1PL	čat	št
2PL	čap	
3	∅	

schwa vowel – are not well-formed feet.[1] The full forms of the subject clitics are chosen when the clitics follow a weak root or stem (built from a weak root) that does not meet the criteria for binarity and therefore minimal wordhood.[2] The use of the full form of the subject clitic results in a stem that obeys foot binarity. This is illustrated in the next two examples.

In (153), the weak root *məq̇* is monomoraic. I assume that consonants are assigned weight by position, with only coda consonants being moraic (e.g. Hayes 1989). The weak root *məq̇* has already cycled through the phonology in an earlier phase by the time the subject clitics encliticize to it (more on this below), so the coda consonant is already associated with a mora. In combination with the full form of the first person singular subject clitic, the weak root is able to cycle through the phonology again, forming a tri-moraic, bi-syllabic structure: a well-formed foot, and hence also a well-formed minimal (prosodic) word. I assume that the reduced first person singular subject clitic does not bear a mora, since it is a single consonant not associated with a syllable. The addition of the reduced subject clitic would therefore not create a well-formed prosodic word.

(153) məq̇**čɛn**.
(məq̇$_{\mu}$=**ča**$_{\mu}$**n**$_{\mu}$)$_{Ft}$
get.full=1SG.SBJ
'I'm full.' (EP.2018/06/07)

In contrast, the strong root *hoy* /huǰ/ is bimoraic after cycling through the phonology in a previous phase and already forms a well-formed foot, and therefore a well-formed prosodic word, by the time the subject

[1]For Blake (2000: 122), weak roots in isolation form deficient feet via an alignment constraint requiring the left edge of every morphological stem to correspond with the left edge of a foot.

[2]There are a few apparent exceptions to this generalization, involving reduplication. Reduplication, such as the pluractional reduplication in (i), is 'invisible' for calculating the weight of the stem when determining the correct subject clitic allomorph. The root in (i) is weak (the control transitivizer suffix *-t* never adds weight, but acts as a weightless appendix to the syllable). When this weak root is doubled by reduplication, it should form a bimoraic, bisyllabic foot. Nevertheless, the full form of the subject clitic is chosen.

(i) ṯ$^{\theta}$ʊkṯ$^{\theta}$ʊk^{w}t**čɛn** səm.
ṯ$^{\theta}$ək^{w}∼ṯ$^{\theta}$ək^{w}-t=**čan**=səm
PL∼wipe-CTR=1SG.SBJ=FUT
'I will wipe things down.' (vf | EP.2021/04/02)

Lexicalized reduplication also appears to be invisible for the purposes of calculating prosodic weight of the stem when determining subject clitic allomorphs: the full form of the subject clitic also surfaces with words like *q̇aq̇a* 'hungry', as in *q̇aq̇ačɛn* 'I'm hungry.' It seems to be the unreduplicated monomoraic open syllable *q̇a* that is relevant to subject clitic allomorphy, rather than the lexicalized reduplicated form, triggering the full form of the subject clitic.

The invisibility of reduplication for calculating the weight of the stem is a puzzle I will not have space to explore properly here.

clitic is inserted. It always combines with the reduced form of the subject clitic.

(154) hoyč.
$(\text{hu}_{\mu}\text{ǰ}_{\mu})_{Ft}$=č
finish=1SG.SBJ
'I'm done.' (EP.2018/06/07)

3.3.2 Deriving the alternation between full and reduced forms

These facts can be captured under an analysis where the two forms of the subject clitic are in competition, with the reduced forms having a more specified context for insertion – namely, requiring a host that is a well-formed prosodic word. Assuming that the more highly specified form will always be chosen over the less specified form so long as these licensing conditions are met, the reduced form will be chosen except when the subject clitic is following a stem which is not a well-formed prosodic word. Following *hoy* /huǰ/ in (154), for instance, either allomorph of the subject clitic would yield a prosodically well-formed result (the full form following the strong root would create a bisyllabic foot), but the reduced form is always chosen. I therefore propose the lexical entries in (155) for the subject agreement clitics with full and reduced forms.

(155) a. 1SG.SBJ $\Longleftrightarrow$ $\left\{\begin{array}{l}\text{/čan/}\\ \text{/č/} \quad / \quad]_{\omega}___\\ \quad = ___\end{array}\right\}$

b. 2SG.SBJ $\Longleftrightarrow$ $\left\{\begin{array}{l}\text{/čax}^{w}\text{/}\\ \text{/čx}^{w}\text{/} \quad / \quad]_{\omega}___\\ \quad = ___\end{array}\right\}$

c. 1PL.SBJ $\Longleftrightarrow$ $\left\{\begin{array}{l}\text{/čat/}\\ \text{/št/} \quad / \quad]_{\omega}___\\ \quad = ___\end{array}\right\}$

Allomorph selection occurs at Stage 2 of lexical insertion following linearization. At this point, the predicate and the clitics are adjacent, allowing the correct form of the subject clitics to be chosen based on the phonological properties of their host.

I now show the derivations of the forms in (153) and (154) in more detail, beginning with (153). I assume that the VP is spelled out on a previous phase. The three constraints governing the parsing of the predicate are given in (156) and ranked as in (157), resulting in the weak root remaining unparsed as a foot or a word.[3,4]

(156) a. FtBin: A Foot is bimoraic or bisyllabic

b. ProperHdPw: A Prosodic Word is headed by a Foot

c. Parse(Syl): A Syllable is parsed into a Foot

[3]For simplicity, I represent the coda consonant of *məq̇* as moraic in the candidates, and more generally do not represent the assignment of moras to coda consonants, though this weight would be assigned during the cycle through the phonology (requiring an additional high-ranked constraint).

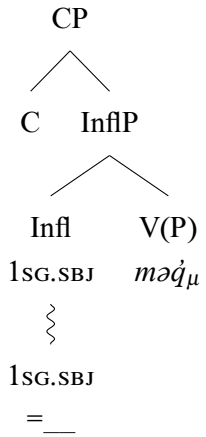
[4]If the weak root occurs in isolation, it will need to be footed eventually in order to be assigned stress within the phrase, but I assume that this occurs later in the phonological derivation.

(157)

mə$\dot{q}$	FtBin	ProperHdPw	Parse(Syl)
☞ a. mə$\dot{q}_{\mu}$			*
b. ($_{\omega}$ ($_{Ft}$ mə$\dot{q}_{\mu}$))	*!		
c. ($_{\omega}$ mə$\dot{q}_{\mu}$)		*!	*

The tree at Stage 1 of lexical insertion for the upper (CP) phase will then appear as in (158a), with the predicate visible at the edge of the lower phase. Because the subject clitic bears an encliticization feature, it encliticizes to the predicate, yielding (158b).

(158) a.



b. [mə$\dot{q}_{\mu}$=1SG.SBJ]

Next, Stage 2 of lexical insertion occurs for the subject clitic. At this point, competition between the allomorphs occurs. Because the weak root does not form a prosodic word, the full form of the subject clitic is correctly chosen for insertion: the conditioning environment for the reduced form is not met.

(159) a. [mə$\dot{q}_{\mu}$=1SG.SBJ]

b. [mə$\dot{q}_{\mu}$=ča$_{\mu}$n$_{\mu}$]

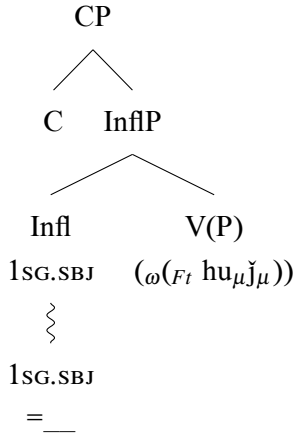
In contrast, when the subject clitic combines with a strong root, the conditioning environment for the reduced form will be met. I illustrate this using the derivation for (154). Again the predicate is spelled out in an earlier phase. Since *hoy* /huǰ/ is bimoraic, it is parsed as a well-formed foot, and therefore a well-formed prosodic word, when it cycles through the phonology.

(160)

hu$_{\mu}$ǰ	FtBin	ProperHdPw	Parse(Syl)
a. hu$_{\mu}$ǰ$_{\mu}$			*
☞ b. ($_{\omega}$ ($_{Ft}$ hu$_{\mu}$y$_{\mu}$))			
c. ($_{\omega}$ hu$_{\mu}$ǰ$_{\mu}$)		*!	*

The tree in (161) shows the derivation at the point where Stage 1 of lexical insertion for the subject clitic takes place, at which point the enclitic feature of the subject clitic is visible to the derivation (161a). This forces the subject clitic to encliticize to the predicate (161b). Then the second stage of lexical insertion for the subject clitic occurs. Since the conditioning environment for the reduced form of the subject clitic is met, it will be chosen for insertion (161c).

(161) a.



b. [(ω(Ft huμǰμ))=1SG.SBJ]

c. [(ω(Ft huμǰμ)) =č]

This analysis also predicts the correct results when the question clitic occurs between the subject clitic and the host. The presence of the question clitic prevents the full form of the subject clitic from surfacing after weak roots, as in (162) and (163a). In the absence of the question clitic, full forms of the subject clitics would surface, as shown in (153) above and (163b) below.

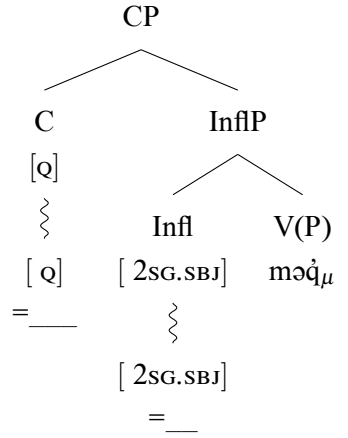
(162) maq̇**ačxʷ**?
məq̇=**a**=**čxʷ**
get.full=Q=2SG.SBJ
'Are you full?' (vf | EP.2021/01/22)

(163) a. qəht**ačxʷʊm** tə θɛwθɛtən?
qəh-t=**a**=**čxʷ**=**əm** tə=θiwθitən?
lift-CTR=Q=2SG.SBJ=FUT DET=table
'Are you going to lift the table?' (vf | FL.2018/08/06)

b. qəht**čɛn səm** θʊkʷnačtən.
qəh-t=**čan**=**səm** θəkʷnačtən.
lift-CTR=1SG.SBJ=FUT chair
'I'm going to lift the chair.' (vf | FL.2018/08/06)

To see how the analysis predicts the correct result here, we can examine the derivation for (162). The first stage of lexical insertion for the clitics yields (164a). The second person subject encliticizes to the question particle (164b), which then enclitizes to the predicate (164c).

(164) a.



b. [[=Q=2SG.SBJ] [mə̓q̓μ]]

c. [mə̓q̓μ=Q=2SG.SBJ]

Since the clitics are not arranged hierarchically following enclitcization, I assume that the order for Stage 2 of lexical insertion in these cases is determined by the ordering information that is available: linear order. Stage 2 lexical insertion proceeds from left to right (165). The question clitic is inserted and cycles through the phonology, at which point it is parsed as a prosodic unit together with the predicate; the combination results in a well-formed foot and therefore a well-formed prosodic word (165b). This occurs prior to allomorph selection for the subject clitic. Since the conditioning environment for the more specified reduced form of the subject clitic is met, it will be chosen (165c).

(165) a. [mə̓q̓μ=Q=2SG.SBJ]

b. [(ω(Ft mə̓q̓μ=aμ))=2SG.SBJ]

c. [(ω(Ft mə̓q̓μ=aμ))=čxʷ]

While the subject clitic allomorphy facts just described fit neatly with a morphological analysis of clitic placement, they look at first glance to be also amenable to a phonological account. A phonological account would require both allomorphs to be passed to the phonology (as in Bye and Svenonius 2012), which then chooses between them.

Such an account would have to involve an additional mechanism to ensure the full form following a strong root is dispreferred, however, since this combination would also result in a well-formed foot structure, as in (166), for example.

(166) *hoyčɛn.
(ω(Ft(σhuμǰμ)(σčaμnμ)))
finish=1SG.SBJ
'I'm finished.' (sf | EP.2021/09/04)

This would require something like the priority constraints proposed in Mascaró (1996) and Bonet et al. (2007); these constraints involve a ranking of allomorphs and are violated whenever the preferred allomorph is not chosen. Such an approach recreates the Elsewhere Principle – already necessary at lexical insertion

in the morphology – in the phonology. Since this creates unnecessary duplication between levels (and also translates a process that depends on the independently-motivated subset principle to one that is purely ad hoc[5]), this is an undesirable move. For this reason, I believe the choice between allomorphs is better handled at the point of lexical insertion, where stored information about the context of insertion can play a role, ensuring full forms will only be inserted following weak roots.

3.3.3 Overview of the allomorphy of the subject clitics and future clitic in combination

The reduced forms of the subject clitics occur with a reduced form of the future clitic *əm*, as in (167a). When the full form of the subject clitics surface, the full form of the future surfaces as well, as in (167b).

(167) a. qəhta**čxʷʊm** na θɛwθɛtən?
qəh-t=a=**čxʷ=əm** na θiwθitən
lift-CTR=Q=2SG.SBJ=FUT fill.prt table
'Are you going to lift the table?' (vf | FL.2018/08/06)

b. qʷoḭ**čʊxʷ səm** həmxʷaθ.
qʷəḭ=**čəxʷ=səm** həmxʷ-aθ
come=2SG.SBJ=FUT keep.company-CTR;1SG.OBJ
'You will come keep me company.' (vf | EP.2018/06/11)

The paradigm of subject clitics in combination with the future is given in Table 3.2.

Table 3.2: Indicative subject clitics plus future (adapted from Watanabe 2003: 52)

	Non-future		Future	
	Full	Reduced	Full	Reduced
1SG	čan	č	čan=səm	tᶿ=əm
2SG	čaxʷ	čxʷ	čaxʷ=səm	čxʷ=əm
1PL	čat	št	čat=səm	št=əm
2PL	čap		čap=səm	

The reduced form of the future can be derived in the phonology by a constraint against complex onsets, independently required in the language (Blake 2000), forcing the initial *s* of the future clitic to delete following the obstruent clusters *čxʷ* '2SG.SBJ' and *št* '1PL.SBJ'. However, the reduced form of the first person singular has a different allomorph altogether in combination with the future: *tᶿ*, as in (168a).

(168) a. wutot**tᶿəm**.
wut-ut=**tᶿ=əm**
bend-CTR=1SG.SBJ=FUT
'I'll bend it.' (EP.2018/09/10)

[5]Thanks to Gunnar Hansson, p.c., 2022 for pointing this out to me.

b. k̓ʷʊt**čɛn səm**.
k̓ʷə[n]-t=**čan=səm**
see-CTR=1SG.SBJ=FUT
'I'll look at it.' (JF.2018/07/24)

The choice of the *tθ* allomorph is dependent on the phonological properties of the host on the left, and the morphosyntactic feature of the morpheme following on the right. The *tθ* form of the subject clitic does not surface when the host is not a well-formed foot – instead the full form of the first person subject clitic surfaces, and the full form of the future clitic (168b). The conditioning environment on the right, however, is not phonological in nature but refers to the presence of a specific morpheme: the future clitic (identified through its morphosyntactic features, as elaborated below).

It is the future clitic specifically that triggers the allomorphy, not its phonological content. For instance, the *tθ* allomorph of the first person singular subject is not selected in (169) despite the fact that the initial three segments of the predicate following the subject clitic are nearly identical to those found in the future clitic. It is only the future clitic that triggers this allomorph.

(169) niš=**č** **səl**salɛm.
niš=**č** **səl**∼səl-im
be.here=1SG.SBJ PL∼spin-MD
'I'm going around in circles here.' (vf | EP.2018/06/12)

3.3.4 Deriving allomorphy for the first person subject clitic and the future clitic

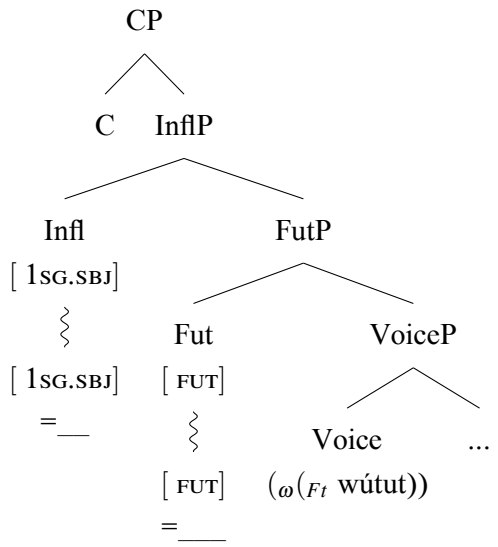
To account for this allomorphy, I propose the following updated lexical entry for the first person indicative subject clitic (170).

(170) 1SG.SBJ $\Longleftrightarrow$ $\left\{\begin{array}{lll} /\text{čan}/ & & \\ /\text{č}/ & / &]_{\omega}___ \\ /\text{t}^{\theta}/ & / &]_{\omega}___\text{FUT} \\ & =___ & \end{array}\right\}$

Given that the conditioning of this allomorphy makes reference to the morphosyntactic feature of the future clitic, allomorph selection must take place in the morphology; it cannot be postponed until the phonology since the phonology cannot make reference to morphosyntactic features, at least under the modular assumptions adopted here (see Section 2.3.2). The conditioning environment requires the clitic to be adjacent to its host, however. Once again, this is handled well under an analysis where enclisis takes place in the morphology, creating the environment for allomorph selection prior to the phonology.

I now examine how the correct allomorph gets chosen. The derivation for an example such as (168a) will take place as in (171a–c). As in previous derivations, I assume a *v*P/VoiceP phase boundary, so the predicate is spelled out but visible at the phase edge. The encliticization process proceeds as in (171b–c).

(171)



a. [[=1SG.SBJ=FUT] [(ω(Ft wútut))]]

b. [(ω(Ft wútut))=1SG.SBJ=FUT]

The second stage of lexical insertion then takes place starting from the leftmost clitic, as before; here, this means starting with the subject clitic. The subject clitic is adjacent to the predicate, a prosodic word, and the future clitic, which has not yet been inserted. Since the phonological features of the predicate on the left and the identity of the future clitic on the right are both visible at this point in the derivation, the correct form of the future clitic is chosen. The *tθ* allomorph is inserted (172).

(172) [(ω(Ft wútut))=tθ=FUT]

I now need to derive that the form of the future is *-əm* following this form of the first person subject clitic.

I propose that the onset of *səm* is deleted in order to avoid a complex onset when adjacent to the first person clitic *tθ*. ʔayʔaǰuθəm syllables always have an onset (Blake 2000: 126), but complex onsets are disallowed (Blake 2000: 134).[6] Following Blake (2000: 107,137), I adopt a constraint against complex onsets *CO.

(173) *CO: Syllables do not have complex onsets (Blake 2000: 137)

I also adopt from Blake (2000: 156) a constraint against super-heavy syllables $*\mu\mu\mu$.

(174) $*\mu\mu\mu$: Syllables are not trimoraic (Blake 2000: 156)

Finally, I adopt a further constraint against unparsed segments.

(175) *PARSE(SEG[MENT]): Assign one violation mark for each segment that is not associated with a syllable.

Together, these constraints on well-formed syllable structure ensure that the correct surface form of the future clitic is derived. These constraints are accompanied by a high-ranked faithfulness constraint MAX(STEM)

[6]There are a few exceptions where the *s-* nominalizer is retained, as in *sǰɛsoɫ* 'yesterday', but Blake (2000: 145) treats the initial *s* as outside the domain of the prosodic word. There are also the cases of the proclitic subject clitics in combination with the clausal demonstratives; see Section 2.6.2.

that prevents deletion of input segments from the stem. This ensures that segmental material from the stem such as the first person subject clitic is not deleted in order to have a well-formed prosodic structure.

(176)

[(ω (Ft (wúμ)σ(tuμtμ)σ) tθ) =səm]	MAX(STEM)	*CO	*μμμ	*PARSE(SEG)
a. (ω (Ft (wúμ)σ(tuμtμ)σ) (tθ səmμ)σ)		∗!		
b. (ω (Ft(wúμ)σ(tuμtμ)σ tθ) (səmμ)σ)				∗!
c. (ω (Ft (wúμ)σ(tuμtμtθμ)σ) (səmμ)σ)			∗!	
☞ d. (ω (Ft (wúμ)σ(tuμtμ)σ) (tθ əmμ)σ)				
e. (ω (Ft (wúμ)σ(tuμtμ)σ) (səmμ)σ)	∗!			
f. (ω (Ft (wúμ)σ(tuμtθμ)σ) (səmμ)σ)	∗!			

I also ensure that the correct form of the future is chosen when in combination with full person clitics. Since the input can form a well-formed syllable structure, deletion of the initial segment of *səm* only violates a lower-ranked general MAX constraint, without violations of higher ranked markedness constraints. The winning candidate therefore does not involve deletion of any input segments.

(177)

[[(ω (Ft (məq̇μ)σ (čaμnμ)σ))] =səm]	MAX(STEM)	*CO	*μμμ	*PARSE(SEG)	MAX
☞ a. (ω(Ft(məq̇μ)σ(čaμnμ)σ) (səmμ)σ)					
b. (ω(Ft(məq̇μ)σ(čaμnμ)σ) (əmμ)σ)					∗!
c. (ω(Ft(məq̇μ)σ(čaμ)σ) (nəmμ)σ)	∗!				

I have now shown how subject clitic allomorphy both with and without a following future clitic can be derived with a two-step model of lexical insertion. The account depends on clitic placement preceding the second stage of lexical insertion, the point at which allomorphs compete for insertion. For the first person subject clitic in combination with the future, accounting for the allomorphy also depends on access to the morphosyntactic feature of the future clitic. In a modular model of the morphology and the phonology, this information is not available in the phonological derivation. Subject clitic allomorphy therefore provides further evidence that clitic placement occurs in the morphology, as argued in the preceding chapter.

3.4 Disappearance of the ergative suffix

3.4.1 Overview of the alternation

The second morphological alternation that provides evidence that enclisis takes place in the morphology is the disappearance of the ergative suffix before the reportative and future enclitics (Kroeber 2002: 24; Watanabe 2000: 46–7; Watanabe 2003: 57–60). The third person ergative suffix *-əs* /-as/ is usually obligatory on transitive predicates in indicative clauses with a third person subject. In (178), however, it does not appear as expected following the object suffix: it disappears before the reportative clitic *k'wa*. When reinserted in these contexts, it is considered marginal (179b).[7]

[7] This combination has very occasionally been volunteered in elicitation contexts, however.

(178) χənaθɛ **k̓ʷa** kʷ ɬaχ.
ǩən-aθi-∅=**k̓ʷa** kʷ=ɬəǩ
give-CTR;2SG.OBJ-3ERG=RPT DET=bad
'It [blackfish] gives you bad luck.' (Kroeber 2002: 24)

(179) a. *Context: Daniel is painting his house this summer and he told me on the phone that he was painting today. You ask me what he's up to today when he doesn't join us for a meeting.*
tatam Daniel sṯʰok̓ʷ?
ta∼tam Daniel sṯʰuk̓ʷ
PROG∼what Daniel today
'What is Daniel doing today?'

b. *I tell you:*
ǰikʷt(??**əs**) k̓ʷa šɛ ʔayɛs.
ǰə∼ǰkʷ-t-(??**as**)=k̓ʷa šə=ʔayaʔ-s
PROG∼paint-CTR-3ERG=RPT DET=house-3POSS
'He's painting his house (I heard).' (sf | EP.2021/07/30)

Similarly, the ergative suffix appears as expected in (180a) but disappears before the future in (180b) and is ungrammatical when reinserted (180c).

(180) a. nəpišɛs.
nəp-iš-**as**
put.in-TR-3ERG
'He puts it in.'

b. nəpiš **səm**.
nəp-iš-∅=**səm**
put.in-TR-3ERG=FUT
'He will put it in.'

c. *nəpišɛs **səm**.
nəp-iš-**as**=**səm**
put.in-TR-3ERG=FUT

(Watanabe 2003: 57)

These alternations point to either a morphological deletion rule that is triggered by adjacency between the ergative suffix and the reportative and future clitics, or a null allomorph of the ergative suffix that surfaces before the reportative and future clitics; I argue for the latter here. As Kroeber (2002) points out, this alternation is only triggered when these morphemes are adjacent: when there is an auxiliary preceding the predicate, the ergative suffix surfaces as expected.

(181) ho **ƛʷa** q̓ʷɛtstomšɛs.
hu=**ƛʷa** q̓ʷit-stu-mš-**as**
go=RPT go.to.beach-CAUS-1SBJ.OBJ-3ERG
'He's gonna take me down to the beach.' (Kroeber 2002: 25)

This alternation is not phonological in nature – there is no phonological motivation for the disappearance of the ergative. This is shown by the fact that the third person subjunctive clitic does not disappear when followed by the future and the reportative, despite having the same segmental content as the ergative suffix (Watanabe 2003: 58). The subjunctive clitic is shown in a subordinate 'if' clause with a following future clitic in (182), and in an optative construction with a following reportative in (183).

(182) a. ga nəpišɛs **səm**
ga nəpiš=**as**=**səm**
if put.in-TR=3SBJV=FUT
'if he would put it in...'

b. ga ʔaq̓atəs **səm**.
ga ʔaq̓-at=**as**=**səm**
if chase-CTR=3SBJV=FUT
'if he would chase her...' (Watanabe 2003: 58)

(183) *Context: Gail is really hoping that one of her sons will come to a family gathering because she hasn't seen him in a long time. Gail told me this, and then later I tell you:*

qʷol**as** **ƛʷa** χʷot	təs	nɛʔɛtəm	[ʔə] Gail.
qʷəl̓=**as**=**ƛʷa**=x̌ʷət	təs	niʔ-it-əm	[ʔə=]Gail
come=3SBJV=RPT=DPRT	arrive	say-CTR-PASS	[OBL=]Gail

'Gail said she hopes he comes.' (vf | EP.2021/08/27)

Therefore the alternation must be motivated at a point in the derivation where the ergative and subjunctive subject clitics are represented as distinct – that is, prior to the transfer to the phonological component. The conditioning environment again depends on adjacency between the clitics and the predicate, providing additional evidence that the relative position of the clitics and their host must be achieved in the morphology.

The ergative suffix also disappears before the third person possessive subject clitics. In subordinate nominalized clauses, if there is an auxiliary to host the third person possessive subject clitic, the third person possessive subject clitic co-occurs with the third person ergative suffix, which appears on the main predicate.[8]

[8]This deletion of either an ergative suffix or a subject clitic when the two are adjacent is quite widespread in the Salish language family, occurring also in St'át'imcets, nɬeʔkepmxcín (Thompson), Sḵwx̱wú7mesh (Squamish), Shashishalhem (Sechelt), and perhaps others (Davis 1999). The interaction between subordinate subject agreement and passive allomorphy discussed in the following section also seems to be a subtype of this phenomenon, which can be characterized more broadly as involving 'competition' between subject inflection arising in Infl and inflectional morphology in Voice when they would both be realized on the main predicate (Henry Davis, p.c., 2022). While I capture the alternations with null allomorphs in ʔayʔaǰuθəm, accounting for the cross-linguistic picture would require some kind of morphological filter or constraint, likely stated in terms of haplology avoidance. Since this would involve further elaboration of the model presented here, I leave this for future research.

(184) ʔoʔomat Bill sqʷol̓**s** č̓εgaθ**əs**.
ʔuʔumat Bill [s=qʷəl̓=**s** č̓ag-aθ-**as**]
lazy Bill NMLZ=come=3POSS help-2SG.OBJ-3ERG
'Bill didn't want to come help me.' (Kroeber 2002: 20)

The third person ergative suffix disappears, however, on a main predicate preceding the third person possessive clitic.

(185) a. χaλ̓̀ kʷs saχʷət**s**.
χaλ̓̀ [kʷ=s=saχʷ-at-∅=**s**]
want DET=NMLZ=scrape-CTR-3ERG=3POSS
'He tried (wanted) to scrape it.'

b. č̓εgattᶿəm kʷs hit**s**.
č̓ag-at=tᶿ=əm [kʷ=s=həǰ-t-∅=**s**]
help-CTR=1SG.SBJ=FUT DET=NMLZ=make-CTR-3ERG=3POSS
'I'll help him make it (when he makes it).' (Kroeber 2002: 20)

Kroeber (2002: 21) points out that this alternation has no obvious phonological motivation. There is no general process of phonological haplology avoidance or deletion of *Vs* before the 3rd person possessive. The third person possessive is pronounced following *Vs* in *moʔoss* /muʔus-s/ 'his/her head', for instance (the two *s*'s are pronounced as a single extra long unit). Instead, the alternation seems to be motivated by *morphological* haplology avoidance, where haplology involves identical third person featural content, rather than phonological identity (see Nevins 2012 on morphological-word internal dissimilation driven by featural identity).[9] Like the alternation involving the ergative suffix before the reportative and future clitics, this alternation makes reference to the featural distinctness of the morphemes and so must be resolved in the morphology, yet is conditioned by adjacency between clitics and their host, pointing to clitic placement being derived prior to (or concomitant with) lexical insertion in the morphology.

3.4.2 Analysis of ergative disappearance

I propose that the ergative suffix occurs in Voice, following Davis (2013). Since Voice is the phase edge, I propose that the second stage of lexical insertion for the ergative suffix takes place along with spell-out of the clitics in the upper phase.[10] The lexical entry for the ergative has a zero allomorph when adjacent to the reportative, future, and third person possessive and subjunctive clitics.[11]

(186) $[\,3\text{ERG}\,] \iff \left\{ \begin{array}{c} \text{/-as/} \\ \varnothing/___\{=\text{RPT}/=\text{FUT}/=3\text{POSS}/=3\text{SBJV}\} \end{array} \right\}$

[9] In discussing these alternations in terms of haplology avoidance, I am not claiming that there is a deletion rule involved; I will instead pursue an analysis where these involve a null allomorph of the ergative suffix. This avoids introducing a layer of morphological rules that operate following Stage 1 of lexical insertion. The solution in terms of a null ergative allomorph does not directly reference the adjacency of identical features, however, which may be a reason to revisit this analysis in future work.

[10] In previous derivations, I treated the lower phase, including the phase edge, as fully spelled out for simplicity.

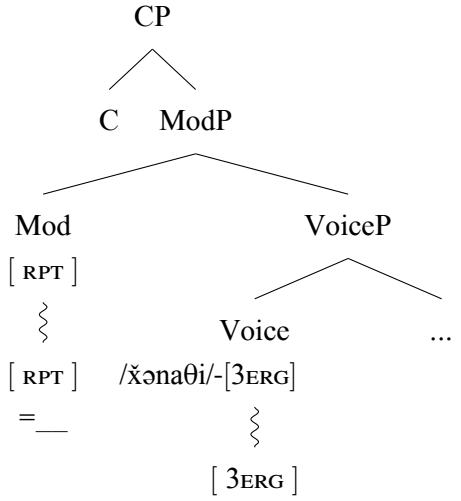
[11] Possibly the latter two should be reduced to a single environment involving third person subordinate subject clitics, but I will not pursue this here as I do not otherwise need to reference a 'subordinate' feature distinct from the NMLZ and SBJV features distinguishing nominalized and subjunctive subordinate clauses.

I turn now to a concrete example (187), repeated from (178).

(187) χənaθɛ **k̓ʷa** kʷ łaχ.
ǧən-aθi-∅=**k̓ʷa** kʷ=łəǧ
give-CTR;2SG.OBJ-3ERG=RPT DET=bad
'It [blackfish] gives you bad luck.' (Kroeber 2002: 24)

The derivation at Stage 1 of lexical insertion for the upper phase is as in (188a). Following encliticization, we get the representation in (188b).

(188) a.



b. [[/ǧənaθi/-3ERG] = FUT]

At the second stage of lexical insertion, the null allomorph for the ergative suffix is chosen since its conditioning environment is met (189a), followed by insertion of the phonological content of the reportative clitic itself (189b); the null ergative disappears when it cycles through the phonology, since it has no phonological content.

(189) a. [[(ǧənaθi)-/∅/] =RPT]
b. [(ǧənaθi) /k̓ʷa/]

Once again, choice of the correct allomorph references the identity of individual morphemes, as encoded by their morphosyntactic features. Since these features are not visible in the phonology, allomorph selection must take place in the morphology. Since the allomorphy is conditioned by adjacency between the predicate and reportative or future clitic, the placement of these clitics must precede lexical insertion. This provides additional evidence that clitic placement occurs in the morphological component of the grammar.

3.5 Passive allomorphy

3.5.1 Overview of the alternation

The final morphological alternation that provides evidence that clitic placement takes place in the morphology concerns the two allomorphs of the passive suffix: the main clause passive suffix *-əm* and the subordinate

passive -*ɛt* /-it/ (Watanabe 2003: 279).

Passives in ʔayʔaǰuθəm are non-promoting: the internal argument remains in object position. A third person expletive subject clitic appears in passive subordinate clauses specifically when there is an auxiliary preceding the main predicate: the 'main clause' form of the passive suffix, -*əm*, appears and the possessive or subjunctive expletive subject clitic appears on the preceding auxiliary, as in (190a) and (191a).[12] If there is no auxiliary preceding an embedded predicate to host an expletive third person clitic, the subordinate form of the passive suffix -*ɛt* /-it/ surfaces and no subject clitic appears (Kroeber 2002). This is shown in (190b) and (191b).

(190) a. xʷaʔ ʔot qʷ**as** c̓ɛgaθay**əm** Bill.
xʷaʔ=ʔut [qʷ+**as** c̓ag-aθay-**əm** Bill]
NEG=EXCL come+3SBJV help-CTR;1SG.OBJ-PASS Bill
'Bill didn't come help me.' (Kroeber 2002: 22)

b. xʷaʔ ʔot c̓ɛgaθay**ɪt** Bill.
xʷaʔ=ʔut [c̓ag-aθay-**it** Bill]
NEG=EXCL help-CTR;1SG.OBJ-SBRD.PASS Bill
'Bill didn't help me.' (Kroeber 2002: 22)

(191) a. c̓iyɪtč [sqʷol̓**s** c̓ɛgaθɛʔ**m**oɬ].
c̓iy-it=č [s=qʷəl̓=**s** c̓ag-aθɛ-ʔ**m**-uɬ]
hear-CTR=1SG.SBJ NMLZ=come=3POSS help-CTR;2SG.OBJ-PASS-PST
'I heard that he came to help you.' (Kroeber 2002: 22)

b. ʔi tᶿ qʷayigən [sc̓ɛgaθay**ɪt** Bill].
ʔəǰ tᶿ=qʷayigən [s=c̓ag-aθay-**it** Bill]
good 1SG.POSS=mind NMLZ=help-CTR;1SG.OBJ-SUB.PASS Bill
'I'm glad that Bill helped me.' (Kroeber 2002: 22)

Like the preceding alternations, this alternation is not phonologically motivated and requires reference to the morphosyntactic features of the morphemes involved. Once again, this points to clitic placement taking place prior to (or concomitant with) lexical insertion, in order to provide the triggering environment for the subordinate passive to surface.

3.5.2 Deriving subordinate passive allomorphy

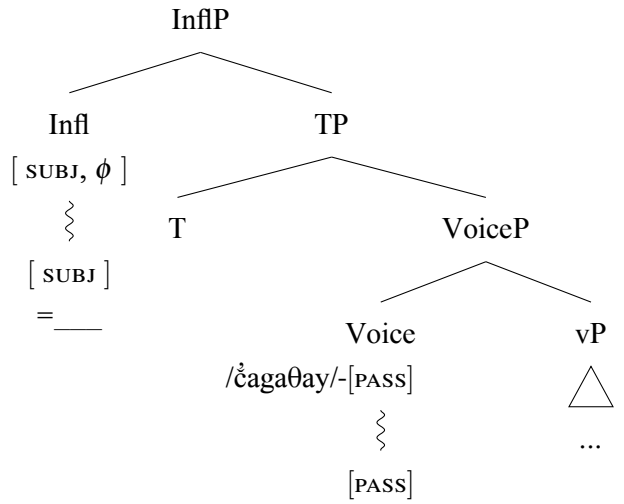
I adopt an analysis where passive morphology originates in Voice, like the ergative suffix, with which it is in complementary distribution (following Davis 2013). As such, it is located at the edge of the lower phase and undergoes lexical insertion in the upper (CP) phase. I propose that the subordinate allomorph of the passive surfaces when adjacent to subordinate subject clitics. The lexical entry for the passive is then as in (192).

[12] The expletive clitic is null in main clauses; see Chapter 4 for further discussion.

(192) $[\text{ PASS }] \Longleftrightarrow \left\{ \begin{array}{c} \text{/-əm/} \\ \text{/-it//}___ = 3\text{POSS}/3\text{SBJV} \end{array} \right\}$

The triggering environment for the subordinate passive is derived when a third person subjunctive or nominalized clitic encliticizes to the main predicate, as illustrated for (190a) in (193).

(193) a.



b. $[\,[\text{ /čagaθay/-PASS }] = \left[\text{SUBJ}\right]\,]$

At Stage 2 of lexical insertion, the correct allomorph – the subordinate passive form – is chosen.

(194) a. $[\,[\text{ (čagaθay)-/it/ }] = \left[\text{SUBJ}\right]\,]$

I still need to account for why the subordinate clitics do not surface, however. There are two possible routes to take. Either these clitics have a zero allomorph when adjacent to the passive suffix, or there is a deletion rule that applies in this environment. I pursue the first option here in order to avoid adding a layer of morphological rules applying after Stage 1 of lexical insertion, following the same line of reasoning as in Section 3.4 above.

The lexical entries for the third person subjunctive and possessive clitics are then as in (195) (the exact featural content associated with these lexical entries is not important for our purposes right now and will be discussed in the following chapter).

(195) a. $[3\text{SBJV}] \Longleftrightarrow \left\{ \begin{array}{ll} \text{/as/} & / \\ \varnothing & / \quad [\text{PASS}]___ \\ & = ___ \end{array} \right\}$

b. $[3\text{POSS}] \Longleftrightarrow \left\{ \begin{array}{ll} \text{/s/} & / \\ \varnothing & / \quad [\text{PASS}]___ \\ & = ___ \end{array} \right\}$

In order for this analysis to work, the passive feature of the subordinate passive must still be visible following Stage 2 of lexical insertion. As laid out in Chapter 2, Section 2.3, I assume that the identity of immediately adjacent lexical items remains visible following Stage 2 of lexical insertion. This allows the correct allomorph of the subjunctive and possessive clitics to be chosen.

(196) [[(c̓agaθayit)] =∅]

Once again, allomorph selection is conditioned by morphosyntactic rather than phonological features and therefore must take place in the morphology. Since it also depends on adjacency between the subordinate subject clitics and the predicate, clitic placement must also occur in the morphology.

3.6 Conclusion

At this point I have analyzed three types of allomorphy conditioned by adjacency between the clitics and their host: subject clitic allomorphy, ergative suffix allomorphy, and passive suffix allomorphy in subordinate clauses. I have argued that these alternations cannot be derived through the application of pure phonology, since they rely on competition between forms that cannot be derived from each other based on phonological principles and require reference to an elsewhere case that is not phonologically motivated. Moreover, a number of the alternations require reference to morphosyntactic features, since the phonological properties of the morphemes would not be sufficient to trigger the alternation. I argued that these cases of allomorphy are best handled at the point of lexical insertion in the morphology within a two-step model of lexical insertion adopted from Svenonius (2012) and Bye and Svenonius (2012). I proposed that lexical entries are matched with the syntax at Stage 1 of lexical insertion, and at this point linearization occurs with the enclitic feature encoded in the lexical entries of 2PCs disrupting default linearization. Stage 2 of lexical insertion follows linearization and is the point at which allomorph selection takes place. I also proposed that the derivation cycles through the phonology as the second stage of lexical insertion occurs, providing phonological content to the morphosyntactic structure. I provided an account of three types of allomorphy involving the 2PCs within this model. Since the triggering environment for all three of these alternations involves adjacency between the clitics and their host, but allomorph selection must be resolved within the morphological component, these cases provide evidence that linearization of the clitics takes place prior to phonology.

3.7 Appendix: The past tense suffix and 2PCs

The past tense morpheme *-oɬ* /-uɬ/ is a suffix, not a clitic, but I discuss it briefly in this appendix because it presents a number of interesting puzzles when it co-occurs with 2PCs.[13] The past tense suffix gives rise to an ordering paradox (originally noted in Kroeber 2002) and also appears to be transparent to morphophonological processes involving the clitics and their host. Here, I will sketch a preliminary account of how these puzzles might be handled in the model presented here, leaving a more in-depth analysis to future work.

[13] Watanabe (2003: 482) has the underlying form of the past tense suffix as *-ʔuɬ*, and for good reason: it is associated with glottalization of preceding resonants. I have not chosen to represent the suffix as glottal stop-initial, however, because glottalization associated with the past tense suffix behaves quite differently from initial glottal stops in other suffixes and clitics, such as the perfect suffix *-ʔit* /*-ʔəyt*/ (see Watanabe 2016 for discussion) and the scalar exclusive clitic *ʔot* /ʔut/. Initial glottal stops in these morphemes do not coalesce with preceding resonants to form glottalized resonants. They also surface following obstruents, whereas the glottalization associated with the past tense suffix never surfaces following an obstruent. The past tense suffix therefore seems more likely to be associated with a floating glottal feature, which can be realized on a preceding resonant, rather than having a glottal stop segment (thanks to Gloria Mellesmoen, p.c., 2022 for this idea). Both for simplicity and because this phenomenon deserves its own proper phonological analysis, I will not represent the glottalization feature in the underlying form here, but I will represent the glottal stop that surfaces with preceding resonants in the orthography line, as in *ƛ̓aʔayuʔnoɬ* in (198) (glottalized resonants often decompose into a glottal stop plus resonant sequence). Unlike with the *-oɬ* /-uɬ/ form, I do represent the allomorph *-ʔo*(*w*) /*-ʔu*(*w*)/ that co-occurs with the possessive suffixes/enclitics as glottal stop-initial.

The past tense morpheme is the final suffix in the sequence of suffixes attaching to the predicate, as in (197).

(197) *Context: Felipe's cousin has been in town. I tell you:*

ho k̓ʷʊtas**oɬ** sǰɛsoɬ.
hu k̓ʷə[n]-t-as-**uɬ** sǰasuɬ
go see-CTR-3ERG-PST yesterday
'He went to see her yesterday.' (sf | EP.2021/09/18)

It occasionally appears enclitic on a pre-predicate auxiliary (Kroeber 2002, see also Watanabe 2003: 50), which suggests that it historically behaved as a clitic.[14] This is shown in (198), where the past tense suffix is attached to an auxiliary in the subordinate nominalized clause.

(198) hɛkʷsčɛʔnoɬ [θ ƛ̓aʔayɪʔn**oɬ** qaqsamoθɛ́ʔnəm].
hiɬ kʷ=sčan-uɬ [θ=ƛ̓aʔayin=**uɬ** qaqsam-uθín-əm]
COP DET=when-PST [1SG.POSS=start=PST play-mouth-MD]
'When did you start to sing?' (Kroeber 2002: 27)

The past tense suffix occurs outside subjunctive enclitics (199), as originally noted by Kroeber (2002). This ordering is surprising because it is usually assumed that clitics appear outside suffixes (and this is generally true of ʔayʔaǰuθəm).[15]

(199) a. xʷaʔč k̓ʷʊnɛθot**aʔnoɬ**.
xʷaʔ=č k̓ʷən-í-θut=**an-uɬ**
NEG=1SG.SBJ see-STAT-CTR.REFL=1SG.SBJV-PST
'I wasn't careful.' (Kroeber 2002: 31)

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[14]Cognate items are enclitics in neighbouring Shashishalhem (Beaumont 2011) and Hul'q'umi'num' (Gerdts and Werle 2014).

(i) neṁ=**uɬ**=cən həyeʔ
go=PST=1SG.SBJ leave
'I was going to leave.' [Hul'q'umi'num'] (Gerdts and Werle 2014: 248)

(ii) a. tsú=**(ʔ)elh**=chen t'ékw-ús-em.
go=PST=1SG.SBJ splash-face-MD
'I went and splashed (water on) my face.'

b. ʔút=**ulh**=chen ʔílhten, ʔíy=ulh=chen.
if=PST=1SG.SBJ eat good=PST=1SG.SBJ
'If I had eaten, I would have been OK.' [Sechelt] (Beaumont 2011: 319)

Thanks to Henry Davis, p.c., September 2021, for bringing this to my attention.

[15]I follow Davis (1999) in taking 'mobility' to be the crucial diagnostic for clitichood. Despite their ordering relative to the past tense suffix, I analyze the subjunctive markers as enclitics because they are not fixed to the predicate.

b. xʷaʔč čiyɪθɛ**ʔnoɬ**.
xʷaʔ=č čiy-iθi=**an-uɬ**
NEG=1SG.SBJ hear-CTR;2SG.OBJ=1SG.SBJV-PST
'I didn't hear you.' (Kroeber 2002: 31)

Nevertheless, the clitic status of the subjunctive subject markers is easily demonstrated, as they always attach to the first word of the clause rather than being fixed to the predicate (200); note that negation is a main predicate taking a subordinate (subjunctive) clausal complement.

(200) xʷaʔč [qʷol**an** hɛwt**oɬ**].
xʷaʔ=č [qʷəl̓=**an** hiwt-**uɬ**]
NEG=1SG.SBJ come=1SG.SBJV get.home-PST
'I didn't come home.' (Kroeber 2002: 31)

The past tense suffix is transparent for a number of previously discussed morphophonological processes conditioned by adjacency between the clitics and their host. The past tense suffix does not block ergative disappearance (see Section 3.4), for instance, despite intervening between the (null) ergative and the reportative or future clitic that triggers the alternation, as shown in (201)–(202).

(201) *Context: Daniel accidentally kicked a rock when he was hiking and hurt his foot. The rock didn't even move. I'm explaining to you what happened.*
yɪmʊxʷ**oɬ** k̓ʷa kʷ χaǰis. k̓ʷakʷa ƛəpxʷawušɪn.
yəm-əxʷ-∅-**uɬ**=k̓ʷa kʷ χaǰəys k̓ʷa=kʷa=ƛəpxʷ-awušin
kick-NCTR-ERG-PST=RPT DET=rock RPT=CLD=get.broken-toe
'He accidentally kicked a rock (I heard). He broke his toe.'
(vf | EP.2020/07/21)

(202) *Context: Freddie went to Vancouver, and now Gloria tells me she's seen him at the store in town. I tell you:*
k̓ʷʊnʊxʷ**oɬ** k̓ʷa xʷuǰumayɛ. c̓ɛ kʷa qʷol hɛwt.
k̓ʷən-əxʷ-∅-**uɬ**=k̓ʷa xʷəǰ-əm-aya c̓a=kʷa=qʷəl̓ hiwt
see-NCTR-ERG-PST=RPT sell-MD-container INFER=CLD=come get.home
'She saw him at the store. He must be home.' (vf | EP.2019/11/30)

The past tense suffix is also ignored for calculating the weight of the stem for subject clitic allomorphy (see Section 3.3). For instance, *c̓əq̓t* is treated as a weak stem resulting in the full form of the subject clitic being inserted in (203).

(203) c̓əq̓to**łčɛn** tᶿ ʔayɛ.
c̓əq̓-t-uł=**čan** tᶿ=ʔayaʔ.
fence-CTR-PST=1SG.SBJ 1SG.POSS=house
'I fenced in my house.' (vf | FL.2021/03/01)

Though the past tense suffix contains a full vowel and occurs at the end of the predicate sequence, its weight does not play a role in determining the choice of subject clitic allomorph. If it did, we would expect the reduced allomorph of the subject clitic to arise, since the stem would have sufficient weight to form a prosodic foot and therefore a prosodic word.

While these behaviours suggest that the past tense suffix is somehow 'invisible' to the clitic string, perhaps entering the derivation on a separate cycle, it has special allomorphs in combination with the third person possessive clitics and suffixes. The identity of the third person possessive suffixes must therefore be visible to the past tense suffix. This allomorphy is illustrated in (204).

(204) a. hɛkʷsčɛʔnoɬ ʔəxʷ θo**ʔow**ɩtʔ
hiɬ+kʷ+s=čaṅ-uɬ ʔə=xʷ=θu-**ʔuw**=it
COP+DET+NMLZ=when-PST OBL=OBL.NMLZ=go-PST=1PL.POSS
'When did they go?' (vf | EP.2021/09/04)

b. hɛɬ taṅ ʔəxʷ nɛʔ**o**s šɩms ʔayɛʔoɬ.
hiɬ taṅ ʔə=xʷ=niʔ-**ʔu**+s šə=ms ʔayaʔ-uɬ
COP DEM OBL=OBL.NMLZ=be.there-PST+3POSS DET=1PL.SBJ=house-PST
'That's where our house used to be.' (vf | EP.2021/10/22)

c. šɛ man**ʔow**ap
šə=man-**ʔuw**-ap
DET=father-PST-2PL.POSS
'your (pl.) deceased father' (Watanabe 2003: 483)

I will not be able to fully account for all of these puzzles here. I will sketch an account of how the transparency of the past tense suffix can be derived and suggest directions for deriving its ordering with respect to the subjunctive subject clitics and allomorphy with the possessive subject clitics. A full account of this complex array of behaviours will require further research focused specifically on this morpheme.

3.7.1 Adjunct status

I propose that the past tense suffix enters the derivation on a separate cycle from the clitics. This is possible if it occurs in a different phase from the 2PCs or if it occurs in a different span from the 2PCs. Since spans are complement sequences of heads, adjuncts and specifiers form separate spans. Here, I adopt an analysis where the past tense suffix occurs as an adjunct – a temporal modifier – rather than occurring as a tense head in T, and I show that it exhibits behaviours consistent with such an analysis. In analyzing the past tense suffix as a temporal modifier, rather than a T head, I follow Matthewson (2005a), who argues that optional past tense morphemes in Halq'eméylem (Upriver Halkomelem; ISO 639-3: hur) and St'át'imcets are likely best analysed as temporal modifiers rather than T heads.[16]

One of the behaviours that indicates that *-oɬ* /-uɬ/ is a temporal modifier, rather than a functional head, is its ability to modify across categories. It occurs within DPs when the referent is deceased or destroyed, as in (205) (see also Watanabe 2003: 484).

[16] Wiltschko (2003) originally claims that the optional past tense morpheme in Halq'eméylem does not occupy a T head, though she does not specifically argue that it is a temporal modifier, instead proposing that it is an instantiation of a T feature on the determiner.

(205) a. šɩtᶿ gəqaθ**oɬ**
šə=tᶿ=gəqaθ-**uɬ**
PDE.DET=1SG.POSS=husband-PST
'my deceased husband' (vf | EP.2019/06/29)

b. k̓ʷakʷa q̓ətxʷ kʷ ʔayɛ**ʔo**s.
k̓ʷa=kʷa=q̓ətxʷ kʷ=ʔayaʔ-**uɬ**-s.
RPT=CLD=burn DET=house-PST-3POSS
'His house burnt down (I heard).' (vf | EP.2019/06/29)

On relational nouns, it can also indicate that the relation that held previously no longer holds.

(206) a. ʔətᶿ gəqaθ**oɬ**
ʔətᶿ=gəqaθ-**uɬ**
1SG.POSS=husband-PST
'my ex-husband' (vf | EP.2019/06/29)

b. hɛɬ ʔəms laplɛt**oɬ**.
hiɬ ʔəms=laplit-**uɬ**
be 1PL.POSS=priest-PST
'He's our former priest.' (who's moved to another parish) (vf | EP.2019/06/29)

c. *Context: When I get home from visiting my in-laws in Chile, I realize I left my sweater behind somewhere. It's not at my husband's parents' place, so I don't think I'll find it again. I tell you:*

čkʷa xʷaʔagux̌ʷ šɛtᶿ tɛkɩnukʷt**oɬ**.
č=kʷa=xʷaʔag-əxʷ šə=tᶿ=takinukʷt-**uɬ**
1SG.SBJ=CLD=lose-NCTR DET=1SG.POSS=sweater-PST
'I lost my sweater.' (vf | EP.2022/01/21)

The occurrence of the past tense morpheme on nouns is a common feature of Central Salish languages and is discussed extensively in Burton (1997) for Halq'eméylem (see also Wiltschko 2003). A similar pattern is also found in the Northern Interior language St'át'imcets (Matthewson 2005a).[17]

Another argument for the past tense suffix being a temporal adjunct, rather than a tense morpheme occupying a functional head, is that the past tense suffix is optional for past tense interpretations. This is illustrated

[17] Since ʔayʔaǰuθəm has headless relative clauses, additional work is needed to show that nouns bearing the past tense suffix are not headless relatives. Matthewson (2005a: 1706–7) shows that in St'át'imcets the past tense marker occurs on nouns that cannot be analyzed as headless relative clauses. While similar diagnostics are still under investigation for ʔayʔaǰuθəm, preliminary evidence also points to the past tense marker directly modifying nouns in these cases. If the examples in (205)–(206) were headless relative clauses, we would expect the future to also occur in these constructions, but attempts to have the future modifying these nouns have so far been judged ungrammatical:

(i) *ʔətᶿ=gəqaθ=**səm**
1SG.POSS=husband=FUT
Intended: 'the one who will be my husband'

in (207); tense in ʔayʔaǰuθəm is discussed in more depth in Chapter 1, Section 1.11.1.

(207) a. tawθəs hɛs Piš mʊkʷtoɬ ǰɛnxʷs.
taw-θ-as hiɬ=s Piš məkʷ-t-uɬ ǰanxʷ-s
tell-1SG.OBJ-3ERG COP=3POSS Piš eat-CTR-PST fish-3POSS
'He **told** me that Piš ate his fish.' (vf | JF.2018/07/24)

b. tawθas**oɬ** q̓aq̓aʔos skʷiǰoɬ.
taw-θ-as-**uɬ** q̓aq̓a-ʔ-uɬ=s skʷiǰuɬ.
tell-1SG.OBJ-PST hungry-EPEN-PST=3POSS morning
'She **told** me she was really hungry this morning. (vf | JF.2019/03/18)

Both the ability of the past tense suffix to modify across categories and its optionality are consistent with an analysis where it is a temporal adjunct (following Matthewson's 2005a suggestion for past tense markers in Halq'eméylem and St'át'imcets). These are not conclusive arguments against it being a tense morpheme, however, since there may be T heads within DPs (Burton 1997; Tonhauser 2007) and some tense markers are optional (Bochnak 2016). Since assuming adjunct status also fits with its morphological behaviour, I will adopt this approach here. Note, however, that I am not arguing against the existence of a T *head*; I assume a null T head in ʔayʔaǰuθəm, following Matthewson (2006) for St'át'imcets, as discussed in Chapter 1, Section 1.11.1. The arguments presented here are solely to do with the status of the past tense *suffix* itself.

3.7.2 Suffixal feature

I propose that the lexical entry for the past tense suffix comes with a suffixal morphological feature. The suffixal feature has a slightly different effect from the enclitic feature, acting as an instruction to attach to the closest head *downward* in the span (rather than attempting upward/leftward attachment like items with the enclitic feature).

(208) $[\text{PST}] \leftrightarrow \left\{ \begin{array}{l} \text{/uɬ/} \\ \text{-___} \end{array} \right\}$

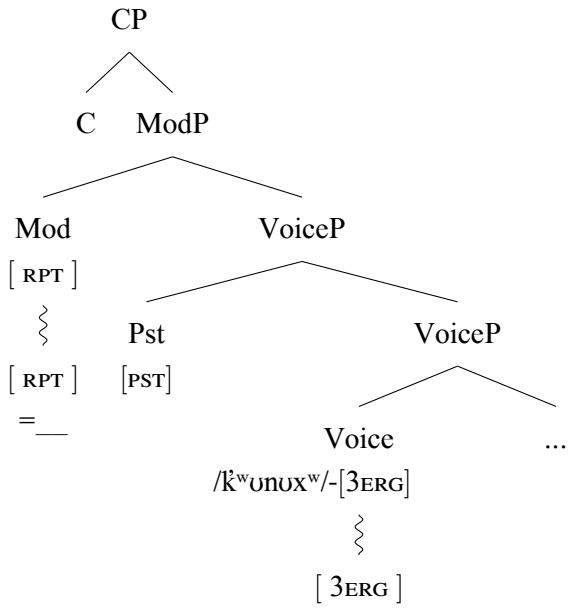
Unlike other suffixes in the verbal complex, the past tense suffix enters the derivation as an adjunct to the verb phrase. As an adjunct, it enters the derivation in a separate span from the clitics, though as part of the same CP phase, and therefore it undergoes lexical insertion separately from the clitics.

To see how this analysis derives the transparency effects observed with the past tense suffix, I examine the derivation for (209), repeated from (202) above.

(209) *Context: Freddie went to Vancouver, and now Gloria tells me she's seen him back here.*
k̓ʷʊnʊxʷ**oɬ** k̓ʷa xʷuǰumayɛ. c̓ɛ kʷa qʷol hɛwt.
k̓ʷən-əxʷ-∅-**uɬ**=k̓ʷa xʷəǰ-əm-aya c̓a=kʷa=qʷəl̓ hiwt
see-NCTR-ERG-PST=RPT sell-MD-container INFER=CLD=come get.home
'She saw him at the store. He must be home.' (vf | EP.2019/11/30)

I represent the past tense suffix here as an adjunct to the verb phrase so that it occurs below auxiliaries and does not attach to an auxiliary instead of the main predicate. First lexical insertion takes place for the clitics. The past tense, as an adjunct, is ignored as L-Match and Insert proceed for the span (210a). The reportative clitic linearizes as usual (210b), and the zero allomorph of the ergative is chosen (210c). The predicate plus clitic then has the phonological representation in (210d).

(210) a.



b. [[(k̓ʷənəxʷ)$_{\omega}$-3ERG] = RPT]

c. [[(k̓ʷənəxʷ-∅)$_{\omega}$ = RPT]

d. [[((k̓ʷənəxʷ-∅)$_{\omega}$ /k̓ʷa/)]

Match takes place separately for the past tense suffix. As an adjunct that is morphologically specified as a suffix, I propose that it attaches to the outermost head in the span that it is an adjunct to. This places it following the (null) ergative suffix, attaching to the predicate as a whole at the first stage of lexical insertion; I propose that the identity of the ergative is visible when this linear relationship is calculated since the ergative is at the edge of the lower phase.[18] The linear relationship between the ergative and the past tense suffix is calculated separately from the relationship between the clitics and the predicate since they belong to separate spans. This allows the past tense to 'ignore' the reportative clitic in attaching to the predicate. Following the second stage of lexical insertion, it will be incorporated into the prosodic word that is the predicate.

(211) a. [((k̓ʷənəxʷ-∅)$_{\omega}$-PST /k̓ʷa/)]

b. ((k̓ʷənəxʷuɬ)$_{\omega}$ k̓ʷa)

[18]This has the interesting consequence that the linear relationship between the ergative and past tense suffix must be calculated in parallel to the derivation of the span with the past tense suffix and the reportative clitic, though separately from them. If the linear relationship between the ergative and past tense suffix were not calculated until after both stages of lexical insertion had taken place for the span containing the ergative suffix and the reportative clitic, the identity of the ergative suffix would no longer be visible: given the assumptions of the model adopted here, it would become invisible following the second stage of lexical insertion for the reportative and the accompanying cycle through the phonology.

While the reportative is also incorporated into a prosodic unit with the host, it does not enter the domain of word-level stress assignment, unlike the past tense suffix. I will not decide here if the prosodic domain containing the predicate and reportative clitic is best represented as a recursive prosodic word or as a prosodic phrase.

3.7.3 Accounting for the linear order between the subjunctive and past

Here, I will sketch one possible avenue for deriving the ordering paradox between the past tense suffix and the subjunctive subject enclitics (Kroeber 2002). I propose that the subjunctive subject enclitics carry a suffixal rather than an enclitic feature. A suffixal feature causes a morpheme to attach leftward to the next *lowest* head in the span.

(212) $[\ \text{1SG.SBJV}\ ] \leftrightarrow \left\{ \begin{array}{l} /\text{an}/ \\ -___ \end{array} \right\}$

Because a subjunctive clitic will always be the highest head with morphological content in the CP span (the only higher clitics, the question and exclamative enclitics, never occur in subjunctive subordinate clauses), any lower clitics will attach to the subjunctive, forming a unit with it just as they would with a higher clitic. This prevents a subjunctive from ever affixing to one of the other clitics. Instead, it will affix to an auxiliary, if present, or the main predicate; these will be the closest lower heads in the span. If it attaches to the main predicate, it forms part of the suffixal domain of the predicate. Its linearization therefore matches that of the clitics because of where it originates in the clause, but its manner of attachment differs.

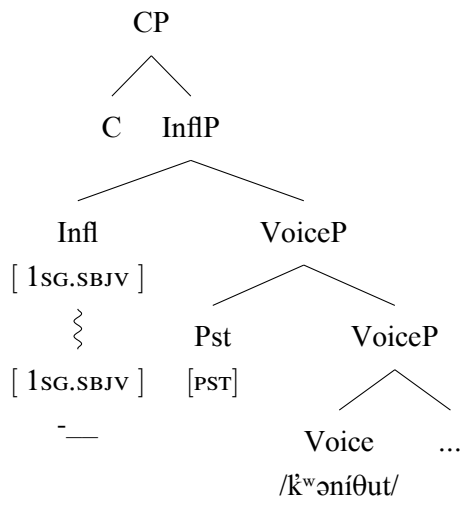
Where this matters is in clauses with both a subjunctive enclitic and a past tense suffix and no auxiliary preceding the predicate. In these clauses, the subjunctive clitic will undergo lexical insertion first and attach as a suffix to the predicate. In order to get the order correct, the affixation process for the past tense must be sensitive to the distinction between the suffixal and clitic domains. Because the subjunctive attaches as a suffix to the outermost head of the predicate complex, the past tense suffix in turn affixes to the subjunctive. I show how this works by examining (213) (as in (200) above, negation is a main clause predicate that takes a subordinate subjunctive clause, as indicated by the square brackets).

(213) xʷaʔč [k̓ʷʊnéθot**aʔnoɬ**].
xʷaʔ=č [k̓ʷən-í-θut=**an-uɬ**]
NEG=1SG.SBJ [see-STAT-CTR.REFL=1SG.SBJV-PST]
'I wasn't careful.' (Kroeber 2002: 31)

I focus on the derivation of the embedded clause here. The first step, the insertion of the reflexive morpheme at the edge of the lower phase in Voice, is not shown.[19] Stage 1 of lexical insertion for the subjunctive clitic is shown in (214a). The suffixal feature triggers suffixation of the subjunctive to the predicate *k̓ʷʊnéθot* /k̓ʷəníθut/ 'be careful' (lit: 'watch oneself') (214b).

[19]The control transitive in *v* forms a portmanteau with the reflexive in Voice, so accounting for this form requires a theory of portmanteau insertion such as found in Svenonius (2012), but this is outside of the scope of this dissertation.

(214) a.



b. [(k̓ʷəníθut)$_{\omega}$ -{1SG.SBJV}]

c. [(k̓ʷəníθut)$_{\omega}$ -/an/]

Stage 1 of lexical insertion occurs for the past tense suffix separately, since it belongs to a different span, and triggers suffixation to the predicate which now includes the subjunctive (215a). Following the second stage of lexical insertion, the past tense suffix will enter into the stress domain of the prosodic word, but align outside the subjunctive enclitic (215b).

(215) a. [(k̓ʷəníθutan)$_{\omega}$ { -PST / ___]$_{\omega}$ }]

b. (k̓ʷəníθutanuɬ)$_{\omega}$

This derives the correct order, but requires that the past tense suffix can 'see' the difference between encliticization and suffixation when determining where to attach. This is not necessarily an undesirable move but does require further elaboration of the model.

Before concluding the discussion of the subjunctive markers, a final note is needed concerning terminology. Though I suggest an analysis where the subjunctive subject markers carry a suffixal feature, I continue to refer to them as *enclitics*. This is because even if they attach in a manner consistent with suffixation, they are not selective about their host, attaching to either the predicate or a pre-predicate auxiliary. The ability to attach to a pre-predicate auxiliary has been an important diagnostic for distinguishing between clitics and suffixes in the literature on Salish languages (see especially Davis 1999, 2000b), so it would be misleading to categorize the subjunctive subject markers as suffixes. The suffixal feature should therefore not be understood as categorizing the lexical entry, but as formalizing a certain manner of attachment in the morphology.

Finally, something needs to be said about the allomorphy of the past tense that occurs with the third person possessive enclitics. Examples of these allomorphs are shown in (216), repeated from (204) above.

(216) a. hɛkʷsčɛʔnoɬ ʔəxʷ θo**ʔow**ɩtʔ
hiɬ+kʷ+s=čan-uɬ ʔə=xʷ=θu-**ʔuw**=it
COP+DET+NMLZ=when-PST OBL=OBL.NMLZ=go-PST=1PL.POSS
'When did they go?' (vf | EP.2021/09/04)

b. hɛɬ tan̓ ʔəxʷ nɛʔ**o**s šɩms ʔayɛʔoɬ.
hiɬ tan̓ ʔə=xʷ=niʔ-**ʔu**+s šə=ms=ʔayaʔ-uɬ
COP DEM OBL=OBL.NMLZ=be.there-PST+3POSS DET=1PL.SBJ=house-PST
'That's where our house used to be.' (vf | EP.2021/10/22)

c. šɛ man**ʔow**ap
šə=man-**ʔuw**-ap
DET=father-PST-2PL.POSS
'your (pl.) deceased father' (Watanabe 2003: 483)

The allomorphy can be derived with the assumptions already in place, once we add another allomorph to the lexical entry with a context of insertion specified as adjacent to a possessive subject agreement marker. I propose that the morphosyntactic features of the possessive enclitics, as the most recent items in the phase to undergo lexical insertion, are still 'visible' when the past tense suffix aligns to the predicate. This allows the correct allomorph to be chosen at the second stage of lexical insertion.[20]

(217) $[\text{PST}] \leftrightarrow \left\{ \begin{array}{c} /\text{uɬ}/ \\ /\text{ʔu(w)}//___[\text{NMLZ}] \\ -___ \end{array} \right\}$

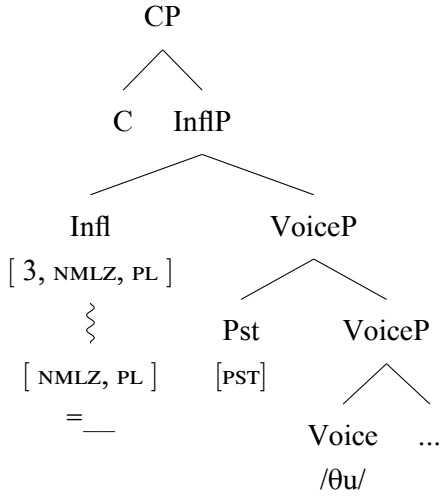
For instance, taking (218) as an example, we get the derivation in (219).

(218) hɛkʷsčɛʔnoɬ ʔəxʷ θo**ʔow**ɩtʔ
hiɬ+kʷ+s=čan-uɬ ʔə=xʷ=θu-**ʔuw**=it
COP+DET+NMLZ=when-PST OBL=OBL.NMLZ=go-PST=1PL.POSS
'When did they go?' (vf | EP.2021/09/04)

First, Stage 1 of lexical insertion for the possessive enclitic takes place (219a), and it encliticizes to the main predicate (219b). Then Stage 2 of lexical insertion takes place (219c). However, the identity of the morpheme will remain visible to immediately adjacent morphemes until the next cycle through the phonology. Stage 1 of lexical insertion takes place for the past tense suffix separately, and it affixes to the predicate (219d). In this position, the environment for the insertion of the /-ʔu(w)/ allomorph is met, and it is inserted at Stage 2 of lexical insertion (219e). For simplicity, I represent the final prosodic unit as simply incorporating both the suffix and clitic into the prosodic word, without any further articulation of prosodic structure.

[20]For simplicity, I assume that the same allomorph is selected in the presence of the third person singular and second and third person plural possessive markers, with the presence vs. absence of the final /w/ conditioned phonologically. Nothing hinges on this, however, and it would be perfectly possible to have two separate allomorphs /ʔu/ and /ʔuw/, with the /w/-final allomorph dependent on the presence of a [PLURAL] as well as [NMLZ] feature.

(219) a.



b. $[\,(\theta u)_{\omega} = \left\{ \begin{matrix} \text{NMLZ} \\ \text{PL} \end{matrix} \right\}\,]$

c. $[\,(\theta u)_{\omega} = \left\{ \begin{matrix} /\text{it}/ \\ \text{NMLZ} \\ \text{PL} \end{matrix} \right\}\,]$

d. $[\,(\theta u)_{\omega}\text{ -}[\,\text{PST}] = \left\{ \begin{matrix} /\text{it}/ \\ \text{NMLZ} \\ \text{PL} \end{matrix} \right\}\,]$

e. $[\,(\theta u\text{-}/\text{ʔuw}/\text{=}/\text{it}/)_{\omega}\,]$

3.7.4 Conclusion

In this appendix, I have provided a preliminary account of the puzzling behaviour of the past tense suffix, in particular its transparency for morphophonological processes, its ordering paradox with respect to the subjunctive clitics, and its allomorphy. I argued that it is invisible for morphophonological processes triggered by adjacency between the clitics and their host because it enters the derivation on a different cycle, being an adjunct. This behaviour is predicted because lexical insertion takes place over spans, which are complement series of heads, not including adjuncts, which form their own spans.

With respect to the ordering paradox between the subjunctive subject enclitics and the past tense suffix, originally noted in Kroeber (2002), I suggested that the subjunctive enclitics may in fact bear a suffixal, rather than an enclitic feature, and therefore, when attaching to the predicate, they form part of the predicate domain. The predicate domain is then the stem for the past tense suffix, deriving the correct ordering.

Finally, I proposed that the allomorphy of the past tense is derived because its suffixal feature causes it to affix to the predicate at Stage 1 of lexical insertion, placing it adjacent to the third person possessive enclitics, which condition the insertion of the correct allomorph at Stage 2 of lexical insertion. While this array of behaviours is unusual and requires quite a bit of derivational complexity to capture synchronically, I have skteched how it can be handled in the model developed here.

Chapter 4

Subject agreement

4.1 Introduction

In this chapter, I discuss the syntactic mechanisms of subject agreement in ʔayʔaǰuθəm. This discussion serves three purposes: 1) to provide an analysis of the subject clitics as agreement markers in Infl, which will be assumed for the rest of this dissertation; 2) to use this analysis to explain why mismatching subjects between conjuncts are always associated with high coordination (Chapter 2, Section 2.4.2.1); 3) to solve an additional puzzle posed by subject agreement in coordinate structures, namely the appearance of subject clitics in every conjunct regardless of coordination height. While other 2PCs can occur once in a coordinate structure and take scope over multiple verb phrase conjuncts (Chapter 2, Section 2.4.2), subject clitics must appear following the head of each verb phrase conjunct. This poses a challenge for the account I have proposed where subject clitics occur high in the structure above the verb phrase.

Following H. Davis (1999, 2000b, 2013), who examines subject inflection across the Salish language family, I propose that subject clitics in ʔayʔaǰuθəm are instances of subject agreement realizing the outer of two loci for subject agreement: Infl. The inner position, Voice, is realized by subject suffixes. The locus of agreement varies by person: first and second person agreement occur as clitics in Infl, while third person agreement is associated with both a clitic in Infl and a suffix in Voice.[1] To capture the person-based asymmetries in subject agreement, I propose an account where first and second person are more specified than third person, adopting a feature geometry for persons (e.g. Harley and Ritter 2004; McGinnis 2005; Béjar and Rezac 2009; Preminger 2014). Turning to coordinate structures, I propose that the reason that coordinate structures with mismatching subjects require high coordination is to allow each subject to agree separately with a higher Infl head. Finally, I sketch a solution for the presence of a subject agreement clitic in each conjunct even when coordination is low: I propose that copying the exponent of agreement is a strategy for linearization when there are equidistant lower hosts.

4.2 Outline of the chapter

I lay out the basic subject agreement patterns in Section 4.3 and then propose an analysis of subject agreement in ʔayʔaǰuθəm in Section 4.4. With a model for subject agreement in place, I discuss subject agreement in

[1] Subject agreement suffixes replace first and second person subject cliitics in object-centred relative clauses and sometimes in clauses with the noncontrol transitivizer, as will be discussed below.

coordinate structures in Section 4.5.

4.3 Subject agreement and the distribution of clitics and suffixes

In ʔayʔaǰuθəm, as in much of the rest of the Salish language family, there are two loci for subject inflection: an inner position associated with subject suffixes and an outer position associated with subject clitics (Davis 1999, 2000b). In ʔayʔaǰuθəm, both positions may be overtly realized in transitive subordinate clauses with third person subjects, as seen in (220); the subjunctive third person clitic (triggered by main clause negation) appears on the auxiliary *θo* 'go', while the third person ergative suffix appears on the main verb *qamə́t* 'to accompany'.

(220) *Context: Freddie is reluctant to go to the elder's gathering and leave his dogs behind. I tell you:*

xʷaʔ k̓ʷa səm	[θaʔ**əs**	Freddie	qamə́t**əs**	ƛ̓aƛ̓aχay].
xʷaʔ=k̓ʷa=səm	[θa-ʔ=**as**	Freddie	qəm-í-t-**as**	ƛ̓aƛ̓ax̌ay]
NEG=RPT=FUT	[go-EPEN=3SBJV	Freddie	accompany-STAT-CTR-3ERG	elders]

'It's not the case that Freddie will go along with the elders (he said).' (vf | EP.2021/09/18)

Across the Salish language family, the realization and locus of subject agreement is determined by a combination of transitivity, person, and clause type. ʔayʔaǰuθəm subject agreement is summarized for different clause types in Table 4.1.

	Intransitive			Transitive			
	Ind.	Sbjv.	Nmlz.	Ind.	Sbjv.	Nmlz.	Obj. Rel.
1SG	=č/čan	=an	(ʔə)tᶿ=	=č/čan	=an	(ʔə)tᶿ=	**-an**
1PL	=št/čat	=at	ʔəms=	=št/čat	=at	ʔəms=	**-at**
2SG	=čxʷ/čaxʷ	=axʷ	(ʔə)θ=	=čxʷ/čaxʷ	=axʷ	(ʔə)θ=	**-axʷ**
2PL	=čap	=ap	=ap	=čap	=ap	=ap	**-ap**
3SG	=∅	=as	=s	=∅ + -as	=as + **-as**	=s + **-as**	**-as**
3PL	=∅	=as	=it	=∅ + **-as**	=as + **-as**	=it + **-as**	**-as**

Table 4.1: Subject inflection by transitivity and clause type

Third person agreement, which varies with transitivity, is highlighted in grey, and differences between the transitive and intransitive paradigms are bolded. In intransitive clauses, third person agreement is realized by clitics, while in transitive clauses, it is realized by a clitic with an accompanying suffix. First and second person subject agreement is realized by clitics for almost all clause types and transitivity distinctions. In object-centered relative clauses all agreement is realized by suffixes,[2] and first and second person subject agreement in clauses with the noncontrol transitivizer is also sometimes suffixal, as discussed below.[3]

It is immediately apparent from inspection of Table 4.1 that inner/suffixal agreement is tied to transitivity – it appears only in transitive contexts. It is also apparent that there is a person split in the system, with first and second persons patterning differently from third persons. The analysis developed in this chapter focuses

[2] Agreement is also affixal in headless oblique object-centered relative clauses which involve predicate nominalization; for these see Watanabe 2003: 135–140.

[3] The subject agreement suffixes are often called ergative suffixes in the literature on Salish languages and are sometimes referred to this way in this dissertation as well.

on deriving these generalizations, but first, examples are provided to illustrate these different patterns. I will not examine relative clauses, which involve interactions between movement and agreement; for these, see Watanabe (2003: 122–140).

4.3.1 First- and second-person agreement

First and second person subjects are marked by agreement clitics in both transitive and intransitive main clauses, as shown in (221)–(222) (see also Watanabe 2003: 52–62 for agreement facts). They occur enclitic on pre-predicate auxiliaries (or proclitic, in the case of first-person and second-person (singular) possessive proclitics in nominalized clauses); they are not fixed to the main predicate, unlike suffixes.

(221) Intransitive

a. *Context: I went to a party last night, and walked home before it got too late.*

hoč ʔɛmašmahoɬ ǰu.
hu=č ʔim-aš-ma-uɬ ǰu
go=1SG.SBJ step-INTR-go.by-PST get.home
'I walked home.' (vf | EP.2021/06/19)

b. hočxʷ ʔot ʔɛmaš. ṫᶿapawč.
hu=čxʷ=ʔut ʔim-aš. ṫᶿapaw=č.
go=2SG.SBJ=EXCL step-INTR busy=1SG.SBJ
'(You) just walk there. I'm busy.' (vf | EP.2020/08/11)

(222) Transitive

a. *Context: You ask me if I've seen my mother recently. I reply:*

ʔɛ, hoč k̓ʷʊtoɬ sǰɛsoɬ.
ʔiʔ, hu=č k̓ʷə[n]-t-uɬ sǰasuɬ
yes go=1SG.SBJ see-CTR-PST yesterday
'Yes, I went to see her yesterday.' (vf | EP.2021/09/18)

b. *Context: I heard your cousin was in town yesterday, so I ask:*

haʔačxʷ k̓ʷʊtoɬ sǰɛsoɬ?
hu-ʔ=a=čxʷ k̓ʷə[n]-t-uɬ sǰasuɬ
go-EPEN=Q=2SG.SBJ see-CTR-PST yesterday
'Did you go to see her yesterday?'

The same pattern holds in subordinate clauses, as shown with the subjunctive enclitic in (223a) and the possessive proclitic in (223b).

(223) a. Subjunctive clause first person agreement

xʷatᶿəm [haʔ**an** qamɛ́t kʷ ƛ̓aƛ̓aχay].
xʷaʔ=tᶿəm ha-ʔ=**an** qəm-í-t kʷ=ƛ̓aƛ̓ax̌ay
NEG=1SG.SBJ+FUT go-EPEN=1SG.SBJV accompany-STAT-CTR DET=elders
'I'm not going along with the elders.' (sf | EP.2021/09/18)

b. Nominalized clause first person agreement

χaƛ̓ [kʷ**ʊtᶿ** ho qʷɛqʷaysxʷ].
x̌aƛ̓ kʷ=**ətᶿ** hu qʷi∼qʷay-sxʷ
want DET=1SG.POSS go PROG∼talk-CAUS
'I want to go talk to him.' (vf | EP.2021/03/19)

First and second-person subject agreement is realized as affixal only in transitive clauses with the noncontrol transitivizer (Watanabe 2003: 218, fn. 186) and in object-oriented relative clauses (not discussed here). In clauses with the noncontrol transitivizer, the suffixes may replace or co-occur with subject clitics, as illustrated in (224). Subject clitics and suffixes may co-occur when there is a preceding clausal demonstrative to trigger a proclitic string (224a) (see Chapter 2, Section 2.6.2), but first and second person subject agreement may also be realized by just a clitic (224b-c) or suffix (224d).

(224) a. **č**ta hoǰʊxʷ**ən** tətᶿ pɪču skʷiǰoł.
č=ta=huǰ-əxʷ-**an** tə=tᶿ=pəču skʷiǰuł
1SG.SBJ=CLD=finish-NCTR-1SG.ERG DET=1SG.POSS=basket morning
'I finished my basket this morning.' (vf | EP.2020/06/25)

b. **č**ti hoǰʊxʷ tətᶿ pɪču.
č=ti=huǰəxʷ tə=tᶿ=pəču
1SG.SBJ=CLD=finish-NCTR DET=1SG.POSS=basket
'I finished my basket' (vf | EP.2018/10/17)

c. hoǰʊxʷ**č**(ti) tətᶿ pɪču.
huǰəxʷ=**č**(=ti) tə=tᶿ=pəču
finish-TR=1SG.SBJ=(CLD) DET=1SG.POSS=basket
'I finished my basket' (sf | EP.2022/08/12)

d. ti hoǰʊxʷ**ən** tətᶿ pɪču.
ti huǰ-əxʷ-**an** tə=tᶿ=pəču
CLD finish-NCTR-1SG.ERG DET=1SG.POSS=basket
'I finished my basket.' (vf | EP.2018/10/18)

Cases of agreement doubling in clauses with noncontrol transitive predicates, such as (224a), will be important to the analysis that follows.

4.3.2 Third person agreement

In intransitive clauses, third person agreement behaves in parallel to first and second person agreement: though it is null in main clause intransitives, it is marked with overt subject clitics in nominalized and subjunctive subordinate intransitives. I follow H. Davis (1999, 2000b) in assuming a null third person clitic in indicative clauses as well. (For clarity, I show the null third person indicative clitic in the morpheme and gloss lines in this chapter, unlike in the rest of this dissertation.)

(225) a. *Indicative*

ho ʔəmʔɛmašoɬ Gloria skʷiǰoɬ.
hu=**∅** ʔəm∼ʔimaš-uɬ Gloria skʷiǰuɬ
go=3SBJ PL∼walk-PST Gloria morning
'Gloria went for a walk this morning.' (vf | EP.2019/06/29)

b. *Nominalized*

χaƛ̓s k̓ʷa kʷs ho**s** ʔɛmaš.
χaƛ̓-s=k̓ʷa kʷ=s=hu=**s** ʔimaš
want-3POSS=RPT DET=NMLZ=go=3POSS walk
'He wants to go for a walk.' (sf | EP.2022/08/12)

c. *Subjunctive*

xʷaʔ hays**əs** k̓ʷas ʔətᶿ top.
xʷaʔ hays=**as** k̓ʷas ʔətᶿ=top
NEG really=3SBJV hot 1SG.POSS=stove
'My stove wasn't really hot.' (vf | BW.2020/10/29)

In transitive clauses, third person agreement diverges from first and second person agreement. Third person agreement is realized as a suffix accompanied by a subject clitic, as in (226) ((226a) is repeated from (197a) above). In parallel with the intransitive clauses, I assume a null third person clitic in main transitive clauses (226b), so that all clause types with transitive predicates show the same pattern of clitic plus suffix agreement (again, following H. Davis 1999, 2000b).

(226) Transitive

a. *Context: Freddie is reluctant to go to the elder's gathering and leave his dogs behind. I tell you:*

xʷaʔ k̓ʷa səm [θaʔ**əs** Freddie qamɛ́t**əs** ƛ̓aƛ̓aχay].
xʷaʔ=k̓ʷa=səm [θa-ʔ=**as** Freddie qəm-í-t-**as** ƛ̓aƛ̓aǎy]
NEG=RPT=FUT [go-EPEN=3SBJV Freddie accompany-STAT-CTR-3ERG elders]
'It's not the case that [Freddie will go along with the elders] (he said).' (vf | EP.2021/09/18)

b. *Context: Felipe's cousin has been in town. I tell you:*

ho k̓ʷʊt**as**oɬ sǰɛsoɬ.
hu=**∅** k̓ʷə[n]-t-**as**-uɬ sǰasuɬ
go=3SBJ see-CTR-3ERG-PST yesterday
'He went to see her yesterday.' (sf | EP.2021/09/18)

4.3.3 Third person clitics as expletives

Before turning to an analysis of subject agreement patterns, I examine the nature of the third person subject agreement clitics. I argue that these instantiate expletive agreement, rather than true third person agreement with a third person subject. Evidence for this proposal comes from the fact that third person clitics are not confined to environments with a third person subject – third person clitics also surface in subordinate passives in ʔayʔaǰuθəm, which are non-promotional (see also Chapter 3, Section 3.5). The agent, if expressed, is realized as an oblique argument and the theme remains in object position, triggering object agreement on the predicate. Since there is no syntactic subject in these constructions, the third person clitic cannot be realizing agreement with a subject argument and must therefore be an instance of expletive agreement.

(227) hɛhɛw χʷoχʷmotoɬ ʔəɬ xʷaʔas qəɬ qʷoḷ**as** k̓ʷʊθayɪm (ʔə) Malian.
hihiw x̌ʷux̌ʷ-mut-uɬ ʔəɬ xʷaʔ=as=qəɬ qʷəḷ=**as** k̓ʷə[n]-θay-əm ʔə=Malian
really long-INT-PST COMP NEG=3SBJV=IRR come=3SBJV see-CTR;1SG.OBJ-PASS OBL=Malian
'It's been a really long time since Marianne has come to see me.'
(vf | EP.2020/10/30)

By extension, the other cases where a 'third' person clitic doubles a third person subject suffix also involve expletive clitics.

This conclusion is supported by cross-Salish patterns. In all Interior Salish languages except St'át'imcets, agreement with transitive subjects is uniformly suffixal, accompanied by a subject clitic, as in (228a).[4] This clitic is deficient in phi-features (Davis 1999, 2000b). It will always be third person, regardless of the person of the subject, as shown in (228b).

(228) a. címəɬ=**us** k̓̓ʌ̓ek-st-**és** e=nyémitn-s e=séme?
begin(AUX)=3SBJV.SBJ bring-TR-3SBJ DET=religion-3POSS DET=white.man
'When the white men first brought their religion' [Nɬeʔkepmxcín (Thompson)]
(Davis 1999: 12, from Thompson & Thompson 1992:143)

b. cut xeʔ k s=xʷuẏ=**s** miḷt-m-**ne**
say DEIC DET NMLZ=FUT(AUX)=3POSS.SBJ visit-REL(TR)-1SG.SBJ
'She thinks I'm going to visit him/her.' [Nɬeʔkepmxcín]
(Davis 1999: 12, from Thompson & Thompson 1992:394)

Based on both ʔayʔaǰuθəm-internal evidence and cross-Salish evidence, I conclude that third person agreement clitics in transitive clauses are expletive agreement, while the third person suffixes realize true agreement with a third person subject.

[4] St'át'imcets also has this pattern but only in nominalized clauses and in subjunctive clauses with third person subjects (H. Davis, p.c., 2022).

4.4 Syntactic analysis of agreement

4.4.1 Theoretical assumptions

I adopt a theory where Agree is an operation that copies a feature from one head to another (Chomsky 2000, 2001, 2004). A probe with an unvalued feature [uF] searches downward in its c-command domain for a matching feature [F]. If it finds F, F is copied to the probe. I assume that unvalued phi-features on agreement probes do not lead to a derivation crash (Béjar 2003; Béjar and Rezac 2009; Preminger 2011, 2014), but only valued features play a role in lexical insertion.

I propose that in ʔayʔaǰuθəm, the phi-features of arguments must be licensed through agreement (see Béjar and Rezac 2003, 2009, who propose that first and second person arguments must be licensed by agreement). Instead of Agree being driven by the need to value unvalued phi-features on the probe, then, it is driven by the need to license valued phi-features on the goal. Once agreement has taken place, the phi-features of arguments are no longer active and will not enter further agreement relationships.

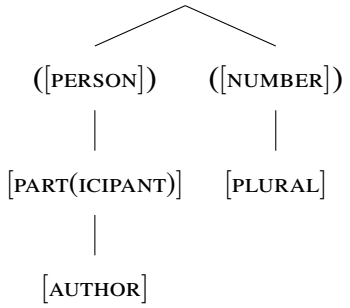
More concretely, I propose the argument licensing criterion and associated conditions in (229).

(229) Argument licensing criterion:
Phi-features of arguments must be licensed through agreement.
i. Phi-features of arguments are active until they agree with a probe.
ii. Once licensed, phi-features of arguments cease to be active.

Pronominal arguments of all persons are null in ʔayʔaǰuθəm, so this licensing criterion ensures that they are nevertheless 'visible'.[5]

In order to capture person asymmetries in agreement, I adopt a feature geometry for phi-features (Harley and Ritter 2004; Béjar 2003; McGinnis 2005; Béjar and Rezac 2009; Preminger 2011, 2014), where third person agreement is the least highly specified and first person is the most highly specified.

(230) (Preminger 2014: 45)



First and second person arguments have a [PARTICIPANT] feature not carried by third person arguments, while first person arguments additionally have an [AUTHOR] feature not carried by second person arguments.

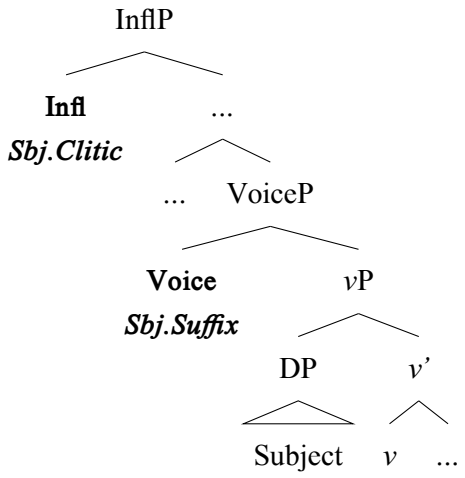
[5] I will not review all the arguments that Salish argument structure is configurational and null pronouns occupy argument positions in the absence of overt DPs. For this, see Davis and Matthewson (2009) and references therein. Even so, several data points in this chapter point towards the subject clitics being agreement rather than arguments. I have argued that third person subject clitics are best analyzed as expletive agreement, for instance, even in clauses where the third person subject argument is not an expletive (following Davis 1999, 2000b). Below, I will also revisit coordinate structures where there is a mismatch between subject *arguments*, which may be shared between conjuncts, and subject *clitics* which nevertheless appear on each conjunct.

4.4.2 Analysis

4.4.2.1 Loci for agreement

I now turn to the syntactic loci for agreement. Following Davis (1999, 2013), I propose that the outer agreement position is a projection higher in the clause, which I will call Infl, while the inner agreement position is Voice.

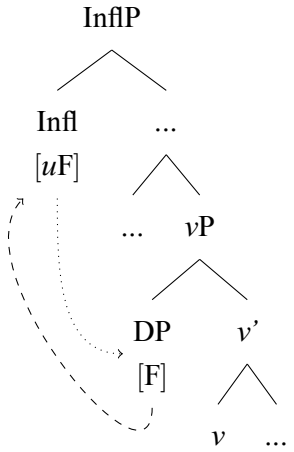
(231)



Since Voice is only present in transitive clauses, subject suffixes only appear in transitive clauses.

In intransitive clauses, where the Voice head is absent, I assume that Infl can probe straight down to the subject argument (represented with a dotted arrow in (232)), which will be the complement of the verb for unaccusatives and in spec-*v* for unergatives (Davis 2013). Phi features from the subject/goal are copied up to the probe Infl (represented with a dashed line in (232)), valuing its features, and the copied features will be spelled out as a subject agreement clitic.

(232)



In transitive clauses, Voice is the locus for agreement with third person subjects, while agreement with first and second person subjects is realized with clitics in Infl. There is reason to believe, however, that Voice is implicated in subject agreement in transitive clauses with first and second person subjects as well. As

mentioned above, agreement with first and second person subjects of noncontrol transitives may be marked with both a clitic and a suffix, as in (233), repeated from (224c) above.[6]

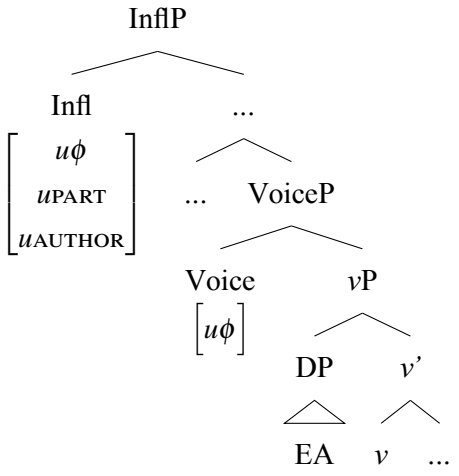
(233) **č**ta hoǰʊxʷ**ən** tətᶿ pɩču skʷiǰoɬ.
č=ta=huǰ-əxʷ-**an** tə=tᶿ=pəču skʷiǰuɬ
1SG.SBJ=CLD=finish-TR-1SG.ERG DET=1SG.POSS=basket morning
'I finished my basket this morning.' (vf | EP.2020/06/25)

I therefore propose that agreement takes place first with Voice in transitive clauses, but this agreement is not sufficient to license first and second person arguments and a subsequent step of agreement takes place between Infl and Voice. With third person arguments, agreement with Voice is sufficient to license the argument, leaving Infl without any active argument to agree with, resulting in expletive agreement in Infl (Béjar 2003; Béjar and Rezac 2009; Preminger 2011, 2014).

4.4.2.2 Person and clause type

In order to account for the person split in the ʔayʔaǰuθəm system, I propose that while both Infl and Voice are agreement probes, they differ in their specifications. Infl probes for a full set of phi-features, while Voice probes only for [ϕ].

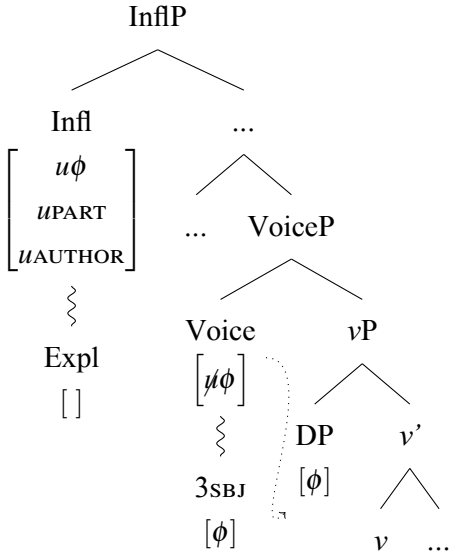
(234)



If the external argument is third person, it will fully agree with the Voice probe, licensing the third person argument and triggering third person agreement on Voice. Infl's search will then fail since there are no active phi-features in its search domain. At lexical insertion, the expletive clitic, unspecified for phi-features, will be matched and inserted at Infl.

[6]Doubling patterns are also found in other Central Salish languages, such as Sḵwx̱wú7mesh (Squamish) and Shashishalhem (Sechelt) (Davis 1999, 2000b).

(235)



In contrast, if the subject is first or second person, agreement with Voice will not license the argument but leave active features to be copied to Infl.

In order to examine the derivation in more detail, I provide lexical entries for the agreement morphemes. I propose that subject agreement clitics have the phi feature specifications in (236). Since 3rd person clitics are not specified for any ϕ features, they can be inserted in the case where there are no valued features in Infl.[7]

(236) a. 1 ↔ [PART, AUTHOR]

b. 2 ↔ [PART]

c. 3 ↔ [ ]

To capture the fact that the subject clitics vary by clause type (indicative, subjunctive, and nominalized), I propose that Infl carries clause-typing features – the clause-typing C head selects an Infl with the appropriate clause-typing features. The paradigm of clitics for each clause type is laid out in Table 4.2.

Table 4.2: Featural specifications of subject agreement clitics

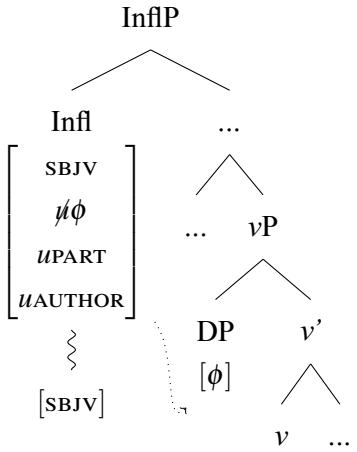
	Indicative	Subjunctive	Nominalized
1	=č/čan	=an	t^{θ}=
	[IND, PART, AUTHOR]	[SBJV, PART, AUTHOR]	[NMLZ, PART, AUTHOR]
2	=čx^{w}/čax^{w}	=ax^{w}	θ=
	[IND, PART]	[SBJV, PART]	[NMLZ, PART]
3	=∅	=as	=s
	[IND]	[SBJV]	[NMLZ]

[7]Thanks to Nico Baier, p.c., 2021, for the the idea that the lexical entries for agreement contain these sets of feature bundles.

‘Third person’ agreement carries only clause-typing features. It can therefore be inserted both where Infl agrees with a third person subject argument in intransitive clauses (its feature set will be a subset of the features on Infl) and where no agreement between the subject argument and Infl takes place. This is illustrated for third person agreement in intransitives, such as the subjunctive subordinate clause in (237) (repeated from (225)), in (238).

(237) xʷa? hays**əs** k̓ʷas ʔətᶿ top.
xʷa? hays=**as** k̓ʷas ʔətᶿ=tup
NEG really=3SBJV hot 1SG.POSS=stove
‘My stove wasn’t really hot.’ (vf | BW.2020/10/29)

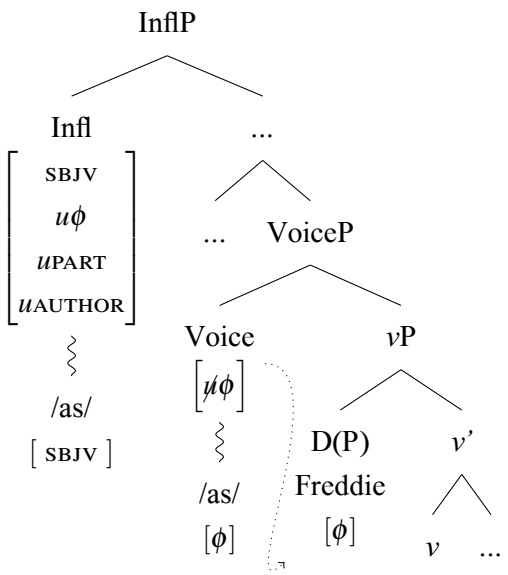
(238)



I now examine the derivation for a transitive clause with third person agreement. Taking the subordinate clause from (239), repeated from (220) above, we get the derivation in (240).

(239) *Context: Freddie is reluctant to go to the elder’s gathering and leave his dogs behind. I tell you:*
xʷaʔ k̓ʷa səm [θah**əs** Freddie qamə́t**əs** ƛ̓aƛ̓aχay].
xʷaʔ=k̓ʷa=səm [θa-h=**as** Freddie qəm-í-t-**as** ƛ̓aƛ̓ax̌ay]
NEG=RPT=FUT [go-EPEN=3SBJV Freddie accompany-STAT-CTR-3ERG elders]
‘It’s not the case that [Freddie will go along with the elders] (he said).’
(vf | EP.2021/09/18)

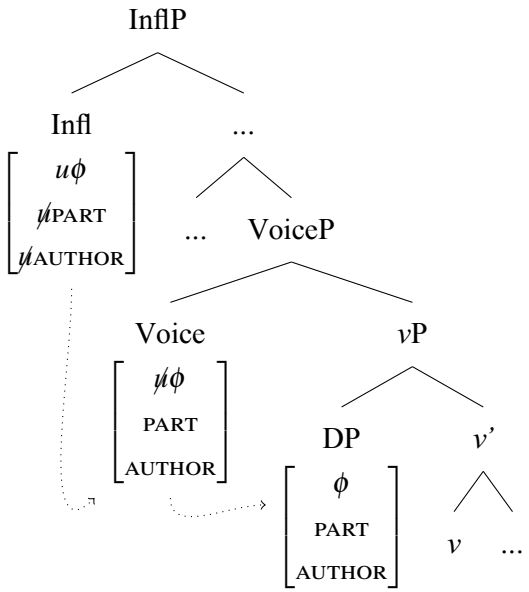
(240)



First, agreement takes place between the subject DP 'Freddie' and Voice. The unvalued [uϕ] feature on Voice is valued by the [ϕ] feature of the subject DP, and the subject DP is licensed through agreeing with Voice; at lexical insertion, the third person ergative suffix is matched and inserted. When Infl probes, there are no 'active' features left on the subject DP and Infl's search fails. Since there are no valued phi-features on Infl, the expletive subjunctive subject clitic bearing only the clause-typing feature [SBJV] is matched and inserted at lexical insertion.

When the subject is first or second person, Voice probes and agrees with the [ϕ] feature, copying it, along with the features it dominates, to Voice (Preminger 2009). While the [ϕ] feature is licensed, there will be an unlicensed [PART] feature for both first and second person arguments and an unlicensed [AUTHOR] feature for first person arguments. When Infl probes, it finds these active features on Voice and copies them to Infl. Once agreement with Infl has taken place, the first or second person argument will be licensed.

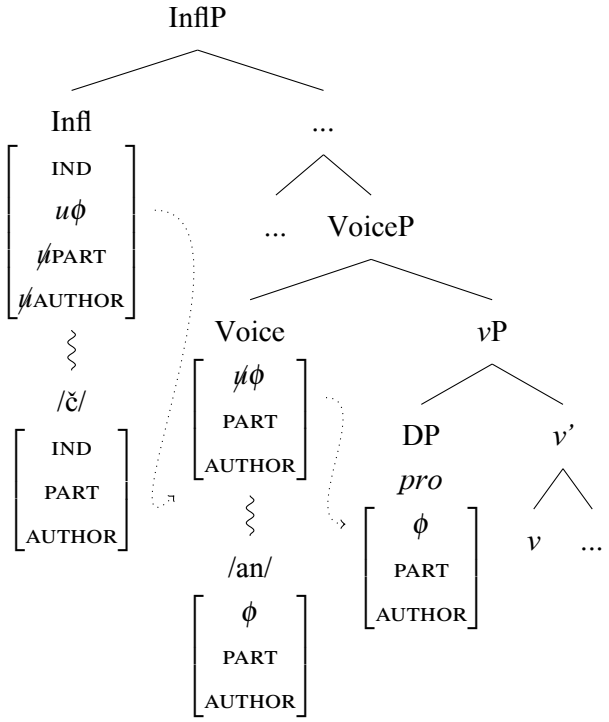
(241)



Usually only the higher copy is realized, resulting in a subject clitic in Infl (this is analoguous to copies created through syntactic movement – in these cases too, only the higher copy is typically spelled out). However, when the predicate is a noncontrol transitive preceded by a clausal demonstrative, both positions can be realized. An example like (242), repeated from (233) above, will then have the derivation in (243).

(242) **č**ta hoǰʊxʷ**ən** tətᶿ pɩču skʷiǰoł.
č=ta=huǰ-əxʷ-**an** tə=tᶿ=pəču skʷiǰuł
1SG.SBJ=CLD=finish-TR-1SG.ERG DET=1SG.POSS=basket morning
'I finished my basket this morning.'

(243)



First, the first person argument – a null pronoun introduced by *v* – agrees with Voice. Agreement with Voice is not sufficient to license the argument, but the agreement operation copies the features of the DP to Voice. Infl probes and finds the active PART and AUTHOR features on Voice and copies them. Lexical entries are then inserted at both positions.

When just a subject clitic is realized, only the higher copy is targeted by lexical insertion; this is analogous to movement chains, where typically only the higher copy is pronounced. Similarly, for cases where only the agreement suffix is pronounced, lexical insertion targets only the lower copy; these cases are analogous to the more marked movement cases where only the lower copy in a movement chain is pronounced (e.g. Bobaljik 2001). This more marked option is only available with the noncontrol transitives in ʔayʔaǰuθəm, meaning that there is something about the presence of the noncontrol transitivizer in *v* that makes this option available. I leave a full exploration of how to formalize this relationship to future research.

4.5 Agreement in coordinate structures

With an analysis of subject agreement in place, I can now give an account of a phenomenon that I did not directly address in previous sections: subject agreement in coordinate structures. There are two aspects of agreement in coordinate structures to discuss: 1) how the analysis I have proposed predicts asymmetry in the height of coordination with mismatching and matching subjects; 2) why subject agreement clitics are required on every conjunct, even where the site of coordination is below Infl. For the former, I show that the locus of agreement and the argument licensing conditions which I have proposed correctly predict only high coordination to be possible where the subject is not shared between conjuncts. For the latter, I propose an account where the lexical entry for agreement is copied as a strategy for linearization relative to two equidistant hosts.

4.5.1 Agreement with shared and mismatching subjects

In Chapter 2, Section 2.4.2.1, I showed that coordination must be high when different subjects occur in each conjunct. This is illustrated in (244) and (245) (from (89) and (90), respectively), where the future must occur in each conjunct and cannot scope over both.

(244) *Context: We're going to get together and someone is going to demonstrate how to weave.*

a. q̇atᶿɛnxʷegəs**štəm** ʔi χop̓ɛʔɛč **səm**.
q̇at̓ᶿ-ənxʷigas=št=əm ʔiy x̌up̓iʔič=**səm**
gather-NCTR.RECP=1PL.SBJ=FUT CONJ weave=FUT
'We're going to get together and she will weave.'

b. #q̇atᶿɛnxʷegəs**štəm** ʔi χop̓ɛʔɛč.
q̇at̓ᶿ-ənxʷigas=št=əm ʔiy x̌up̓iʔič
gather-NCTR.RECP=1PL.SBJ=FUT CONJ weave
'We're going to get together and she will weave.'

(245) *Context: We're planning an event. You arranged with Drew and Sosan that they would come.*

a. #wuwʊm **səm** Drew ʔi čiɬɛm Sosan.
wuw-əm=**səm** Drew ʔiy čiɬ-im Sosan
sing-MD=FUT Drew CONJ dance-MD Sosan
'Drew is going to sing and Sosan is going to dance.'

(Davis and Huijsmans 2021)

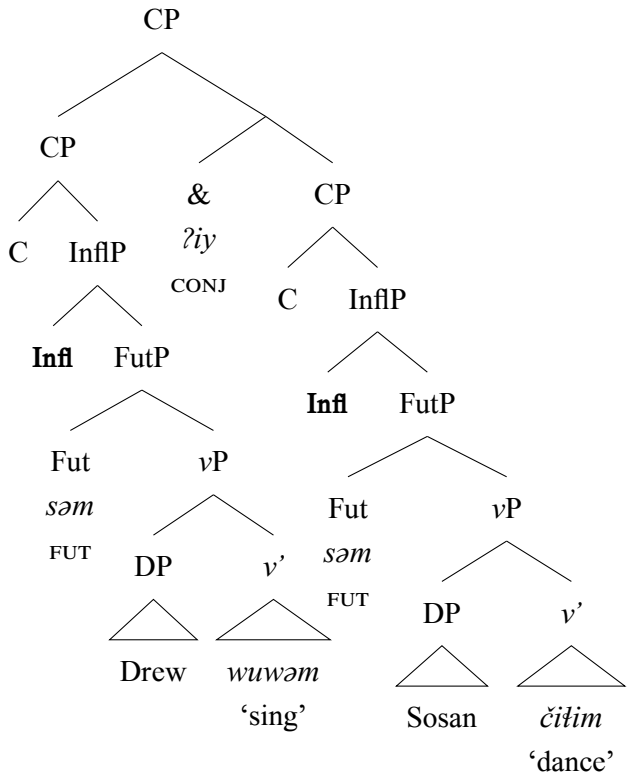
b. wuwʊm **səm** Drew ʔi čiɬɛm **səm** Sosan.
wuw-əm=**səm** Drew ʔiy čiɬ-im=**səm** Sosan
sing-MD=FUT Drew CONJ dance-MD=FUT Sosan
'Drew is going to sing and Sosan is going to dance.'

(Davis and Huijsmans 2021)

The model of agreement that I have proposed provides a reason for this requirement: arguments must enter into an agreement relationship in order to be licensed, meaning that each of the subjects must be licensed through agreement with an Infl head. I assume that each Infl can only enter into an agreement relationship once, so this means that two Infls are required. Since Infl is high in the clause, this forces coordination to take place at the clausal level, so that there is an Infl in each conjunct; coordination cannot instead take place at some intermediate projection above the subject arguments but below Infl. Other clitics such as the future are therefore embedded within each conjunct and must appear within each conjunct they take scope over.

To illustrate, I propose (246) as the structure for (245b).[8]

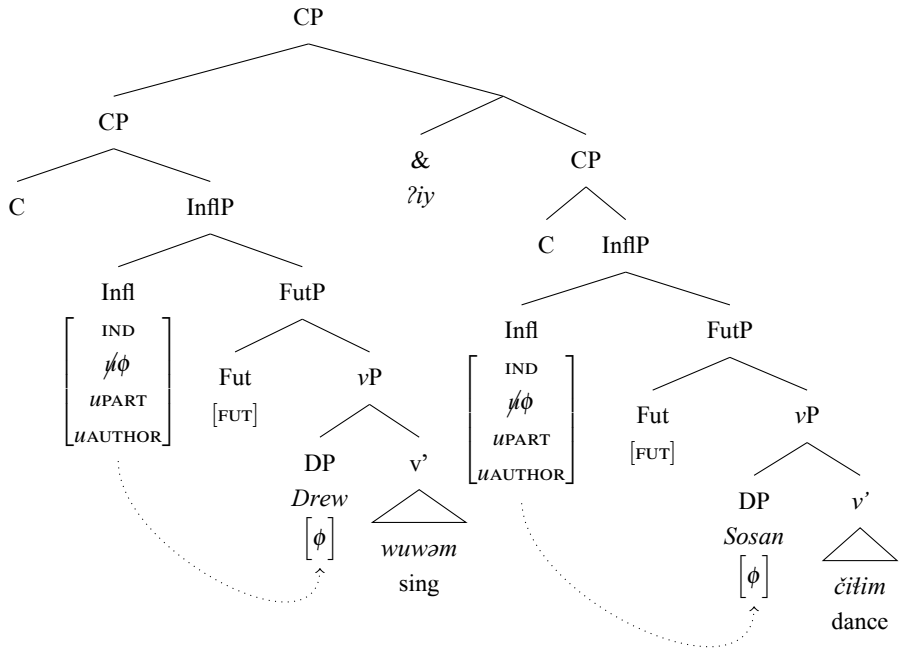
(246)



High coordination means that there is an Infl head in each conjunct, allowing the different subjects to agree separately with an Infl head; each set of argument phi-features is separately licensed through agreement. Agreement occurs as in (247). Since these examples are intransitive, there is no Voice head acting as an agreement probe. Infl in each conjunct probes for phi-features in its search domain and copies the ϕ feature from each subject DP. At this point, the subject DPs in each conjunct are licensed.

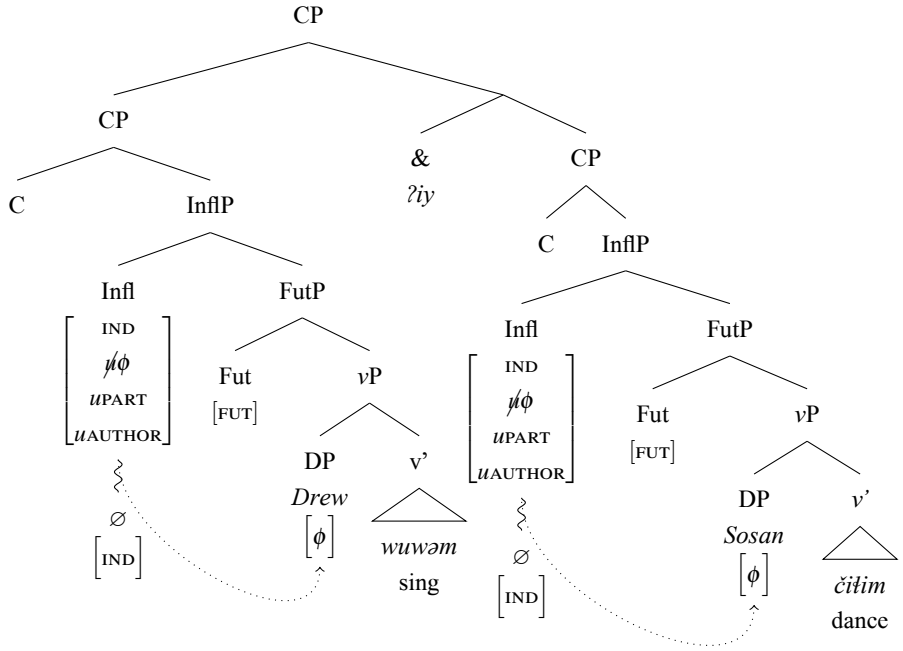
[8]In order to be consistent with the analysis of coordination adopted here from Chomsky (2013), the two InflP conjuncts should begin as sisters, followed by movement of the first to the specifier of the &. I do not represent this step of the derivation for simplicity here.

(247)



At lexical insertion, the null indicative expletive clitic is inserted in each conjunct.

(248)



A contrasting pattern is found in cases where the subject is shared by the conjuncts. In these cases, the future clitic can take scope over multiple conjuncts indicating that coordination is low, as in (249)–(251).

(249) a. q̇aṯᶿaθotští**əm** ʔi wuwuwʊmští**əm**.
q̇aṯᶿ-aθut=ští=**əm** ʔiy wu∼wuw-əm=ští=**əm**
gather-REFL=1PL.SBJ=FUT CONJ PROG∼sing-MD=1PL.SBJ=FUT
'We will gather together and we will be singing.'

b. q̇aṯᶿaθotští**əm** ʔi wuwuwʊmští.
q̇aṯᶿ-aθut=ští=**əm** ʔiy wu∼wuw-əm=ští
gather-REFL=1PL.SBJ=FUT CONJ Prog∼sing-MD=1PL.SBJ
'We will gather together and we will be singing.'

c. q̇aṯᶿaθotští ʔi wuwuwʊmští**əm**.
q̇aṯᶿ-aθut=ští ʔiy wu∼wuw-əm=ští=**əm**
gather-REFL=1PL.SBJ CONJ PROG∼sing-MD=1PL.SBJ=FUT
'We will gather together and we will be singing.'

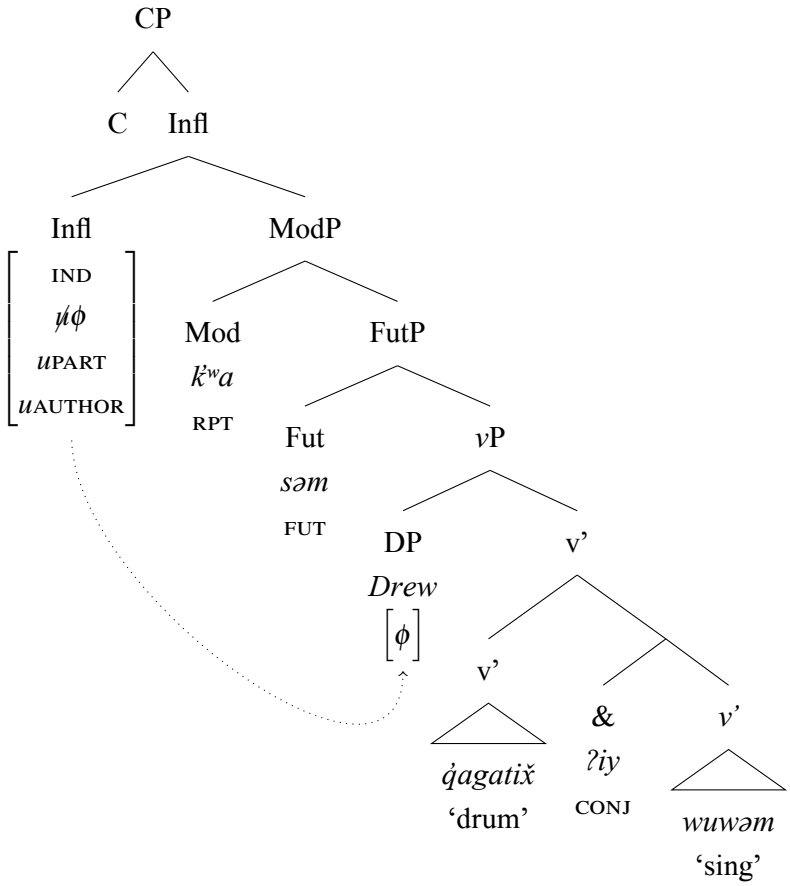
(250) a. *Context: A cook on a cooking show, explaining the steps of his process. He's going to cut the carrots while the onions are frying.*
čiyḱɛʔəm**tᶿəm** [ʔə]kʷ maq̇ʷṯᶿ ʔi ṯᶿačixʷʔəm**tᶿəm**
čəyḱ-aʔam=**tᶿ**=**əm** [ʔə=]kʷ=maq̇ʷṯᶿ ʔiy ṯᶿ<a>č<i>xʷ-ʔəm=**tᶿ**=**əm**
fry-ACT.INTR=1SG.SBJ=FUT [OBL=]DET=onion CONJ cut<PL>-ACT.INTR=1SG.SBJ=FUT
[ʔə]kʷ mɛʔɛn
[ʔə=]kʷ=miʔin
[OBL=]DET=carrot
'I'm going to fry the onions and cut up the carrots.'

b. čiyḱɛʔəm**tᶿəm** [ʔə]kʷ maq̇ʷṯᶿ ʔi ṯᶿačixʷʔəm**č** [ʔə]kʷ mɛʔɛn
čəyḱ-aʔam=**tᶿ**=**əm** [ʔə=]kʷ=maq̇ʷṯᶿ ʔiy ṯᶿ<a>č><i>xʷ-ʔəm=**č** [ʔə=]kʷ=miʔin
fry-ACT.INTR=1SG.SBJ=FUT [OBL=]DET=onion CONJ cut<PL>-ACT.INTR=1SG.SBJ [OBL=]DET=carrot
'I'm going to fry the onions and cut up the carrots.' (sf | EP.2021/01/22)

(251) *Context: We're planning an event. I contacted Drew about drumming and singing at the event and he agreed, so now I'm telling you:*
q̇agatɛχ **ḱʷa səm** Drew ʔi wuwʊm.
q̇agatiχ=**ḱʷa**=**səm** Drew ʔi wuw-əm
drum=RPT=Fut Drew CONJ sing-MD
'Drew is going to drum and sing.' (sf | EP.2021/01/29)

In these cases, I propose that there is a single subject DP shared by two verb phrase conjuncts, and agreeing with a single higher Infl head. This is shown for (251) in (252).

(252)



This raises a puzzle for examples like (249) and (250), however, which pattern as instances of low coordination, yet have subject agreement clitics in both conjuncts (unlike (251), which has a single argument DP shared by both). I turn to an account of these cases next.

4.5.2 Subject agreement in each conjunct

The behaviour of subject clitics in coordinate structures is distinct from other 2PCs. While clitics such as the future, inferential, and reportative can appear in one conjunct while taking scope over multiple conjuncts (Chapter 2, Section 2.4.2), the subject clitics cannot. They must always appear on every conjunct, as shown in (253) and (254).[9]

(253) a. qayigísč hoy q̓aq̓ačɛn
qayig<í>s=č huy q̓aq̓a=čan
tired-body<STAT>=1SG.SBJ CONJ hungry=1SG.SBJ
'I'm tired and hungry.'

[9]The examples in (253b-c) should have an alternate interpretation where the clause without the clitic is interpreted as having a third person subject: 'I'm tired, and s/he's hungry' for (253b) and 'S/he's tired, and I'm hungry' for (253c). However, contexts where these would be uttered most naturally involve contrastive focus which gives rise to a cleft structure. As a result, I have not been able to obtain clear judgements that these alternative interpretations are available to rescue these sentences.

b. #qayigísč hoy q̓aq̓a.
qay-ig<í>s=**č** huy q̓aq̓a
tired-body<STAT>=1SG.SBJ CONJ hungry
'I'm tired and hungry.'

c. #qayigís hoy q̓aq̓a**čɛn**.
qay-ig<í>s huy q̓aq̓a=**čan**
tired-body<STAT> CONJ hungry=1SG.SBJ
'I'm tired and hungry.'

(254) a. q̓aṯθéctoɬ**št** ʔi ʔiʔaǰusθot**št**.
q̓aṯθ-ít-uɬ=**št** ʔiy ʔəǰʔaǰus-θut=**št**
gather-STAT-PST=1PL.SBJ CONJ enjoy-REFL=1PL.SBJ
'We gathered and enjoyed ourselves.'

b. #q̓aṯθéctoɬ**št** ʔi ʔiʔaǰusθot.
qaṯθ-ít-uɬ=**št** ʔiy ʔəǰʔaǰus-θut
gather-STAT-PST=1PL.SBJ CONJ enjoy-REFL
'We gathered and enjoyed ourselves.'

c. #q̓aṯθéctoɬ ʔi ʔiʔaǰusθot**št**.
qaṯθ-ít-uɬ ʔiy ʔəǰʔaǰus-θut=**št**
gather-STAT-PST CONJ enjoy-REFL=1PL.SBJ
'We gathered and enjoyed ourselves.'

Their obligatory presence in each conjunct could be taken to indicate that the clitics originate low in the clause, within each conjunct. This would, of course, run counter to the explanation of obligatory high coordination in cases of mismatching subjects that I proposed in the preceding section. An account where the subject clitics originate low in the clause would also have to account for the subject clitics' position early in the clitic string, adjacent to the force clitics and above the future clitic, as in (255). If the subject agreement clitics originate high in the clause, their position in the string is given by default, but if they originate low in the clause, their position is puzzling.

(255) qʷola**čxʷ**a ga sṯθokʷ̓?
qʷəl̓=a=**čxʷ**=a=ga sṯθukʷ̓
come=Q=2SG.SBJ=FUT=DPRT today
'Are you going to come today?' (vf | EP.2021/10/30)

Instead of analyzing the subject clitics as originating low, I propose that the appearance of the clitics in each conjunct is not indicative of their position in the syntactic structure, but rather arises as the syntactic structure is linearized and given exponence. A comparison with subject clitic behaviour in coordinate structures in St'át'imcets (drawing on H. Davis and Huijsmans 2022) suggests this approach is on the right track.

In St'át'imcets, when the subject is matched between conjuncts, a subject agreement clitic need only appear on one conjunct.

(256) a. siq̇ʷúta=**łkan** múta? pumáka? múta? ?íx̌-əm
dance=1SG.SBJ and drum and sing-MD
'I danced and I drummed and I sang.'

b. siq̇ʷúta múta? pumáka?=**łkan** múta? ?íx̌-əm
dance and drum=1SG.SBJ and sing-MD
'I danced and I drummed and I sang.'

c. siq̇ʷúta múta? pumáka? múta? ?íx̌-əm=**łkan**
dance and drum and sing-MD=1SG.SBJ
'I danced and I drummed and I sang.' [St'át'imcets] (H. Davis and Huijsmans 2022)

Nevertheless, structurally St'át'imcets is parallel to ʔayʔaǰuθəm in relevant aspects: it allows low coordination of verb phrase constituents underneath a shared subject, but only high coordination at the CP level when there are different subjects in each conjunct. In (257), where there is a shared subject between the conjuncts, a single future clitic can take scope over multiple conjuncts, but in (258), where there are different subjects in each conjunct, a single future clitic cannot take scope over multiple conjuncts.

(257) a. siq̇ʷúta=**kəł** múta? pumáka? múta? ?íx̌-əm
dance=1SG.SBJ and drum and sing-MD
'She will dance and drum and sing.'

b. siq̇ʷúta múta? pumáka?=**kəł** múta? ?íx̌-əm
dance and drum=1SG.SBJ and sing-MD
'She will dance and drum and sing.'

c. siq̇ʷúta múta? pumáka? múta? ?íx̌-əm=**kəł**
dance and drum and sing-MD=1SG.SBJ
'She will dance and drum and sing.' [St'át'imcets] (H. Davis and Huijsmans 2022)

(258) a. ?íx̌-əm=**kəł** kʷ=s-Laura múta? siq̇ʷúta=**kəł** kʷ=s-Lə́mya?.
sing-MD=FUT DET=NMLZ-Laura and dance=FUT DET=NMLZ=Lémya7
'Laura will sing and Lémya7 will dance.'

b. ?íx̌-əm=**kəł** kʷ=s-Laura múta? siq̇ʷúta kʷ=s-Lə́mya?.
sing-MD=FUT DET=NMLZ-Laura and dance=FUT DET=NMLZ=Lémya7
#'Laura will sing and Lémya7 will dance.'
(Actual interpretation: 'Laura will sing and Lémya7 danced/is dancing.')

c. ʔíẖ-əm kʷ=s-Laura múta? siq̇ʷúta=**kəɬ** kʷ=s-Lə́mya?.
sing-MD DET=NMLZ-Laura and dance=FUT DET=NMLZ=Lémya7
#'Laura will sing and Lémya7 will dance.'
(Actual interpretation: 'Laura sang/is singing and Lémya7 will dance.') [St'át'imcets]
(H. Davis and Huijsmans 2022)

Moreover, subject clitics occur early in the clitic string in St'át'imcets as well (H. Davis 2022). In St'át'imcets, then, all evidence points to subject agreement occupying a functional projection high in the clause.

Rather than proposing a different position for subject agreement in ʔayʔaǰuθəm and St'át'imcets, I assume that subject agreement occurs high in both languages. The requirement for a subject clitic on each conjunct in ʔayʔaǰuθəm is therefore not a structural one, but arises during spell-out.

I propose that subject agreement clitics appear on each conjunct as the result of a linearization strategy for dealing with equidistant hosts. I propose the lexical entries for subject agreement can be copied in order to resolve indeterminacy in linearization. This is the case precisely when there is lower verb phrase coordination, where the head of each conjunct counts as an equidistant clitic host; in this configuration, since the copying strategy is available and resolves the indeterminacy, it is *required*. Conversely, the lexical entry for subject agreement in Infl cannot be copied where there are not two equidistant hosts, because it is not possible to linearize two lexical entries occupying the same head.[10,11]

Under this approach, the derivation of an example like (259) (repeated from (250b)) proceeds as in (260). The clitic string is formed first, prior to copying of subject agreement in Infl, as in (260a-b). Subject agreement copies when the lexical entry matched to the Infl head must linearize relative to the lower conjoined predicates. The clitic string attached to the 'original' lexical entry in Infl attaches to one conjunct and the duplicate lexical entry for Infl attaches to the other, as in (260c). At Stage 2 of lexical insertion the correct allomorphs will be inserted based on the immediately local environment (see Chapter 3, Section 3.3).

(259) c̓iyk̓ɛʔəm**tᶿəm** [ʔə]kʷ maq̇ʷṭᶿ ʔi ṭᶿačixʷʔəm**č** [ʔə]kʷ mɛʔɛn
c̓əyk̓-aʔam=**tᶿ**=**əm** [ʔə=]kʷ=maq̇ʷṭᶿ ʔiy ṭᶿ<a>č><i>xʷ-ʔəm=**č** [ʔə=]kʷ=miʔin
fry-ACT.INTR=1SG.SBJ=FUT [OBL=]DET=onion CONJ cut<PL>-ACT.INTR=1SG.SBJ [OBL=]DET=carrot
'I'm going to fry the onions and cut up the carrots.' (sf | EP.2021/01/22)

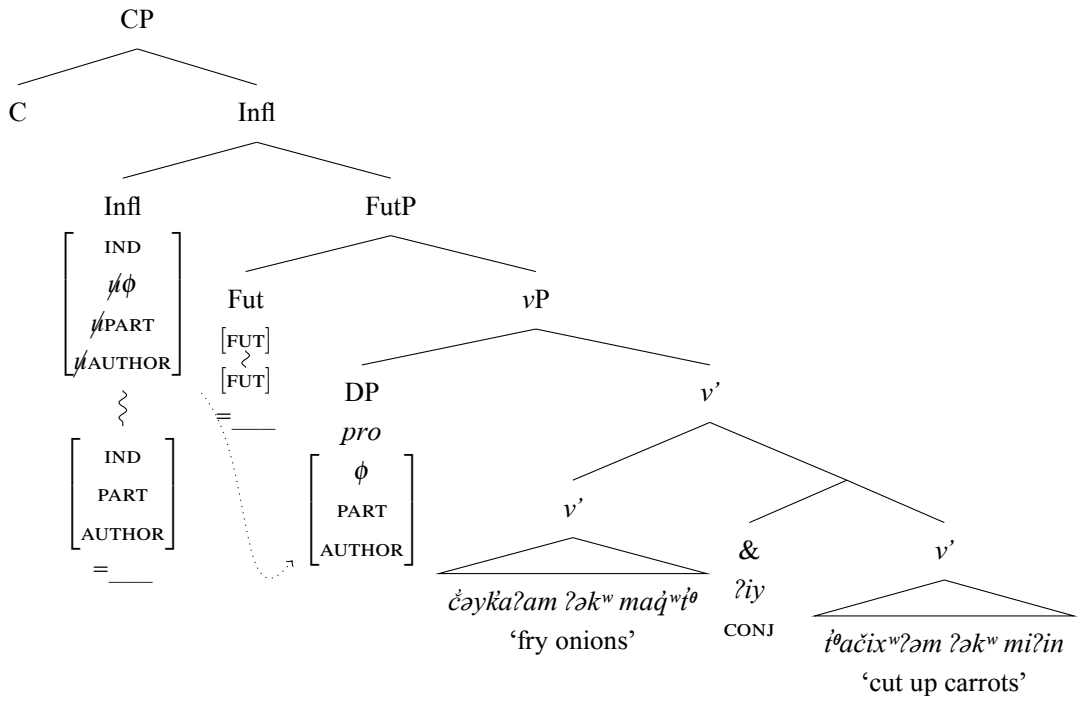
[10] Bjorkman (2016) similarly argues that multiple lexical entries occupying the same head leads to morphological uninterpretability.

[11] This account predicts that if there is a higher clitic than Infl – a question or exclamative clitic – copying should not occur, since the indeterminacy in linearization does not arise until the higher clitic must linearize relative to the lower host. Attempts to test this with the future clitic have so far been inconclusive, since a single question clitic is not always accepted scoping over multiple conjuncts (for reasons still under investigation), and where it has been accepted in cases like (i) (repeated from (82) above), coordination is quite high, since each conjunct has the future clitic, and therefore likely takes place at the level of Infl, allowing an Infl head in each conjunct.

(i) *Context: I'm managing a decision-making process and the parties involved need to talk and make a decision. I want to make sure that they're moving forward on it. I ask them:*

q̇aṭᶿaθot**a**čɛp səm ʔi qʷɛqʷaystawɬčɛp səm?
q̇aṭᶿ-aθut=**a**=čap=səm ʔiy qʷi∼qʷay-st-awɬ=čap=səm
gather-CTR;REFL=Q=2PL.SBJ=FUT CONJ PROG∼talk-CAUS-RECP=2PL.SBJ=FUT
'Are you all going to get together and are you going to have a conversation?' (sf | EP.2020/10/23)

(260) a.


CP
C
Infl
Infl
IND
μ/ϕ
μ/PART
μ/AUTHOR
IND
PART
AUTHOR
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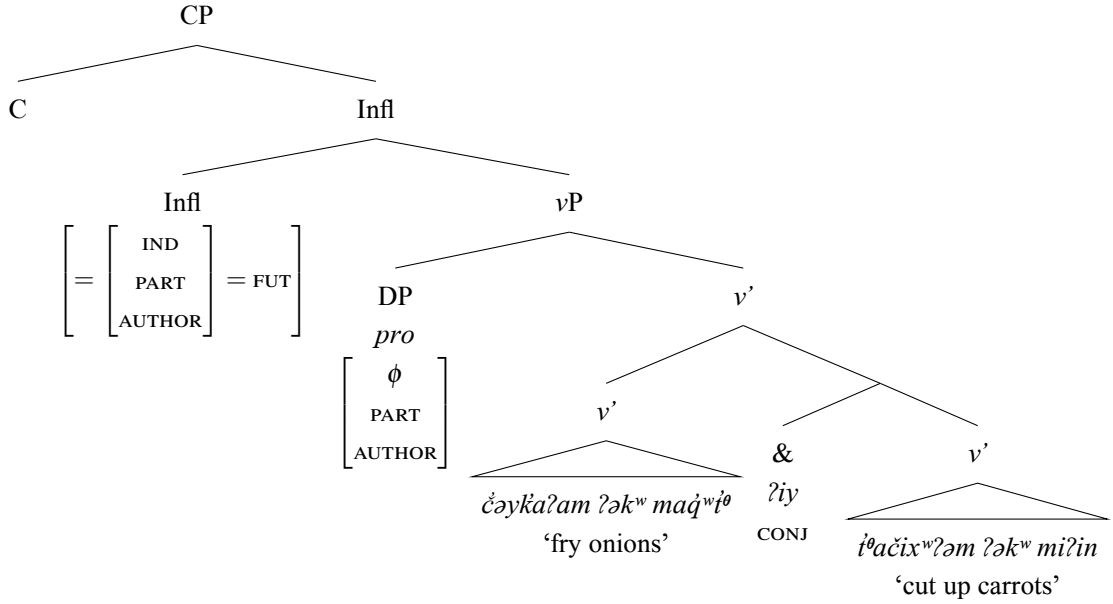
Fut
[FUT]
[FUT]
=___
DP
pro
ϕ
PART
AUTHOR
vP
v'
v'
č'əyk'aʔam ʔəkʷ maq̓ʷt'θ
'fry onions'
&
ʔiy
CONJ
v'
t'θačixʷʔəm ʔəkʷ miʔin
'cut up carrots'

b.


CP
C
Infl
Infl
= IND PART AUTHOR = FUT
vP
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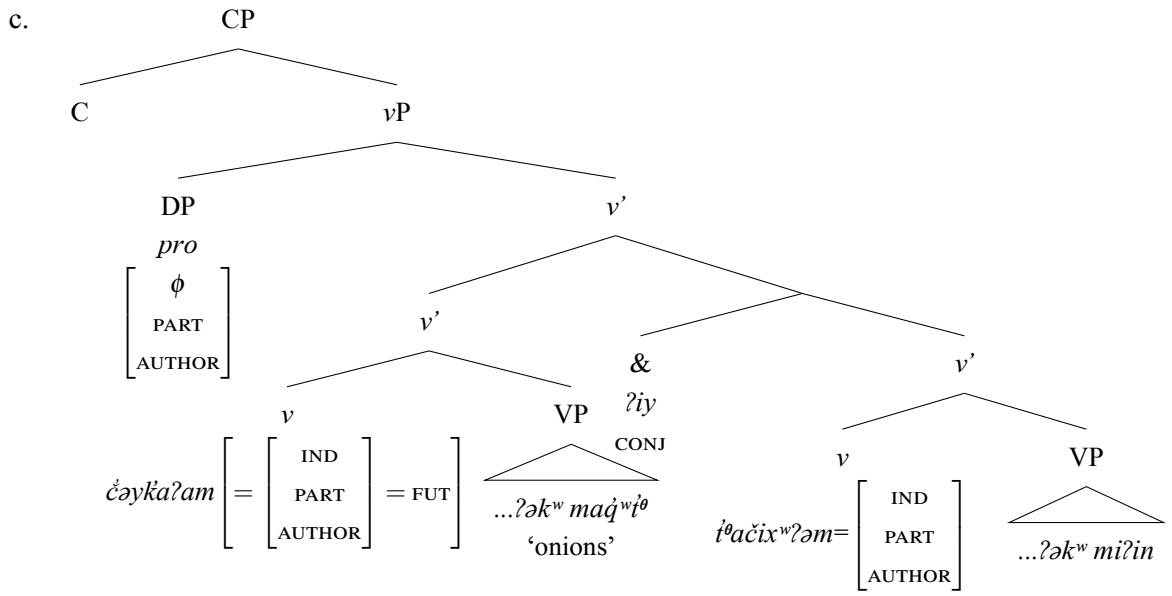
pro
ϕ
PART
AUTHOR
v'
v'
č'əyk'aʔam ʔəkʷ maq̓ʷt'θ
'fry onions'
&
ʔiy
CONJ
v'
t'θačixʷʔəm ʔəkʷ miʔin
'cut up carrots'



I propose that the difference between ʔayʔaǰuθəm and St'át'imcets lies solely in the requirement in ʔayʔaǰuθəm that Infl copies when there are verb phrase conjuncts. While subject agreement in Infl must be copied in order to linearize relative to each conjunct in ʔayʔaǰuθəm, this is not required in St'át'imcets. This account allows for parallel syntactic derivation in the two languages while accounting for the difference in the distribution of subject clitics (see Davis and Huijsmans 2021 for further discussion).

There still remains a question regarding *why* the lexical entry in Infl is able to duplicate in order to solve the linearization indeterminacy, but other clitics do not. Subject agreement clitics do have a different status from the other clitics, since they are simply bundles of agreement phi features, rather than heads with semantic content. Explaining their divergent behaviour is a matter for future research, however.

4.6 Conclusion

In this chapter, I have argued that subject clitics are agreement markers matched and inserted at Infl, following Davis (1999, 2000b). I developed an analysis where arguments must be licensed through agreement, but unvalued features on an agreement probe do not cause the derivation to crash (along the lines of Béjar and Rezac 2003, 2009).

I adopted a feature geometry for phi features where first and second persons are more highly specified than third persons (e.g. Harley and Ritter 2004; McGinnis 2005; Béjar and Rezac 2009; Preminger 2014). I argued that both Infl and Voice are agreement probes, but Infl is more highly specified. This accounts for person asymmetries in agreement, since third person arguments are licensed through agreement with the less specified Voice probe, while first and second person arguments are only licensed through agreement with Infl. I proposed lexical entries for the subject agreement clitics where the third person clitic is an expletive without phi feature content and thus can be inserted in Infl even when Infl has not entered into agreement with the subject.

After developing an account of subject agreement more generally, I examined subject agreement in coordinate structures. I proposed that mismatching subjects inside conjuncts forces high coordination because each subject argument must enter into an agreement relation in order to be licensed: in conjuncts with mis-

matching subjects, each conjunct must contain Infl, forcing CP-level coordination. In contrast, where verb phrase conjuncts share a subject, the single subject argument agrees with a single Infl head. I also proposed an account of why subject agreement clitics occur in each conjunct even where the coordination tests as low. I proposed that the lexical entries for subject agreement clitics copy as a linearization strategy where there are two equidistant hosts.

Part II

The semantics of modal and evidential clitics

Introduction to Part II

Scope of Part II

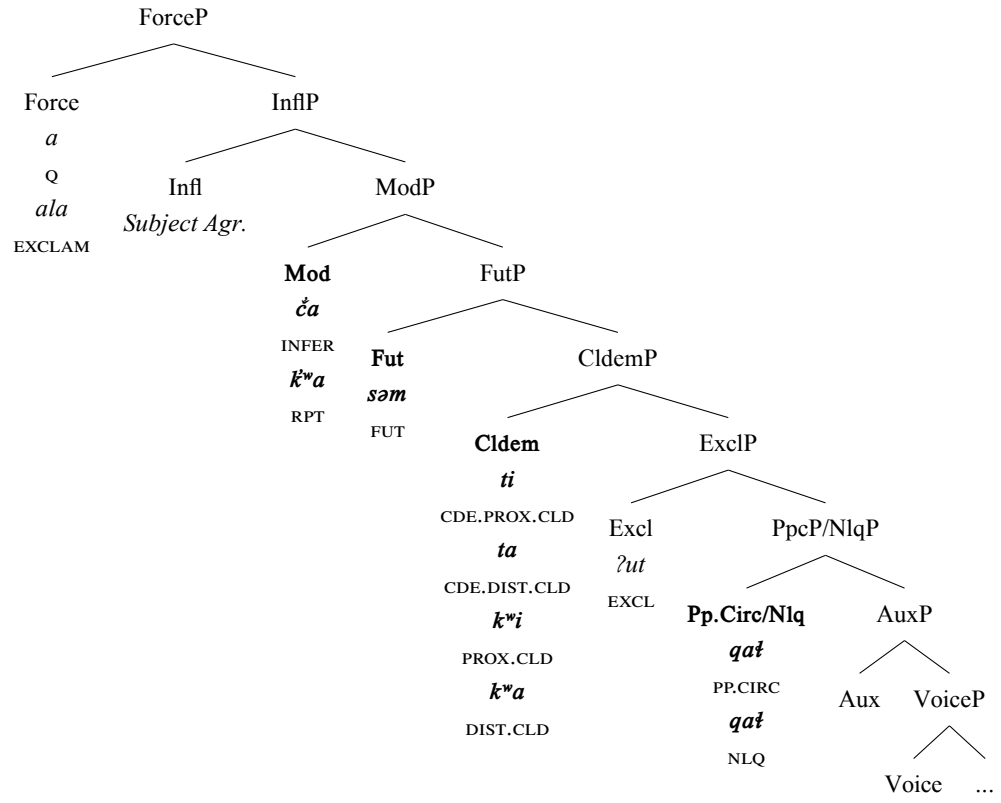
In Part II of this dissertation, I investigate the semantics of a set of modal and evidential clitics, analyzed together because the categories of epistemic modality and evidentiality partially overlap in ʔayʔaǰuθəm. The set of modal and evidential clitics is comprised of:

- two modal evidentials: inferential *c̓ɛ* /*c̓a*/ ‘INFER’ and reportative *k̓ʷa* ‘RPT’
- future modal *səm* ‘FUT’
- two nonmodal evidentials: the direct evidence clausal demonstratives *ti* ‘DE.PROX.CLD’ and *ta* ‘DE.DIST.CLD’ (occurring in a paradigm with their non-evidential counterparts *kʷi* ‘PROX.CLD’ and *kʷa* ‘DIST.CLD’)
- circumstantial modal *qaɬ* ‘PP.CIRC’ (discussed along with a homophonous non-modal counterpart).

These clitics are bolded in the tree in (261), repeated from (95) in Part I.[12]

[12] As before, the discourse particles *ga*, *χʷot* /*x̌ʷət*/, and *ʔit* /*ʔəyt*/ are not included in the tree.

(261)



As indicated in (261), the clitics with modal and evidential contributions occupy a series of heads between subject agreement in Infl and the scalar exclusive *ʔot* /ʔut/, with *qaɬ* occurring immediately below the scalar exclusive.

The modal and evidential clitics comprise a substantial subset of the 2PCs, accounting for four of the eight heads occupied by 2PCs. My goal in the following chapters is both to provide analyses of the individual clitics and also to provide insight into the working of the system as a whole. The comparison between subtypes of modals and evidentials contributes to the formal semantic literature on the typology of modals and evidentials, since I argue for both modal and nonmodal evidentials in ʔayʔaǰuθəm (c.f., Izvorski 1997; Matthewson, Rullmann, and H. Davis 2007; Peterson 2010a; Tan Almazán 2019).

Outline of Part II

In Chapter 5, I lay out relevant theoretical background for Part II. I examine the inferential *čʼɛ* /čʼa/ and reportative *kʼʷa* in Chapter 6, arguing that they are both epistemic modals (following Huijsmans 2022) with strong modal force. In Chapter 7, I contrast these with the evidential clausal demonstratives *ti* and *ta*, showing that the latter are non-modal evidentials (building on Huijsmans and Reisinger 2021b). In Chapter 8, I examine the future *səm*, providing a unified analysis of its uses for claims about the future and inferences about past and present eventualities; I also extend this analysis to English *will*. Finally, in Chapter 9, I examine two homophonous morphemes *qaɬ*, arguing that one is a counterpart of the future modal that takes past temporal perspective while the other always co-occurs with negation and quantifies over past times.

Chapter 5

Theoretical background for modals and evidentials

In this chapter, I present theoretical background for Chapters 6–9, which examine 2PCs with modal and evidential contributions. I introduce the Kratzerian model of modality that I will adopt and also provide background on the relationship between evidentiality and epistemic modality.

I begin by introducing modals and the concepts of modal strength and modal flavour (Section 5.1). I then introduce modal-temporal interactions (Section 5.2). Finally, I discuss evidentials and the relationship between evidentiality and epistemic modality (Section 5.3).

5.1 Modal strength and flavour

Modals are used to make claims that are not directly about the real world. They are used to talk about how the world would be, supposing certain facts were different, for instance, or how the world might or must be in the absence of direct knowledge.

Certain modals are used to make inferences, like English *might* and *must* in (262):

(262) a. Freddie **might** be home.

b. Freddie **must** be home.

The utterance in (262a) is a claim about what is possibly the case. Given what the speaker knows – perhaps having seen Freddie's lights are on – there is at least a possibility that Freddie is home. The utterance in (262b) is a claim about what is necessarily the case. Given the evidence available, the speaker is quite certain that Freddie is home. Perhaps the speaker knows that Freddie is usually home at this time, sees that Freddie's car is in the driveway, and sees that his lights are on.

In formal semantics, it is common to model such utterances as involving possible worlds. In (262a), the speaker claims that there is at least one possible world compatible with the information available in the actual world (and where certain norms of the actual world hold – more on this below) in which Freddie is home. In (262b), the speaker claims that all possible worlds compatible with the information available in the actual world (and where certain norms of the actual world hold) are such that Freddie is home.

Other modals are used to talk about things like permission and obligation, like English *can* and *must* in (263a-b).

(263) a. You **can** have dessert.

b. Chloe **must** do her homework!

In (263a), the speaker says that it is compatible with current rules for the addressee to have dessert. This is a claim about possibility: it is possible for the addressee to have dessert and comply with the rules. In (263b), the speaker expresses that the rules are such that Chloe needs to do her homework and there is no possible future compatible with the rules where she does not do her homework.

Stated in terms of possible worlds, (263a) states that there is at least one possible world compatible with the rules of the actual world where the addressee has dessert. In (263b), the speaker claims that Chloe will do her homework in all possible worlds compatible with obeying the rules that hold in the actual world.

Context plays a crucial role in the interpretation of modals. The paraphrases above include phrases like 'given the information available' or 'compatible with the current rules'. In order to formalize how context informs the interpretation of modals, Kratzer (1977, 1981, 1991, 2012) introduces the idea of *conversational backgrounds*. A modal claim is made relative to two conversational backgrounds: a *modal base* and an *ordering source*.

5.1.1 Modal bases

Following Kratzer, a modal base is a function from a world to a set of propositions representing relevant true facts about that world. Kratzer distinguishes two types of modal bases: *epistemic modal bases* and *circumstantial modal bases*. Epistemic modal bases yield propositions that represent the knowledge that the speaker has. The examples in (262) involve an epistemic modal base. Circumstantial modal bases yield propositions representing facts about the circumstances of the world, i.e., facts about the way the world is, independent of speaker knowledge. A circumstantial modal base is involved in claims about how the world might develop given circumstances such as the laws of physics and nature, such as *That tree could fall if there is a high wind*. Circumstantial modal bases are also involved in claims about rules and obligations such as in (263).

In the formula below, the modal base is a function f from a world w to a set of propositions that are true in that world:

(264) $f(w) = \{p : p \text{ is true in } w\}$

For an example like (262), *Freddie might/must be home*, a toy epistemic modal base with just three propositions might look like:

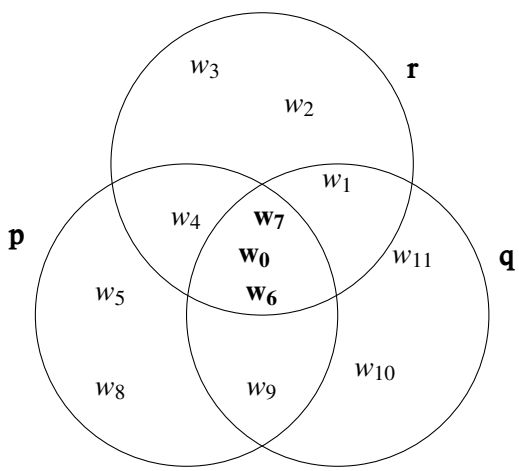
(265) $f(w_0) = \{$Freddie's car in is the driveway, Freddie's lights are on,
There is smoke coming from Freddie's chimney$\}$

The modal base f is a function from the actual world w_0 to a set of propositions true of w_0; these propositions represent the speaker's knowledge. Propositions are functions from worlds to truth values. For illustrative purposes, they can be represented as sets of worlds – the worlds in which the proposition is true. This allows (265) to be represented as in (266).

(266) $f(w_0) = \{\{w_0, w_4, w_5, w_6, w_7, w_8, w_9\}, \{w_0, w_1, w_6, w_7, w_9, w_{10}, w_{11}\}, \{w_0, w_1, w_2, w_3, w_4, w_6, w_7\}\}$
Where *Freddie's car is in the driveway* = $\{w_0, w_4, w_5, w_6, w_7, w_8, w_9\}$,
Freddie's lights are on = $\{w_0, w_1, w_6, w_7, w_9, w_{10}, w_{11}\}$,
There is smoke coming from Freddie's chimney = $\{w_0, w_1, w_2, w_3, w_4, w_6, w_7\}$

The intersection of the modal base will be the set of worlds in which all the propositions in the modal base are true. This is illustrated in (267) with the toy epistemic modal base just sketched above. Each circle represents a proposition (p, q, and r respectively): that is, the set of worlds in which the proposition is true. The bolded worlds (w_0, w_6, and w_7) are those in which all three propositions (p, q, and r) are true; in those worlds, Freddie's car is in the driveway, Freddie's lights are on, and smoke is coming from Freddie's chimney. In the other worlds in the diagram, only a subset of those propositions is true.

(267)



p = $\{w$: *Freddie's car is in the driveway in* $w\}$ = $\{w_0, w_4, w_5, w_6, w_7, w_8, w_9\}$
q = $\{w$: *Freddie's lights are on in* $w\}$ = $\{w_0, w_1, w_6, w_7, w_9, w_{10}, w_{11}\}$
r = $\{w$: *There is smoke coming from Freddie's chimney in* $w\}$ = $\{w_0, w_1, w_2, w_3, w_4, w_6, w_7\}$

Formally, the intersection of the set of propositions in the modal base is represented as in (268).

(268) $\bigcap f(w) = \{w :$ all propositions in the modal base are true in $w\}$

For our toy example illustrated in (267) above, the intersection of the modal base yields:

(269) $\bigcap f(w_0) = \{w_0, w_6, w_7\}$

In summary, the modal base provides a set of propositions that contribute to the conversational background for a modal claim. The intersection of this set of propositions is the set of worlds in which all the modal base propositions are true. As it stands, this is the set of worlds that the modal claim is *about*. In the next section, this picture is slightly amended.

5.1.2 Ordering sources

In Kratzer's model, in addition to modal bases, a modal claim is made relative to one or more *ordering sources*. Ordering sources are also functions from a world to a set of propositions. For modal claims involving inferences, the ordering source will return a set of propositions representing what is *stereotypically* the case in the world; that is, the ordering source propositions will express norms about the world. The worlds in the intersection of the modal base will be ranked according to how many of the ordering source propositions are true in them. In relation to the inference about whether Freddie is home, for instance, the ordering source

will rank worlds higher if certain norms are true in them, such as Freddie being home when his car is in the driveway. In relation to a claim about rules, the ordering source will be a set of rules; worlds will be ranked higher according to how many of the rules are obeyed in them. The modal claim will involve the worlds ranked best by the ordering source.

Formally, an ordering source can be represented as in (270), which states that w will be at least as well ranked as z according to the ordering source A, if the set of propositions in A that are true in w is a superset of the set of propositions in A that are true in z.

(270) For all worlds w and $z \in W$: $w \leq_A z$ iff $\{p : p \in A \text{ and } z \in p\} \subseteq \{p : p \in A \text{ and } w \in p\}$

(Matthewson 2016: 531)

In the intersection of the modal base in our toy example (267)/(269) above, there are just three worlds w_0, w_6, and w_7. If the ordering source A had just the proposition *Freddie is home when his car is in the driveway* in it, and this proposition held in possible world w_6 but not in possible world w_7, then w_6 would be ranked higher than w_7 by the ordering source.

The combination of the modal base and ordering source determines *modal flavour*. Epistemic modals, like those in (262), have an epistemic modal base and a stereotypical ordering source. Certain circumstantial modals, like *could* in *That tree* ***could*** *fall if there is a high wind*, have a circumstantial modal base and a stereotypical ordering source. Deontic modals, like in (263), are a subtype of circumstantial modal with a circumstantial modal base and a deontic ordering source, which ranks worlds according to whether a set of rules or laws are obeyed or a set of obligations are met.

5.1.3 Quantification over possible worlds

In Kratzer's model, the modal claim is made relative to the modal base and one or more ordering sources. The modal claim involves quantification over the set of worlds provided by these conversational backgrounds. *Modal strength* is determined by the type of quantification involved. The schema for a possibility (weak) modal claim is shown in (271) and the schema for a necessity (strong) modal claim is shown in (272). Each modal has a modal base f and an ordering source h, both functions from worlds to sets of propositions (type $\langle s\langle st,t\rangle\rangle$), provided as parameters of interpretation. The modal base f is a function from a world to a set of relevant propositions true in that world. The ordering source h is a function from a world to a set of propositions representing, for example, a set of rules in that world or propositions about what is stereotypically the case in that world. The worlds in the intersection of the modal base $\cap f(w)$ are ranked by the ordering source h and the modal quantifies over the best of these worlds.

A possibility modal, like in (271), introduces existential quantification over worlds, while a necessity modal, like in (272), introduces universal quantification. The denotation for *might* in (271) reads: there exists a possible world w' in the set of best worlds in the intersection of the modal base f as ranked by the ordering source h where the prejacent proposition p is true.

(271) $[\![\textit{might}]\!]^{w,g,f,h} = \lambda p_{\langle st\rangle}.\exists w'[w' \in BEST_{h(w)}(\bigcap f(w)) \wedge p(w')]$

The denotation for *must* in (272) reads: in all the possible worlds w' in the set of best worlds in the intersection of the modal base f as ranked by the ordering source h, p is true.

(272) $[\![\textit{must}]\!]^{w,g,f,h} = \lambda p_{\langle st \rangle}.\forall w'[w' \in BEST_{h(w)}(\bigcap f(w)) \rightarrow p(w')]$

For an example like (262a) *Freddie might be home*, the modal base will be epistemic, comprised of a set of propositions representing knowledge that the speaker has that bears on Freddie's whereabouts. The speaker sees that Freddie's lights are on and knows that Freddie is not away on holiday, for instance. The ordering source ranks the worlds in the modal base according to how stereotypical they are; worlds where people are home when their lights are home will be ranked higher than those where they are not. The claim is then that at least one of the best ranked possible worlds where all the modal base propositions are true is a world in which the prejacent proposition *Freddie is home* is true. This is a claim about possibility, also called a weak or existential modal claim.

For an example like (262b), *Freddie must be home*, the modal base will contain additional propositions: perhaps the speaker has also seen Freddie's car in the driveway, allowing the speaker to make a stronger inference. The effect of these additional propositions in the modal base is to narrow down the set of worlds in the intersection of the modal base to mostly or only worlds where the prejacent proposition p = *Freddie is home* is true. The ordering source narrows down this set of worlds still more, excluding, for example, worlds in which Freddie unexpectedly gets driven to town by a friend while leaving on all his lights. The speaker then claims that p is true in all the best worlds in the intersection of the modal base.

For examples such as (263a) *You can have dessert*, the modal base is circumstantial, comprised of a set of relevant facts about the world such as the time of day, the age of the addressee, the fact that the addressee has finished their meal, etc., while the ordering source will be deontic, comprised of a set of rules that apply to the addressee in the world. The denotation for *can* is as in (273). In (263a), the modal claim with *can* is that there is at least one possible world w' in which the prejacent proposition p = *You have dessert* is true such that w' is compatible with all the relevant circumstances in w as given by the modal base f. w' must also be found in the best worlds in the intersection of the modal base, which are ranked by the ordering source h according to how many rules in h are obeyed in each world.

(273) $[\![\textit{can}]\!]^{w,g,f,h} = \lambda p_{\langle st \rangle}.\exists w'[w' \in BEST_{h(w)}(\bigcap f(w)) \wedge p(w')]$

This yields the meaning that there are possible worlds compatible with the circumstances in w and obedience to the rules of w where the addressee has dessert.

Example (263b) *He must do his homework* is a parallel case involving a circumstantial modal base and a deontic ordering source, but with strong modal strength and therefore universal quantification (274). The modal claim is that in all possible worlds w' that are compatible with all the relevant circumstances in w as given by the modal base f, and that are ranked as best by the ordering source h according to how many rules in h are obeyed, the prejacent proposition p = *He does his homework* is true.

(274) $[\![\textit{must}]\!]^{w,g,f,h} = \lambda p_{\langle st \rangle}.\forall w'[w' \in BEST_{h(w)}(\bigcap f(w)) \rightarrow p(w')]$

Note that (272) and (274) are identical: the modal *must* has the same contribution in both (262b) and (263b). The context provides the modal base and ordering source, so that (262b) is an inference based on the speaker's knowledge and (263b) is a claim to do with rules. The ability to capture this flexibility in the interpretation of modals such as English *must* is one of the important contributions of Kratzer's model.

5.1.4 Why do we need ordering sources?

Now that we have seen how modal claims work, it is worth revisiting why Kratzer introduces both modal bases and ordering sources – why not have all the propositions needed to support the modal claim in the modal base? Kratzer points to two reasons why the ordering source is needed in addition to the modal base. The first is that including things like rules (such as *No one drives over 30 km/hr in a school zone*) in the modal base leads to problems, since rules are not always obeyed. When rules are not obeyed, there would be contradictory propositions in the modal base. For instance, if someone named Irma drives over 30 km/hr in the school zone, we would have a modal base with at least the propositions: {*No one drives over 30 km/hr in a school zone*, *Irma drove over 30 km/hr in the school zone*}. In cases like this, where there are contradictory propositions in the modal base, the intersection of the modal base is the empty set: there will be no worlds compatible with all the propositions in the modal base. In our example, a world in which no one drives over 30km/hr in a school zone will not be a world in which Irma drives over 30km/hr in a school zone and vice versa, meaning the intersection of these two propositions – the intersection of the sets of worlds in which each are true – will be empty.

When the intersection of the modal base is empty, all weak modal claims will be false: there will be no worlds in the intersection of the modal base and a weak modal claim asserts the existence of at least one. All strong modal claims will be trivially true: universal quantification is over an empty set, so it does not matter what worlds the prejacent proposition is true or false in. Having a set of true facts about the world in the modal base, but ranking the worlds in the intersection of the modal base according to the relevant set of rules, resolves this problem.

The other problem that Kratzer solves with the ordering source relates to the relative weakness of a strong modal claim like *Freddie must be home* compared to *Freddie is home*. The model assumes modal bases are *realistic*, which means that a modal base assigns to any world a set of propositions that are true in that world. This means that the actual world will always be in the intersection of the modal base applied to it $f(w_0)$, since the set of propositions given by the modal base will always be true of the actual world. If a strong modal claim were made without an ordering source, the prejacent proposition would be claimed to be true of all worlds in the intersection of the modal base including both the actual world w_0 as well as other possible worlds that share the same relevant facts. As a result, the strong modal claim *Freddie must be home* would entail the plain assertion of the prejacent *Freddie is home*, which claims that the proposition is true only of the actual world. This would mean that the strong modal claim about p would be stronger than the plain assertion of p. This runs counter to our intuitions that a strong modal claim like *Freddie must be home* is weaker than the plain assertion *Freddie is home* and does not entail the latter.

The ordering source solves this problem because it ranks the worlds in the intersection of the modal base, and only the best-ranked worlds will be in the domain of the quantifier. It is always possible that the actual world may not be one of the best-ranked worlds (because, for example, the facts of the world could turn out to be different than what is stereotypically the case). As a result the modal claim does not entail that the prejacent is true in the actual world, and therefore the modal claim is weaker than a plain assertion.[1]

[1] See von Fintel and Gillies (2010), however, who argue that a strong modal proposition *does* entail a plain assertion. They therefore do not incorporate an ordering source into their analysis of the modal *must*. In this dissertation, I assume strong modal claims involve ordering sources and are weaker than plain assertions. This will be important when I compare the entailments of strong modals and plain assertions in Chapter 6, Section 6.6.4.1.

5.1.5 Previous work on modal strength and flavour in Salish and neighbouring languages

In English, a modal such as *must* may be used with different flavours: in (262b), *Freddie must be home*, *must* is used for a strong epistemic modal claim, while in (263b), *He must do his homework*, *must* is used for a strong deontic modal claim. The strength of the claim, however, is fixed: *must* always contributes universal quantification over possible worlds. In contrast, Rullmann et al. (2008) show that modals in the Northern Interior Salish language St'át'imcets have fixed flavour, but variable modal strength. This means that the same modal can have a possibility or necessity interpretation depending on the context:

(275) St'át'imcets

a. *Context: Jim Hoffmann thought he saw a sasquatch and came running back with huge terrified eyes.*

ka-q'us-tum'-á **k'a** wi7
CIRC-frighten(CAUS)-PASS-CIRC INFER EMPH
'It must have really frightened him.'

b. **k'a** lh-zúqw-as tu7 ni7 na núkw-a qelhmín smúlhats **k'a** lh-mím'c-as
INFER COMP-die-3SBJV then DEMON DET other-DET old.person woman INFER COMP-move-SBJV
tu7 nka7
then where
'Maybe the old woman died or maybe she moved somewhere.'
(Rullmann et al. 2008: 323–4 originally from Matthewson 2005c: 61, 418)

In (275a), the epistemic modal *k'a* is used for a strong modal claim, while in (275b) it is used for a weak modal claim. *k'a* is only ever used for epistemic modal claims, however, and never for other modal flavours such as deontic claims.

Rullmann et al. (2008) sparked an investigation of modal strength and flavour in a number of other languages indigenous to the Pacific Northwest, and North America more broadly (see Huijsmans and Murray 2020 for an overview). Menzies (2012), for example, examines two epistemic modals, *mat* and *cmay*, in Nsyílxcen (a.k.a. Okanagan), a Southern Interior Salish language. She finds that both have fixed epistemic modal flavour, while *mat* has variable modal strength and *cmay* has fixed weak modal strength. Oliver (2021) argues that the circumstantial modal *xwent* in Secwepemctsín has variable strength. Variable strength modals have also been reported for Gitksan (Peterson 2010a,b, 2012, 2018; Matthewson 2013), Nez Perce (Deal 2011), and Washo (Bochnak 2015a,b).[2]

One of the goals of Part II of this dissertation is to determine how the ʔayʔaǰuθəm modals fit into this typological picture. I will argue that the ʔayʔaǰuθəm modals that occur in the clitic string have fixed strength and fixed flavour, with the exception of the future marker *səm*, which has variable flavour (but fixed strength).

[2] In terms of formal semantic analysis, variable strength modals are not treated as variable in the type of quantification they encode. Rullmann et al. (2008) analyze variable strength modals in St'át'imcets as strong modals, for instance. They propose that these modals introduce a choice function that picks out a subset of the intersection of the modal base as the domain of quantification. The smaller the domain of quantification for the universal quantifier, the weaker the modal claim. In contrast, Deal (2011) analyzes a variable strength modal in Nez Perce as always involving existential quantification, but argues that it can be interpreted as strong in upward entailing environments due to the absence of a strong counterpart. Peterson (2010a) takes yet a different approach to deriving the variable strength of two Gitksan modals, claiming that they always involve existential quantification, but are interpreted as stronger when the domain of quantification is sufficiently narrowed by one or more ordering sources.

5.2 Modal-temporal interactions

Following the seminal work of Condoravdi (2002), another dimension of modal meaning has been recognized: *modal interactions with time*. According to Condoravdi, there are two relations to consider: *temporal perspective* and *temporal orientation*. Temporal perspective refers to the relationship between the time at which the modal claim is evaluated and the utterance time. Temporal orientation refers to the relationship between the time of the eventuality described by the prejacent and the time at which the modal claim is evaluated. These concepts are best illustrated with some concrete examples.

The utterance in (276) below has present temporal perspective, because the modal claim is based on evidence that holds at the time of speaking and is evaluated at the utterance time. (276) also has present temporal orientation, because the eventuality described by the prejacent – Freddie's being home – overlaps the time at which the modal claim is evaluated, the utterance time.

(276) *Context: I make a guess based on the fact that I see some smoke rising from Freddie's chimney.*
Freddie might be home.
Temporal perspective = Present
Temporal orientation = Present

The utterance in (277) also has present temporal perspective, because the modal claim is based on rules that are in place at the utterance time. Here, however, the temporal orientation is future, since the time of Chloe doing her homework is after the utterance time, the time at which the modal claim is evaluated.

(277) *Context: My friend's daughter wants to go to the park, but my friend tells their partner:*
Chloe must do her homework first.
Temporal perspective = Present
Temporal orientation = Future

Finally, in (278), the temporal perspective is past, since the modal claim is evaluated based on circumstances at a past point in time before the game had been decided, when it was still possible for the speaker's favourite team to win. The claim is that in all worlds compatible with those past circumstances where the referee was fair, the speaker's favourite team would have won. The temporal orientation is future since the team is predicted to win following that past point in time in those worlds.

(278) *Context: After a sports game, we're discussing what happened. I feel our favourite team was cheated out of a victory:*
They would have won if the referee had been fair.
Temporal perspective = Past
Temporal orientation = Future

For Condoravdi (2002), present temporal perspective is provided by tense and past temporal perspective by the perfect scoping over the modal.[3] Temporal orientation is provided by a combination of aspect and the

[3]Condoravdi analyzes past perspective in terms of the scope of the perfect in part in order to account for the ambiguity of modals like *might* in combination with the perfect, as illustrated in (i). In (ia), *might* has present temporal perspective and past temporal orientation, whereas in (ib) it has past temporal perspective and future orientation. For Condoravdi, the perfect scopes under the

semantics of the modals themselves.[4] In (276), tense is present and aspect is stative, overlapping the present reference time; the result is present temporal perspective and present temporal orientation. In (277), tense is again present while the circumstantial modal places the event in the future of the reference time; the result is present temporal perspective and future temporal orientation. According to Condoravdi, (278) involves the perfect scoping over the modal to give past temporal perspective. (Alternatively, past tense is encoded by a combination of the past morphology on the modal and the perfect: see Rullmann and Matthewson 2018). The circumstantial modal itself again contributes future temporal orientation.

Why do the circumstantial modals give rise to future temporal orientation in the last two examples? Condoravdi (2002) argues that circumstantial modals always carry future temporal orientation. She proposes that the past is 'settled', meaning that all possible worlds are the same up to the time at which the modal claim is evaluated (the same propositions are true of all of them). Without a variety of possible worlds to consider, a modal claim is infelicitous, and instead a plain assertion (without a modal) should be used (see also Werner 2003).

Condoravdi calls this restriction on the use of modals the *Diversity Condition*. A formalization of the Diversity Condition is given in (279); as stated, it requires that there is at least one world in the intersection of the modal base in which the prejacent proposition *p* is false and one where it is true. In other words, the modal base must not settle *whether p*.

(279) For any modal Mod, prejacent p of type $\langle i, st \rangle$, and world w and time t, $[\![\text{Mod(p)(t)(w)}]\!]^{g,t_0,w_0,f,h}$ is defined only if $\exists$ w', w" [w',w" $\in \bigcap$f(w,t) & p(t)(w') & $\neg$p(t)(w")]

(from Rullmann and Matthewson 2018: 300, as adapted from Condoravdi 2002: 83)

For circumstantial modal claims, the modal base would always settle whether *p* for past and present modal orientation: since the past and present are settled, there are no worlds different from the actual world w_0 and the Diversity Condition is violated.[5] This leaves only future temporal orientation as an option for circumstantial modals. For epistemic modals, past, present, and future orientation are possible because even though past and present events are settled, the speaker's knowledge is not complete and so an epistemic modal base will not necessarily contain sufficient information to be able to settle whether *p* is true.

modal, giving rise to past orientation, in (ia) and scopes over the modal, giving rise to past temporal perspective, in (ib).

(i) a. He might have (already) won the game (# but he didn't).

b. At that point he might still have won the game but he didn't in the end. (Condoravdi 2002: 67)

[4]See Rullmann and Matthewson 2018 for arguments that temporal orientation is always compositionally derived by aspectual operators scoping under the modal, but constrained by the Diversity Condition, introduced below.

[5]In fact, Condoravdi specifically makes this claim with respect to *metaphysical* modal bases: modal bases that include only metaphysical alternatives to w_0, which are worlds identical to w_0 up to and including the evaluation time for the modal, the temporal perspective (see also Abusch 2012). Circumstantial modal bases may include only a subset of relevant facts about the world and so may not settle the past and present. See Thomas (2013) for arguments that the Diversity Condition can nevertheless derive the future orientation of pure circumstantial modals (those that have an empty or stereotypical ordering source), since the modal base will always contain the prejacent – and therefore settle whether the prejacent is true – if the prejacent event precedes or is ongoing at the evaluation time for the modal. This correctly predicts that other types of circumstantials are not always future oriented, but leaves the frequent future orientation of these unexplained. Rullmann and Matthewson (2018) assume that the Diversity Condition constrains the interpretation of circumstantial modals and triggers prospective aspect, either below the modal or as part of the meaning of the modal. I will not attempt to tackle the complexities of where the Diversity Condition holds in this dissertation, but I assume following Rullmann and Matthewson (2018) that future temporal orientation is encoded by prospective aspect.

In order to incorporate temporal perspective into the analysis of modals, the time at which the modal base is evaluated needs to be an argument of the modal base. A time argument is added to the denotation of *might* in (280), which reads: there exists a world w' in the best worlds as ranked by the ordering source h in the intersection of the modal base f at the reference time t such that the prejacent proposition p holds at t in w'.

(280) $[\![\textit{might}]\!]^{w,g,f,h} = \lambda t.\lambda p_{\langle st \rangle}.\exists w'[w' \in BEST_{h(w)}(\bigcap f(w)(t)) \wedge p(t)(w')]$

Temporal orientation is determined by the temporal profile of the prejacent proposition (and restricted by the Diversity Condition). More detailed derivations showing how temporal perspective and temporal orientation interact will be presented in the following chapters.

5.3 Evidentials and epistemic modality

In the preceding sections, I discussed how epistemic modal claims are made based on the information available to the speaker. For a claim like *Freddie might be home*, this could be indirect visual evidence, like seeing Freddie's car in his driveway or seeing that his lights are on. In this sense epistemic modals resemble *evidentials*, which are items that encode source of evidence. In many languages of the world, including ʔayʔaǰuθəm, evidentials are functional morphemes, but evidential meanings can also be carried by open class items, such as adverbs like *reportedly* in English (see e.g., Glougie 2016).

Evidentials emerged as a prominent topic in linguistics in the 1990's in part through typological studies such as Willett (1998) and De Haan (1999). De Haan (1999), Aikhenvald (2004), Speas (2010), and others have argued that evidentials are a distinct category from epistemic modals and that the two categories do not overlap. Their position is that evidentials and epistemic modals resemble each other in encoding information about the speaker's evidence for a proposition, but evidentials crucially do not contribute information about the strength of the claim and so do not involve quantification over possible worlds. In the formal semantics literature, Faller (2002) and Murray (2010) align with this position, analyzing evidentials as speech act operators rather than modals.[6]

In contrast, Izvorski's (1997) seminal analysis of the Bulgarian perfect of evidentiality treats it as an epistemic modal. The Bulgarian perfect of evidentiality is used when the speaker has indirect evidence for the prejacent, and is infelicitous where the speaker has direct evidence (281).[7]

(281) Maria celunala Ivan.
Maria kiss-PE Ivan
'Maria apparently kissed Ivan.'
(Actually) I witnessed it. / # (Actually) I know that for a fact. (Izvorski 1997: 228)

Izvorski analyzes this evidential as a strong epistemic modal with an added presupposition that the speaker has indirect evidence for the prejacent proposition.

[6]Though both Faller (2002) and Murray (2010) involve modal semantics in their analyses of inferentials.

[7]As discussed in Smirnova (2013), the Bulgarian perfect of evidentiality can in fact be used with direct evidence, but then it expresses mirativity.

(282) a. Presupposition: The speaker has indirect evidence for *p*.

b. Assertion: □ *p* in view of the speaker's knowledge state. (Izvorski 1997: 226)

In this analysis, the modal base is the set of worlds in which all the propositions considered evidence in *w* are true (Izvorski 1997: 230). The ordering source ranks each world in the modal base according to how well it matches certain norms that the speaker believes (e.g. *Normally, Mary is reliable as a source of information*, Izvorski 1997: 9). Many subsequent analyses of evidentials in the formal semantic literature have also treated evidentials as epistemic modals (see e.g., Garrett 2001; McCready and Ogata 2007; Matthewson et al. 2007; Peterson 2010b; Tan Almazán 2019).

Von Fintel and Gillies (2010) approach the question from a different angle. They argue that epistemic modals are evidentials. They claim that epistemic modals have an evidential restriction: they cannot be used with direct evidence, as illustrated in (283).

(283) *Context: I look outside and see that it is raining. Then I tell you:*
#It must be raining. (based on von Fintel and Gillies 2010: 353)

They therefore propose that all epistemic modals carry a presupposition that the speaker does not have direct evidence for the prejacent and are therefore evidentials. For them, the category of evidentials includes the category of epistemic modals. Matthewson (2012) argues that the categories are identical: all evidentials are also epistemic modals, involving quantification over possible worlds.

Following Huijsmans and Reisinger (2021b), I argue in the following chapters that some evidentials in ʔayʔaǰuθəm are epistemic modals, while others are are nonmodal evidentials. The typological implication is that both modal and nonmodal evidentials exist and can even co-exist in the same language. Peterson (2010a) also argues for both modal and nonmodal evidentials in Gitksan, while Faller (2002) and Murray (2010) argue for a modal component for inferential evidentials but not for other evidentials in Cuzco Quechua and Cheyenne, respectively.[8]

More broadly, Simeonova (2020) suggests that inferentials cross-linguistically may be always modal, while direct evidentials and reportatives are not. While I also analyze some evidentials in ʔayʔaǰuθəm as modal and some as nonmodal, I argue against the claim that reportatives cannot be modal. Instead, I follow Reisinger (2018), Huijsmans and Reisinger (2021b), and Huijsmans (2022) in arguing that both the inferential and reportative in ʔayʔaǰuθəm are modal (in turn building on the analysis of St'át'imcets evidentials in Matthewson et al. 2007).

[8]The term conjectural rather than inferential is used in Murray (2010).

Chapter 6

ʔayʔaǰuθəm epistemic modals: The inferential *c̓ɛ* /c̓a/ and the reportative *k̓ʷa*

6.1 Introduction

In this chapter, I argue that two evidential clitics in ʔayʔaǰuθəm, the inferential clitic *c̓ɛ* /c̓a/ and the reportative clitic *k̓ʷa*, are epistemic modals, drawing on Huijsmans (2022). I propose that both of these evidentials contribute a strong modal claim to the at-issue content of the clause, together with an evidential presupposition.[1] I will also argue that both inferential *c̓ɛ* /c̓a/ and reportative *k̓ʷa* take only present temporal perspective, but a variety of temporal orientations.

These two evidentials therefore provide evidence supporting the position that the categories of epistemic modality and evidentiality overlap (Izvorski 1997; Matthewson, Rullmann, and H. Davis 2007; Peterson 2010a; Tan Almazán 2019, among others; see also Reisinger 2018 and Huijsmans 2022 on the ʔayʔaǰuθəm reportative and inferential). In making this claim, I argue that these categories can be distinguished empirically, despite criticisms of all commonly used diagnostics (Korotkova 2016). I defend certain tests found in previous literature and introduce a novel test for at-issue modal content (from Huijsmans 2022).

The conclusion that ʔayʔaǰuθəm modal evidentials are strong modals[2] points to variability in the encoding of modal strength within the Salish language family: St'át'imcets modals have variable strength (Rullmann et al. 2008), while Nsyílxcen has both fixed and variable strength modals (Menzies 2012); Oliver (2021, 2022) also finds variable strength for a Secwepemctsín modal. The ʔayʔaǰuθəm, St'át'imcets, Nsyílxcen, and Secwepemctsín modals behave in parallel with respect to modal flavour, however: modal flavour is fixed for these elements.

There is also variation in whether modals can take past perspective: the ʔayʔaǰuθəm inferential and reportative cannot take past perspective, while St'át'imcets modals can. I analyze this as a difference in syntactic height: while Chen et al. (2017) and Rullmann and Matthewson (2018) argue that modals in St'át'imcets scope below tense, taking past temporal perspective when there is a past reference time, I argue that in ʔayʔaǰuθəm

[1] I label the evidential requirements as presuppositions because they are preconditions on the use of the modals. Like other Salish languages (e.g., Matthewson 2005b, 2008), however, ʔayʔaǰuθəm seems to lack presuppositions that place restrictions on addressee knowledge. See Section 10.6.1.1 and Reisinger et al. (2021) on ʔayʔaǰuθəm determiners, which do not encode definiteness, for instance. The term presupposition applied to ʔayʔaǰuθəm should therefore not be understood as a restriction on the common ground.

[2] This is counter to the conclusions concerning modal strength found in Reisinger (2018), an initial survey of modal elements in ʔayʔaǰuθəm.

both the inferential and reportative compose above tense and take present temporal perspective, provided by the utterance context.

6.2 Outline of chapter

In Section 6.3, I lay out the syntax I am assuming for the inferential and reportative. In Section 6.4, I argue that the inferential and reportative are evidentials. In Section 6.5, I argue that they are modals. In Section 6.7, I examine their contribution in questions and address behaviour of the reportative that is unexpected under a modal analysis. I argue in Section 6.8 that both the inferential and the reportative have fixed strong modal strength and fixed epistemic modal flavour. In Section 6.9, I examine their modal-temporal interactions. Finally, in Section 6.10, I provide a formal analysis of the inferential and reportative.

6.3 Syntax of the inferential and the reportative

The inferential and reportative share the same position in the clitic string, occurring after the force and subject agreement clitics, but preceding the future clitic. Their position relative to the question and future clitics is illustrated in (284):

(284) a. *Context: It's very cloudy out.*
ƛ̓ułə **ƛ̓ɛ** səm.
ƛ̓əɬ=a=**ƛ̓a**=səm
rain=Q=INFER=FUT
'I wonder if it will rain.' (vf | JF.2018/0831)

b. *Context: I missed the news, but I know that you listened to the news.*
ƛ̓ułə **k̓ʷa** səm snat?
ƛ̓əɬ=a=**k̓ʷa**=səm snat
rain=Q=RPT=FUT tonight
'Is it going to rain tonight (according to the report)?' (vf | PD.2018/11/08)

The inferential and reportative cannot co-occur, as shown in (285a-b), repeated from (74) ((285c-d) show the grammatical counterparts with just the inferential or reportative).

(285) a. *ho **ƛ̓ɛ k̓ʷa** səm.
hu=**ƛ̓a**=**k̓ʷa**=səm
ho=INFER=RPT=FUT
Intended: 'I'm guessing they said he would go.' (sf | EP.2019/11)

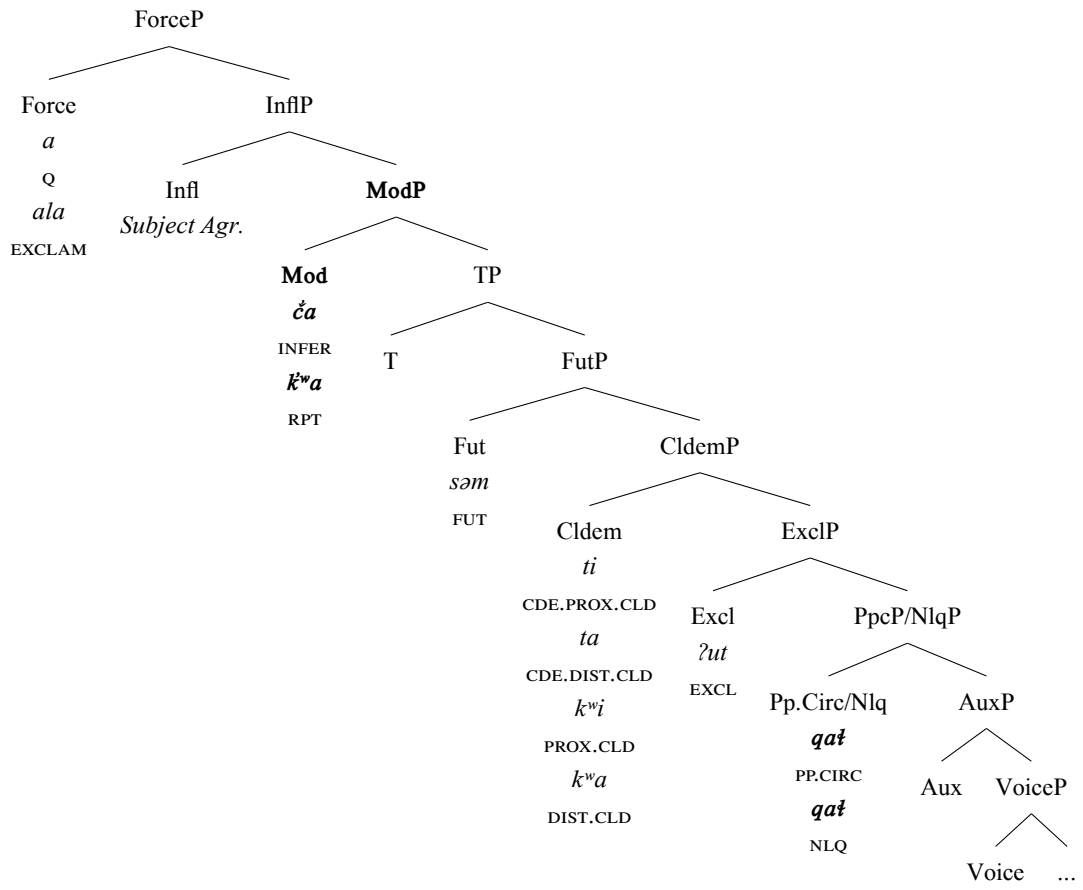
b. *ho **k̓ʷa ƛ̓ɛ** səm.
*hu=**k̓ʷa**=**ƛ̓a**=səm
ho=RPT=INFER=FUT
Intended: 'They said they thought he would go.' (sf | EP.2019/11)

c. ho **k̓ʷa** səm.
hu=**k̓ʷa**=səm
go=RPT=FUT
'They say he'll go.' (sf | EP.2019/11)

d. ho **c̓ɛ** səm.
hu=**c̓a**=səm
go=INFER=FUT
'I guess he'll go.' (sf | EP.2019/11)

I therefore represent these clitics as occupying the same head in the syntax, below Infl and above the future. Although the T head is null in ʔayʔaǰuθəm, I represent the inferential and the reportative as also occurring above T; this move will be motivated in Section 6.9.

(286)



6.4 The inferential and reportative are evidentials

In this section, I argue that the inferential and reportative are both evidentials.[3] I show that they encode an indirect information source: I give examples of the types of indirect evidence that support their use and show

[3] According to Aikhenvald (2007) only obligatory markers of evidence source can be classified as evidentials – that is, only languages where evidentiality is obligatorily marked in every clause can be said to have evidentials. Most classifications are less stringent, however. Brugman and Macaulay (2015), for instance, argue that evidentials are morphemes that mark source of evidence for the prejacent proposition and are members of a grammatical system. Insofar as the ʔayʔaǰuθəm evidential clitics form a closed

that they cannot be used with direct evidence.

6.4.1 Types of indirect evidence

In Willett's (1998) typology of evidentials, he distinguishes inferences based on the perception of results (involving indirect sensory evidence for an eventuality) from inferences based on reasoning (without indirect sensory evidence). The ʔayʔaǰuθəm inferential *c̓ɛ* /c̓a/ is used for both types of inference.

The inferential is found marking inferences from indirect sensory evidence, including auditory, olfactory, and visual evidence.

(287) *Context: I hear rain on the roof.*

c̓ɪc̓ł **c̓ɛ**.	c̓iyítč	kʷ saymot	c̓ɪł.
c̓ə∼c̓ł=**c̓a**	c̓iy-ít=č	kʷ=say-mut	c̓əł
PROG∼rain=INFER	hear-CTR\STAT=1SG.SBJ	DET=intense-INT	rain

'It must be raining. I hear hard rain.' [AUDITORY] (vf | PD.2018/11/08)

(288) *Context: I'm cooking a fish and I'm guessing by the smell that it is cooked. I remark to you:*

oh, ʔaǰɛqəpmot	tᶿ kʷukʷ.	**c̓ɛ** kʷi c̓ɛχ.
oh ʔəǰ-aqap-mut	tᶿ=kʷukʷ	**c̓a**=kʷi=c̓əx̌
oh good-smell-INT	1SG.POSS=cook	INFER=CLD

'Oh, the food (lit.: my cooking) smells good. It must be cooked.' [OLFACTORY] (vf | EP.2021/06/19)

(289) *Context: You go outside and you see fresh bear footprints in your driveway.*

nišoł **c̓ɛ**	kʷ mɛχał.	nɛʔ	tə ǰɪšɪnmɛns.
niš-uł=**c̓a**	kʷ=miχ̌ał.	niʔ	tə=ǰišinmin-s
be.here-PST=INFER	DET=bear	be.there	DET=footprint-3POSS

'A bear must have been here. There are its footprints.' [VISUAL] (Reisinger et al. 2021: 758)

c̓ɛ /c̓a/ can also be used for inferences based on previous knowledge or reported facts, rather than sensory indirect evidence.

(290) *Context: We're trying to place where someone's family is from based on who we know they are related to. You conclude:*

tuwa **c̓ɛ**	[ʔə]kʷ ʔop	kʷ λ̓aχλ̓aχs.
tuwa=**c̓a**	[ʔə]=kʷ=ʔup	kʷ=λ̓aχλ̓aχ-s
from=INFER	[OBL]=DET=Church.House	DET=parents-3POSS

'His/her parents must be from Church House.' [PREVIOUS KNOWLEDGE] (vf | EP.2022/12/17)

'grammatical system', they may be classified as evidentials under this definition. I prefer the semantic definition in Section 5.3, however, since crosslinguistically, items with clearly evidential contributions are not always organized into grammatical paradigms, which are the most obvious type of closed class 'grammatical system'.

(291) *Gloria tells me she saw Freddie at the store this afternoon. I know he went down to Vancouver yesterday. I think:*

č̓ɛ qʷoḷ	hɛwt.	θohoɬ	[ʔəkʷ] Vancouver	sǰɛsoɬ.
č̓a=qʷəḷ	hiwt	θu-h-uɬ	[ʔə=kʷ=]Vancouver	sǰasuɬ
INFER=come	get.home	go-EPEN-PST	[OBL=DET=]Vancouver	yesterday

'He must have come home. He went to Vancouver yesterday.' [INFERENCE FROM REPORT]
(vf | EP.2022/12/17)

The reportative is used when passing on information heard from someone else. In Willett's (1998) typology of evidentials, he distinguishes reportatives used with first-hand, second-hand, third-hand, and folklore reports. The ʔayʔaǰuθəm reportative can be used with all of these types of reports.

The reportative's compatibility with first-hand reports is shown in (292), where Daniel is sharing information about Freddie's plans after hearing them directly from Freddie.

(292) *Context: I'm wondering what time Freddie will come. Daniel just talked to him and tells me:*

qʷol **k̓ʷa** səm	kʷs hoǰuθɛns səm.
qʷəḷ=**k̓ʷa**=səm	kʷ=s=huǰ-uθin-s=səm
come=RPT=FUT	COMP=NMLZ=finish-mouth-3POSS=FUT

'He'll come when he is finished eating.' [FIRST-HAND REPORT] (vf | EP.2022/06/17)

The reportative is also used in (293) where the information has been passed on as a second-hand report.

(293) *Context: Roger told Daniel that he is engaged, then Daniel told me. Now I'm passing on the news to Gloria.*

malyɛ **k̓ʷa** səm	Roger.
malya=**k̓ʷa**=səm	Roger
marry=RPT=FUT	Roger

'Roger is going to get married (I heard).' [SECOND-HAND REPORT] (sf | EP.2022/08/12)

The reportative is also used when the report is a rumour, in which case the report is even more removed from the original source.

(294) *Context: Gloria hears a rumour that Roger has a girlfriend and comes to tell me.*

nɛʔ **k̓ʷa**	kʷ watlas	Roger,	nɛʔɛtəm	kʷaṅ.	č̓iyɩtoɬačxʷ	kʷaṅʔ
niʔ=**k̓ʷa**	kʷ watla-s	Roger	niʔ-it-əm	kʷaṅ.	č̓iy-it-uɬ=a=čxʷ	kʷaṅ
be.there=RPT	DET=sweetheart-3POSS	Roger	say-CTR-PASS	DEM	hear-CTR-PST=Q=2SG.SBJ	DEM

'Roger has a girlfriend, they're saying. Did you hear that?' [RUMOUR] (vf | EP.2018/09/09)

The reportative is also common in traditional stories, as in (295), which would be folklore reports in Willett's (1998) typology, meaning part of oral history.

(295) *From the story of Mink and Greybird.*

q̇ʷaq̇ʷθosθɛtᶿəm	niniǰɛ	[ʔə] qayχ	[kʷ]s čuẏʔos.	hɛhɛw **k̓ʷa**
q̇ʷaq̇ʷθus-θi=tᶿ=əm	niniǰa	[ʔə=]qayx̌	[kʷ=]s=čuǰ-ʔu+s	hihiw=**k̓ʷa**
tell.story-CTR;2SG.OBJ=1SG.SBJ+FUT	about	[OBL=]Mink	[DET=]NMLZ=young-PST+3POSS	really=RPT

łaχmotoł	čuẏ.	pa::yɛʔ[4] **k̓ʷot**	taytoyəpɛtəs	[łə] čičiyɛs
łəx̌-mut-uł	čuǰ	paya**ʔ=k̓ʷa**+ʔut	tay tuyap-it-as	[łə=]čičiyaʔ-s
bad-INT-PST	child	always=RPT+EXCL	PL follow-CTR-3ERG	[DET=]grandmother-3POSS

[ʔəkʷ] ʔuk̓ʷ	čɛ	[ʔəxʷ] hoθos.
[ʔə=kʷ=]ʔəwk̓ʷ	ča	[ʔə=xʷ=]hu θu-s
[OBL=DET=]all	where	[OBL=OBL.NMLZ=]PROG go-3POSS

'I'm going to tell you about Mink when he was young. He was a really naughty child. He was always following his granny around everywhere they went.' [FOLKLORE REPORT] (vf | EP.2021/11/22)

6.4.2 Incompatibility with direct evidence

Both the inferential and reportative are incompatible with contexts where the speaker has direct evidence that the proposition is true (296).

(296) a. *Context: I hear rain on the roof so I think it's raining, and then I walk outside and I see rain.*

#čiči̓ł **čɛ̓**.
čə̓∼čł=**čɛ̓a**
PROG∼rain=INFER
Intended: 'It's raining.' (sf | EP.2018/09/09)
Consultant's comment: No, 'cause you see it.

b. *Context: I see Freddie in his driveway.*

#ʔamot **čɛ̓** Freddie.
ʔamut=**čɛ̓a** Freddie
be.home=INFER Freddie.
'Freddie must be home.'
Corrected to *oh, nɛʔala ʔamot /o, niʔala ʔamut/* 'Oh, he's home!'

c. *Context: I heard that Roger has a girlfriend, but I also have firsthand evidence because I've seen them together.*

#nɛʔ=**k̓ʷa** kʷ watlas Roger.
niʔ=**k̓ʷa** kʷ=watla-s Roger
be.there=RPT DET=sweetheart-3POSS Roger
'I heard Roger has a girlfriend.' (sf | EP.2018/09/09)
Consultant's comment: *niʔ=k̓ʷa...* you only heard it, you didn't see it.

[4]Rhetorical lengthening on the initial vowel of *payɛʔ* /payaʔ/ is indicated with '::'.

d. *Context: Freddie had gone down to Vancouver. Gloria tells me he's back home and later I see him in his driveway. Later, I tell you:*

#nɛʔ **k̓ʷa** ʔamot Freddie.
ni?=**k̓ʷa** ʔamut Freddie
be.there=RPT be.home Freddie
'Freddie's at home.' (sf | EP.2019/12/04)
Consultant's comment: [With] *k̓ʷa*, it's still hearsay.

Both these evidentials are felicitous only in contexts where the speaker has indirect evidence.

6.4.3 Conclusion

In this section, I have shown that both the inferential and reportative have an evidential contribution: the inferential conveys that the proposition is an inference based on indirect evidence (which may or may not be sensory), while the reportative conveys that the evidence for the proposition is a report. Neither is compatible with direct evidence. In the next section, I turn to arguing that the inferential and reportative also contribute an at-issue modal claim.

6.5 Modality and evidentiality

6.5.1 Recap of modality and evidentiality

As discussed in Chapter 5, there is an obvious link between indirect evidentiality and epistemic modality: both indicate that the speaker infers the truth of the prejacent from indirect information. The presence of this link has generated debate about the relationship between evidentials and epistemic modals at least since Izvorksi's (1997) modal analysis of the Bulgarian perfect of evidentiality. As discussed in Section 5.3, the Bulgarian perfect of evidentiality is used when the speaker has indirect evidence for the prejacent proposition (297), repeated from (281) above.

(297) Maria celunala Ivan.
Maria kiss-PE Ivan
'Maria apparently kissed Ivan.'
(Actually) I witnessed it. / # (Actually) I know that for a fact. (Izvorski 1997: 228)

Izvorski analyzes the Bulgarian perfect of evidentiality as an epistemic modal with an added presupposition that the speaker has indirect evidence for the prejacent proposition as in (298), repeated from (282) above.

(298) a. Presupposition: The speaker has indirect evidence for *p*.
b. Assertion: □ *p* in view of the speaker's knowledge state. (Izvorski 1997: 226)

In this analysis, the modal base is the set of worlds in which all the propositions considered evidence in *w* are true (Izvorski 1997: 230). Matthewson, Rullmann, and Davis (2007) build on this proposal to analyze the inferential, reportative, and perceived evidence indirect evidentials in St'át'imcets as epistemic modals.

At the same time, non-modal analyses of evidentials have also been proposed in the formal semantics literature. Faller (2002) and Murray (2010), for instance, have analyzed certain evidentials as contributing not-at-issue information as illocutionary operators. Faller (2002) proposes that the reportative evidential -*si* in Cuzco Quechua adds a sincerity condition (SINC) such that a third party asserted *p*. It also alters the illocutionary force (ILL) to one of presentation rather than assertion, meaning that the speaker does not claim the propositional content to be true of the world, but simply presents it to the hearer.

(299) Para-sha-n-**si**.
rain-PROG-3-SI
p = 'It is raining.'
ILL = $\text{PRESENT}_s(p)$
SINC = $\{ \exists s_2[\text{ASSERT}(s_2, p) \wedge s_2 \notin \{h,s\}] \}$ (Faller 2002: 199)
(where s = speaker, h = hearer, s_2 = source of the report)

6.5.2 Predictions of modal and non-modal analyses of evidentials

Under both modal and non-modal approaches to evidentials, the evidential contribution itself is not-at-issue. In Faller's denotation for the reportative above (299), the evidential requirement is a sincerity condition such that a third party asserted *p*. Under a modal approach to evidentials such as Izvorski (1997) (also Matthewson et al. 2007), the evidential component is treated as a presupposition, as shown above in (298).

Modal and non-modal approaches to evidentials make different empirical predictions with respect to at-issue content, however. Under a modal approach, the speaker is committed to an at-issue claim concerning the prejacent: that it is possibly or necessarily true.[5] Modal evidentials are therefore predicted to alter the truth conditions of the proposition. Non-modal evidentials, on the other hand, make no at-issue contribution and do not alter the truth conditions. In this section, I will primarily be concerned with showing that the ʔayʔaǰuθəm inferential and reportative contribute an at-issue modal claim rather than contributing only not-at-issue content. I will sometimes argue more directly against an illocutionary analysis, however, where this is relevant to the discussion.

6.6 Identifying and applying diagnostic tests in ʔayʔaǰuθəm

In this section, I identify and implement diagnostic tests for modal versus non-modal evidentials (Section 6.6.1). I first set aside one potential test that cannot decide between the two analyses (Section 6.6.2). I subsequently probe whether the evidentials can take scope relative to other at-issue content (Section 6.6.3), whether the evidentials contribute a modal claim that can be challenged (Section 6.6.4), and the effect the evidentials have on the entailments of the prejacent (Section 6.6.4.1). I conclude that the ʔayʔaǰuθəm inferential and reportative can embed under attitude verbs, contribute a modal claim that can be challenged, and alter the entailments of the prejacent in a manner consistent with a modal claim.

[5]There can be not-at-issue items, such as discourse particles, with modal semantics (see e.g., Eckhardt 2020; H. Davis and Matthewson 2022), but the tests employed here are not designed to test for not-at-issue modal contributions, with the investigation targeting more canonical at-issue modal contributions.

6.6.1 Identifying diagnostics

A declarative sentence with a modal evidential will be a modal claim about the prejacent proposition, whereas a declarative with a non-modal evidential typically involves the assertion of the prejacent itself. Of course, Faller's analysis of the Cuzco Quechua reportative raises another possibility: that certain non-modal evidentials may allow the speaker to present the prejacent without committing to its truth, unlike modal evidentials which commit the speaker to at least the possibility of the prejacent.

These distinctions are associated with several predicted empirical differences: (i) modal evidentials, but not not-at-issue evidentials, should be able to take scope under other semantic operators; (ii) modal evidentials contribute an at-issue modal claim that can be challenged, while the contribution of not-at-issue evidentials cannot be challenged (at least, not in the same way; see von Fintel 2004); (iii) when using a modal evidential, the speaker does not assert p to be true in the actual world, affecting the entailments of the utterance, whereas an utterance with a non-modal evidential involves the assertion of p (unless the evidential changes the illocutionary force to presentation); (iv) a modal evidential commits the speaker to at least the possibility of p, whereas an illocutionary evidential involving the force of presention does not commit the speaker even to the possibility of p.

Diagnostics (i) and (ii) feature frequently in previous literature and have been criticized as not actually differentiating modal from non-modal evidentials (see Korotkova 2016 and Tan Almazán 2019 for overviews and discussion). Below, I discuss the objections to these diagnostics and the refinements required to overcome these objections. I develop a novel test for diagnostic (iii) that has not featured in discussions of evidentiality. Following AnderBois (2014), however, I argue that diagnostic (iv) cannot distinguish between modal and non-modal evidentials. I discuss and set aside this diagnostic first before moving on to argue that the inferential and reportative test as modal with respect to the other diagnostics that I adopt here.

6.6.2 Asserting vs. presenting

Under an illocutionary analysis, a speaker may utter a proposition with certain evidentials without committing even to its possibility; specifically, this is claimed to occur with evidentials that change the force of an utterance to presentation (Faller 2002). When the Cuzco Quechua reportative is used, the speaker does not need to be committed to the prejacent proposition, as shown in (300).

(300) Para-sha-n-**si**, ichaqa mana crei-ni-chu.
rain-PROG-3-SI but not believe-1-NEG
'It is raining, but I don't believe it.' (Faller 2002: 194)

In contrast, a modal evidential commits the speaker to at least the possibility of the prejacent proposition being true.

This seems like a major empirical difference that should be relatively easy to test. Crosslinguistically, however, the possibility of uttering a proposition without committing to (at least the possibility of) its truth seems confined to reportative evidentials (Smirnova 2013; AnderBois 2014); it is not available more generally for evidentials analyzed as illocutionary operators. Moreover, at least some reportative evidentials that have been analyzed as modal (Smirnova 2013; AnderBois 2014; Tan Almazán 2019) allow for this behavior. AnderBois (2014) therefore proposes that reportatives have the ability to facilitate perspective shift (see

e.g., Harris and Potts 2009) and do not change the illocutionary force of an utterance. Perspective shift is a pragmatic phenomenon which occurs when the speaker utters a proposition from a salient viewpoint other than their own. For instance, despite the fact that appositives are typically speaker-oriented, the underlined appositive in the short narrative below from Harris and Potts (2009: 527) clearly represents Joan's viewpoint, not the narrator's.

(301) *Joan is crazy. She's hallucinating that some geniuses in Silicon Valley have invented a new brain chip that's been installed in her left temporal lobe and permits her to speak any of a number of languages she's never studied. Joan believes that her chip, <u>which was installed last month</u>, has a twelve year guarantee.*

Perspective shift can only occur when there is another salient viewpoint in the context. AnderBois's proposal is that reportatives introduce another salient perspective – that of the reporter, the one who originally asserted the proposition. Because the reportative makes this additional perspective salient, the speaker is able to utter the proposition from the perspective of the reporter. The at-issue content of the utterance is then attributed to the reporter, not the speaker. This allows the speaker to utter the proposition without believing it. Since perspective shift is compatible with modal as well as illocutionary elements, the ability to utter the proposition without believing it to be true does not rule out a modal analysis of a reportative evidential.[6]

AnderBois argues that one of the cues to perspective shift is the presence of evaluative or other perspectival expressions that help signal the speaker's perspective as distinct from the reporter's. These include words such as English *really*, *actually*, and *true* and their counterparts in other languages, as well as explicit statements of the speaker's contrasting belief or doubt. This is found in the Tagalog example in (302a) and the Finnish example in (302b), for instance.

(302) a. Dadating **daw** siya sa isang oras, pero hindi *talaga*.
will.com RPT he in one hour but not *really*
'He says he will come in an hour, but in fact he won't.'
[Tagalog] (Schwager 2010:237, as cited in AnderBois 2014: 238; emphasis mine)

b. Liisa on **kuulemma** jo lähtenyt, mutta en usko näin.
Liz is RPT already left, but not believe like.this
'I've heard Liz has already left, but I don't belive it.'
[Finnish] (AnderBois 2014: 238)

The Dutch contrast in (303) makes the role of evaluative language especially clear:

(303) a. #Anneloes **schijnt** thuis te zijn, maar dat is niet zo.
Anneloes seems home to be but that is not so
'Anneloes is said to be at home, but she's not.'
[Dutch] (Koring 2013:50, as cited in AnderBois 2014: 243)

[6] In Section 6.10, I suggest that this property of reportatives can be implemented under a modal analysis by allowing reportatives to have an informational conversational background (without a realistic modal base), following Kratzer (2012: 33–34) and Matthewson (2012), provided there are sufficient cues.

b. Anneloes **schijnt** thuis te zijn, maar **ik geloof** er niets van.
Anneloes seems home to be but **I believe** there nothing of
'Anneloes is said to be at home, but I don't believe it.'
(Koring 2013:49, as cited in AnderBois 2014: 244)

AnderBois points out that perspective shift is a risky strategy (as originally discussed in Harris and Potts 2009), since the addressee may fail to follow the speaker's intended shift. Inclusion of evaluative language helps ensure that the addressee correctly interprets the shift.

In light of these facts, AnderBois argues that there is no illocutionary force of presentation involved in the semantics of reportative evidentials cross-linguistically. Instead, he analyzes perspective shift as generally responsible for cases where the speaker uses a reportative with a prejacent proposition without committing to the truth of the prejacent. Since perspective shift is compatible with both modal and non-modal analyses of reportatives, its availability cannot be used to distinguish between them.

6.6.2.1 Perspective shift and ʔayʔaǰuθəm evidentials

The ʔayʔaǰuθəm reportative exibits behaviour that looks very parallel to the cases of perspective shift that AnderBois examines. The relevant data is that a speaker can sometimes utter a proposition with the reportative without committing to its truth, as shown in (304).

(304) a. *Context: There was a rumour that Freddie won the lottery, but I talked to him and found out the rumour is not true. Later we're talking about this and I say:*

ʔƛ̓ʊxʷʔəm **ḵʷa** Freddie qaχ tala. xʷaʔaḵʷʊt!
ƛ̓əxʷ-ʔəm=**ḵʷa** Freddie qəx̌ tala. xʷaʔ=ala=ḵʷa=ʔut
win-ACT.INTR Freddie lots money NEG=EXCLAM=RPT=EXCL
'Freddie reportedly won a lot of money, but it turns out not! (sf | EP.2019/12/04)

b. *Context: I heard a rumour that Daniel got a girlfriend, but I'm not sure if I believe it.*

ḵʷa kʷa watlaʔit Daniel. xʷač toχʷnɛxʷən kʷʊnəs
ḵʷa=kʷa watla-ʔəyt Daniel. xʷaʔ=č təx̌ʷn<i>xʷ=an kʷən=as
RPT=CLD sweetheart-PRF Daniel. NEG=1SG.SBJ know-NCTR<STAT>=1SG.SBJV COMP=3SBJV
gənʊxʷ.
gənəxʷ
true
'(I heard) Daniel got a girlfriend. I'm not sure whether that's true.' (sf | EP.2022/06/02)

This option is not freely available, however, contrary to what would be expected if the reportative was associated with the illocutionary force of presentation. Denying the prejacent is often infelicitous, as shown in (305a,b).[7]

[7] A frequent correction strategy speakers use when presented examples such as (305) is to include a verb of saying in order to attribute the untrue proposition to the subject of the verb of report. This is preferred even for cases like (304a) (leading to the slight markedness of this example), presumably because this is a less risky strategy than relying on perspective shift:

(305) a. *Context: There was a rumour that Freddie won the lottery, but I talked to him and found out the rumour is not true. Later we're talking about this and I say:*

#ƛ̓ʌʊxʷʔəm **k̓ʷa** Freddie qaχ tala. xʷaʔ ƛ̓ʌʊxʷʔəməs.
ƛ̓əxʷ-ʔəm=**k̓ʷa** Freddie qəx̌ tala. xʷaʔ ƛ̓əxʷ-ʔəm=as
win-ACT.INTR Freddie lots money NEG win-ACT.INTR=3SBJV
'Freddie won a lot of money (I heard). He didn't win it. (sf | EP.2019/12/04)

b. *Context: It was forecasted that it would be raining all day today, but it hasn't been raining, just a bit overcast.*

#c̓ɩɬ **k̓ʷa** səm ʔi xʷaʔ c̓a səmt.
c̓əɬ=**k̓ʷa**=səm ʔiy xʷaʔ=c̓a=səm+t
rain=RPT=FUT CNJ NEG=INFER=FUT+EXCL
'It's going to rain (I heard) but it's not going to.' (sf | EP.2019/12/04)
Consultant's comment: It kind of contradicts.

In order for the speaker to contradict a previous utterance with the reportative, they generally must use some sort of evaluative language. The expression of mirativity as in (304a) is particularly common in cases of felicitous perspective shift, for instance, and is used more generally where the speaker had reason to believe one thing, but the facts turned out to be different.[8]

In contrast to the reportative, the inferential is not felicitous when the speaker knows the prejacent to be false (306), even if evaluative language is used (307–308); this is expected if this possibility is due to perspective shift associated specifically with reportatives.

(306) a. *Context: I thought it was raining because I heard raindrops, but I go outside and it's not raining.*

#c̓ɩc̓ɬ **c̓ɛ** ʔi xʷaʔ c̓ɩc̓ɬas.
c̓ə∼c̓ɬ=**c̓a** ʔiy xʷaʔ c̓ə∼c̓ɬ=as
PROG∼rain=INFER CONJ NEG PROG∼rain=3CNJ
'It must be raining, but it's not raining. (sf | EP.2019/11/30)
Corrected to: *xʷaʔak̓ʷot c̓ɩc̓ɬəs* /xʷaʔak̓ʷut c̓əc̓ɬəs / 'Oh, it's not raining!'

(i) *Context: There was a rumour that Freddie won the lottery, but I talked to him and found out the rumour is not true. Later we're talking about this and I say:*

ƛ̓ʌʊxʷʔəm **k̓ʷa** Freddie qaχ tala, **nɛʔɛtəm**. xʷaʔak̓ʷʊt!
ƛ̓əxʷ-ʔəm=**k̓ʷa** Freddie qəx̌ tala, **niʔ-it-əm**. xʷaʔ=ala=k̓ʷa=ʔut
win-ACT.INTR Freddie lots money say-CTR-PASS NEG=EXCLAM=RPT=EXCL
'People are saying Freddie won a lot of money, but it turns out not! (vf | EP.2019/12/04)

[8]How the reportative contributes to the meaning of surprise in these cases is not well understood at this point. Note that the use of evidentials to mark mirativity is not uncommon, however (e.g., DeLancey 2001; Rett and Murray 2013). An anonymous reviewer for Huijsmans (2022) suggests that a pragmatic account may be in order. I hope to explore this possibility in future research.

b. *Context: I see Freddie's car in his driveway, so I think he's home, but later I found out he's went in someone else's car on the trip and they're not back yet.*

#ʔamot **c̓̌ɛ** Freddie ʔiy xʷaʔ ʔamotəs.
ʔamut=**c̓̌a** Freddie ʔiy xʷaʔ ʔamut=as
be.home=INFER Freddie CONJ NEG be.home=3CNJ
'Freddie must be home, but he's not home.' (sf | EP.2019/11/30)
Consultant's comment: You're saying he's home, but then you're saying he's not.

(307) *Context: There was a draw for a new car at the local mall. I'm surprised to see Freddie driving a car that looks just like it the day after the draw, and I think he must have won it. I ask him about it when I see him and find out that he was driving a loan from the garage while he had something fixed on his car. Later I tell you about it:*

a. #hɛ **c̓̌ɛ** Freddie ʔə λ̓̌ʊxʷʔaʔmoɬ ʔi xʷaʔak̓ʷa!
hi[ɬ]=**c̓̌a** Freddie ʔə=λ̓̌əxʷ-ʔəm-uɬ ʔiy xʷaʔ=ala=k̓ʷa
COP=INFER Freddie CLF.PRT=win-ACT.INTR-PST CONJ NEG=EXCLAM=RPT
'Freddie had to have won but it turns out not!' (sf | EP.2022/07/20)

b. nɛʔɛtč gaɬ hiyəs Freddie ʔə λ̓̌ʊxʷʔaʔmoɬ ʔi
niʔ-it=č ga+ʔəɬ hiɬ+as Freddie ʔə=λ̓̌əxʷ-ʔəm-uɬ ʔiy
think-CTR=1SG.SBJ COMP+COMP COP=3SBJV Freddie CLF.PRT=win-ACT.INTR-PST CONJ
xʷaʔak̓ʷa!
xʷaʔ=ala=k̓ʷa
NEG=EXCLAM=RPT
'I thought Freddie won but it turns out not!' (vf | EP.2022/07/20)

(308) *Context: I saw Freddie walking a dog and thought he'd gotten a new dog. Later, his daughter tells me he is dog-sitting. Later that evening when we're chatting, I tell you:*

a. #**c̓̌ɛ** maʔamʔit ʔəkʷ c̓̌ɛṅo ʔi nəngałak̓ʷa!
c̓̌a=məʔ-ʔəm-ʔəyt ʔə=kʷ=c̓̌aṅu ʔiy nəngał=ala=k̓ʷa
INFER-get-ACT.INTR-PRF OBL=DET=dog CONJ babysit=EXCLAM=RPT
'Freddie had to have gotten a new dog, but it turns out he was babysitting one!' (sf | EP.2022/07/20)

b. nɛʔɛtč ga kʷʊnəs maʔamʔit ʔəkʷ c̓̌ɛṅo ʔi nəngałak̓ʷa!
niʔ-it=č ga kʷən=as məʔ-ʔəm-ʔəyt ʔə=kʷ=c̓̌aṅu ʔiy nəngał=ala=k̓ʷa
think-CTR=1SG.SBJ COMP AUX=3SBJV get-ACT.INTR-PRF OBL=DET=dog CONJ babysit=EXCLAM=RPT
'I thought Freddie had gotten a new dog, but it turns out he was babysitting one!'
(vf | EP.2022/07/20)

Based on these facts, I conclude that the reportative in ʔayʔaǰuθəm facilitates perspective shift. Therefore, nothing about its modal or illocutionary status can be concluded from the ability of a speaker to sometimes utter a proposition with the reportative without believing the proposition to be true.

6.6.3 Taking scope

Setting aside lack of speaker commitment as a diagnostic, I now turn to the prediction that modal evidentials should be able to take scope under other at-issue content, whereas not-at-issue evidentials should not. There are several environments to consider: (i) under negation (Section 6.6.3.1), (ii) in the antecedent of conditionals (6.6.3.2), and (iii) under attitude predicates (Section 6.6.3.3).

6.6.3.1 Embedding under negation

In principle, the negation of at-issue content should have clear interpretive effects, making this an attractive test for semantic embedding. Epistemic modals, however, often seem to resist taking scope under negation. This is true for epistemic modals such as *must* in English (see e.g., Hacquard 2006), as well as epistemic modals in St'át'imcets (Matthewson, Rullmann, Davis 2007). English *must* in (309a) can only be interpreted as scoping over negation, for instance, and a bi-clausal structure is required for the opposite scope (309b).[9] There is a clear truth-conditional effect in (309b) with negation scoping over the strong modal; the resulting interpretation is equivalent to a weak (possibility) modal scoping over negation.

(309) Context: Two detectives are discussing which suspect is the thief.

a. *The gardener must not have stolen it.* $\Box > \neg$, $* \neg > \Box$

b. *It's not the case that the gardener must have stolen it.* $* \Box > \neg$, $\neg > \Box$
Logical equivalence: The gardener might not have stolen it (based on my indirect/reported evidence).
Implicature: There is a possibility that the gardener stole it.

For this test, then, if an evidential can embed semantically under negation, there will be a clear interpretive effect, which is good evidence that it is modal; however, if it cannot, nothing can be concluded.

The evidential *c̓ɛ* cannot take scope under negation in ʔayʔaǰuθəm. (This is also true of the evidential clitics in St'át'imcets: see Matthewson, Rullmann, and Davis 2007.) When the evidential encliticizes to negation, it is interpreted as scoping over negation, as in Context 1 and Interpretation 1 in (310) below. It cannot be interpreted as scoping under negation, as in Context 2 and Interpretation 2 below; if this were possible, a continuation with *qəǰɛč ʔot nonpeganmɛt kʷʊnəs hɛɬ* 'I'm still thinking about whether it was him' should be felicitous, but it is not. As expected under both a modal and a non-modal analysis, the evidential component cannot be targeted by negation, as in Context 3/Interpretation 3.

[9] See Hacquard (2006) for arguments that epistemic modals scope high in the clause because they are speaker-oriented and associated with the speech act domain (but still contribute to the at-issue content of the clause).

(310) ✓*Context 1: The detective discovers the gardener has an alibi and knows it can't have been the gardener that stole the necklace. He says: It must not have been the gardener who stole it.*
✗*Context 2: The detective had thought the gardener stole the necklace. Then he finds out the nephew had keys to the safe where the necklace was. Now he's not so sure. He thinks: It might not have been the gardener who stole it.*
✗*Context 3: The detective realizes that all the evidence he had was faked. He says: There's no reason to infer the gardener stole it.*

xʷaʔ **ḉɛ**	hiyas	šɛ niš	ṗaṗɛm	kʷ maʔtoɬ.	#qəǰɛč ʔot	nonpeganmɛt
xʷaʔ=**ḉa**	hiy+as	šə=niš	ṗaṗim	kʷ=məʔ-t-uɬ.	qəǰi=č=ʔut	nunpigan-mi-t
NEG=INFER	be+3SBJV	DET=be.here	work	DET=get-CTR-PST	still=1SG.SBJ=EXCL	think-REL-CTR

kʷʊnəs	hɛɬ.
kʷən=as	hiɬ
DEM=3SBJV	be

✓Interpretation 1: 'It must not have been the gardener that took it. # I'm still thinking about whether it was him.'[10]
✗Interpretation 2: 'It might not have been the gardener. I'm still thinking about whether it was him.' (= 'It is not the case that it must have been the gardener...').
✗Interpretation 3: 'There is no evidence that it was the gardener that took it. I'm still thinking about whether it was him.' (sf | BW.2020/05/22)

Though negation acts as a main predicate selecting a subjunctive subordinate clause in ʔayʔaǰuθəm (Kroeber 1999; H. Davis 2005b), it is ungrammatical for *ḉɛ* /ḉa/ to originate in the lower clause, encliticizing to the complement clause predicate (311). This is probably for syntactic reasons: the complement of negation is a reduced clause lacking a complementizer and plausibly other functional projections, including those housing evidentials.

(311) *

xʷaʔ	hiyas **ḉɛ**	šɛ niš	ṗaṗɛm	kʷ matoɬ
xʷaʔ	hiy+as=**ḉa**	šə=niš	ṗaṗim	kʷ=məʔ-t-uɬ
NEG	be+3SBJV=INFER	DET=be.here	work	DET=get-CTR-PST

Intended: 'It's not the case that it must have been the gardener that took it.' (sf | BW.2020/05/22)

The reportative *kʼʷa* is usually interpreted as scoping over negation as well, as in Context 1 and Interpretation 1 in (312) below. Unlike the inferential clitic, however, the reportative also seems to be compatible with a context (Context 2) where the speaker cannot be sure of the truth of the negated prejacent, which would be compatible with the interpretation of a strong modal scoping under negation (Interpretation 2). However, I showed above that *kʼʷa* is compatible with the speaker not believing the prejacent to be true; therefore, another possible interpretation of the compatibility of *kʼʷa* with Context 2 is due to perspective shift; in this case, the claim is that according to the reporter, Freddie must have gone to the elders' gathering. As expected for

[9]The literal translation of *šɛ niš ṗaṗɛm* /šə niš ṗaṗim/ is 'the one who works here', but it is used for gardener here since there is no direct ʔayʔaǰuθəm equivalent.

both modal and non-modal evidentials, the evidential contribution cannot be targeted by negation (Context 3/Interpretation 3).

(312) ✓*Context 1: I heard from Freddie's daughter that Freddie didn't go to the elders' gathering this year. I'm letting you know he didn't go.*
✓*Context 2: I heard from an unreliable source that Freddie didn't go to the elders' gathering.*
✗*Context 3: You ask me if I've heard whether Freddie went go to the elder's gathering and I tell you I haven't heard.*

xʷaʔ **k̓ʷa**	θahasoɬ	Freddie	kʷ q̓at̓θaws	kʷ λ̓aχλ̓aχay.
xʷaʔ=**k̓ʷa**	θa-h=as-uɬ	Freddie	kʷ=q̓at̓θ-aw-s	kʷ=λ̓ax̌∼λ̓ax̌ay
NEG=RPT	go-EPEN=3CNJ-PST	Freddie	DET=gather-PL-3POSS	DET=PL∼elder

✓Interpretation 1: '(Given what I heard,) he must not have gone to the elders' gathering.'
✓Interpretation 2: 'He might not have gone to the elders' gathering (I conclude based on available reported evidence).' (= 'It is not the case that he must have gone to the elders' gathering (based on what I heard).')
✗Interpretation 3: I didn't hear whether he went to the elders' gathering.'
Consultant's comment: You just heard he didn't go. (sf | BW.2020/05/22)

Just as with the inferential, the reportative cannot appear in the complement clause to negation (313).

(313) *xʷaʔ θahasoɬ **k̓ʷa** kʷ q̓at̓θaws kʷ λ̓aχλ̓aχay.
xʷaʔ θa-h=as-uɬ=**k̓ʷa** kʷ=q̓at̓θ-aw-s kʷ=λ̓ax̌∼λ̓ax̌ay
NEG go-EPEN=3CNJ-PST=RPT DET=gather-PL-3POSS DET=PL∼elder
Intended: 'I heard he didn't go to the elders' gathering.' (sf | BW.2020/05/22)

To express the meaning targeted by Context 3, an attitude verb scoping under negation must be used instead.

(314) xʷač č̓iyʊxʷaʔnoɬ kʷʊnəs θohoɬ.
xʷaʔ=č č̓iy-əxʷ-an-uɬ kʷən=as θu-h-uɬ
NEG=1SG.SBJ hear-NCTR-1SG.SBJV-PST AUX=3SBJV go-EPEN-PST
'I didn't hear whether he went.' (vf | BW.2020/06/05)

The results from attempting to embed the two evidentials under negation are therefore inconclusive. While the reportive looks as if it may be able to embed under negation, in contrast to the inferential, its ability to appear in contexts where the speaker does not believe the prejacent to be true is a confound for interpreting this result. As expected for both modal and not-at-issue evidentials, the evidential contribution cannot be targeted by negation.

6.6.3.2 Embedding in the antecedent of conditionals

Another environment where at-issue content can be embedded is in the antecedent of conditionals. This is an environment where strong epistemic modals tend to be dispreferred in English, however, as shown in (315).

(315) *Context: We've been meaning to visit Freddie, and we're going to check if smoke is coming from his chimney so we can tell whether he's likely to be home.*
If Freddie {??**must/might**} be home, we will drive over to his house.

Therefore, if an evidential can take scope in the antecedent of a conditional, this is good evidence that it is modal. If it cannot, nothing can be concluded.

In ʔayʔaǰuθəm, the evidential clitics are not able to take scope in the antecedent of a conditional. This is parallel to what has been reported previously for evidential clitics in St'át'imcets (Matthewson, Rullmann, and Davis 2007).

(316) *Context: We were planning an outing, but we're going to check what it looks like outside before we leave.*

#ʔot **c̓̌ɛ** səm	c̓̌ɩł,	xʷaštəm	θahat.
ʔut=**c̓̌a**=səm	c̓̌əł,	xʷaʔ=štəm	θa-h=at
if=INFER=FUT	rain	NEG=1PLSBJ+FUT	GO-EPEN=1PL.SBJV

'If it must be going to rain, we won't go.' (sf | BW.2020/05/22)

(317) *Context: We were planning an outing, but we're going to check what the weather forecast says before we leave.*

#ʔot **k̓ʷa** səm	c̓̌ɩł,	xʷaštəm	θahat.
ʔut=**k̓ʷa**=səm	c̓̌əł,	xʷaʔ=štəm	θa-h=at
if=RPT=FUT	rain	NEG=1PLSBJ+FUT	GO-EPEN=1PL.SBJV

'If it's reportedly going to rain, we won't go.' (sf | BW.2020/05/22)

I have come across an example of *k̓ʷa* in the antecedent of a conditional in a text, as shown in (318), but it seems that the reportative is scoping out of the conditional in this case (i.e. 'from what I heard it must be the case that if you didn't ...'). The evidential contribution is expected to project since it is presupposed, so the at-issue content is the crucial component in terms of scope. The at-issue content does not seem to be scoping within the conditional (if it did, it would mean something like: 'from what I heard if you must not have done that, then...'). The speaker is discussing cultural teachings around what should be done when exiting the forest, so the report is most plausibly the teachings which were passed on to her, which in this case take the form of a conditional. This means the reportative is scoping over the whole conditional.

(318)

ʔotčxʷ **k̓ʷa**	xʷaʔ	ʔəχtiysxʷaxʷ,	nɛ **k̓ʷa**	kʷʊθ qaymɩxʷanən	ʔəxʷi	kʷ θičɩm.
ʔut=čxʷ=**k̓ʷa**	xʷaʔ	ʔəx̌tiy-sxʷ=axʷ	niʔ=**k̓ʷa**	kʷ=əθ=qaymixʷanan	ʔəxʷǰ	kʷ=θičim
if=2SG.SBJ=RPT	NEG	do.like-CAUS=2SBJV	be.there=RPT	DET=2SG.SBJ=spirit	left	DET=woods

'If you didn't do that then your spirit would be left up there in the back woods.'

(Watanabe 2020: 287)

In conclusion, since speakers do not accept *c̓̌ɛ* /c̓̌a/ and *k̓ʷa* taking scope inside the antecedent of conditionals, this test is inconclusive and cannot be used to argue for or against a modal analysis of the clitics.

6.6.3.3 Embedding under attitude verbs

The final test for whether evidentials can take scope under at-issue operators involves embedding under attitude predicates. There are complications to using this test to distinguish between illocutionary and modal evidentials, however. It has been argued that certain attitude predicates, in particular verbs of saying, can embed root clauses, which correspond semantically to illocutionary acts (e.g., Hooper and Thompson 1973; Heycock 2006; Krifka 2014). In these environments, illocutionary operators should be able to embed syntactically and may be able to take scope within the embedded speech act. According to Krifka (2014), for instance, embedding a root clause involves attributing a speech act to the matrix subject, which allows otherwise speaker-oriented material, such as speaker-oriented adverbs, to orient towards the matrix subject. This predicts even illocutionary evidentials to be able to orient towards matrix clause subjects in embedded root clauses.

The obvious solution is to test for embedding under predicates that do not allow embedded root clause complements. Unfortunately, environments that do and do not allow root clause embedding are not well defined cross-linguistically and diagnostics for identifying embedded root clauses are often language-specific (such as the availability of V2 in German). This means that determining environments that may or may not embed root clauses is not trivial. Moreover, Anand and Hacquard (2013) argue that epistemic modals can only take scope under a restricted set of attitude verbs: those which provide an information state that functions as the modal base for the embedded epistemic. These attitude verbs are typically doxastic (e.g., *say*, *think*), argumentative (e.g., *claim*), or semifactive (e.g., *know*, *realize*), though weak epistemics can also embed under emotive doxastic (e.g., *fear*, *hope*) and dubitative verbs (e.g., *doubt*). Unfortunately for our purposes, these verbs, except for emotive doxastics and dubitatives, overlap with those claimed to be able to embed root clauses in English (Hooper and Thompson 1973). This means that embedding tests are fraught for all epistemic modals, but are particularly problematic for strong epistemic modals which, at least in English, can only embed under attitude verbs that are also claimed to embed root clauses.

Despite these complications, I still consider embedding under attitude verbs a worthwhile test. Not all evidentials analyzed as illocutionary operators are able to orient towards a matrix subject in this environment. In Cuzco Quechua, the reportative evidential is able to embed syntactically under verbs of saying, but when embedded in these environments, it remains speaker-oriented (Faller 2014). This suggests that it may not be straightforward for illocutionary evidentials to take scope under attitude verbs, even if this is possible in principle; modal evidentials, on the other hand, should take scope under attitude predicates. Therefore, if it is impossible for an evidential to ever take scope under attitude predicates, this could indicate that it is an illocutionary evidential, while conversely the ability to scope under attitude predicates could support the claim that an evidential is modal, particularly if it can take scope under an attitude predicate that is unlikely to embed a root clause. The results of tests for embedding under attitude predicates must be interpreted carefully, however, and any argument from embedding should be corroborated by additional evidence.

When implementing this test, it is important to show that the evidential is oriented towards the matrix subject rather than the speaker, to ensure that the evidential is taking scope in the embedded clause. This means showing that the evidential can occur where the speaker cannot felicitously make a modal claim, but the subject of the matrix clause can. As I showed in Section 6.4, speakers cannot use an inferential or reportative when they have direct evidence that the prejacent proposition is true. I also showed in Section 6.6.2 that speakers cannot use the inferential when they have direct evidence that the proposition is false. I therefore

employ contexts where the speaker has direct evidence that the embedded proposition is true or false but the matrix subject does not. In these contexts, the use of evidentials in the embedded clause should only be felicitous if they represent the matrix subject's claim, not the speaker's. I also use matrix verbs that take nominalized clausal complements. That way, if the evidentials appear within the subordinate clause complement, the morphology clearly indicates that they are in a syntactically embedded environment.

Both *c̓ɛ* /c̓a/ and *k̓ʷa* can take scope in the embedded clause in these contexts, both when the speaker knows the embedded proposition to be true, as in (319) and (320), and when the speaker believes the embedded proposition to be false, as in (321) and (322).

(319) *Context: Based on the Tom (Tɛqaw) and Mittens storyboard (Rolka and Cable 2014) – a cat just ran out of the room and into another where it hid in a box. I saw the cat run and hide in the box, and then I watched Tɛqaw figuring it out. Now I'm describing Tɛqaw.*

nopʊxʷəm	[ʔə] Tɛqaw	hɛs **c̓ɛ**	kʷ k̓ʷaxʷa	kʷayɩts
nup-əxʷ-əm	[ʔə=]Tiqaw	[s=]hiɬ=s=**c̓a**	kʷ=k̓ʷaxʷa	kʷay-ít=s
think-NCTR-PASS	[OBL=]Tiqaw	[NMLZ=]be=3POSS=INFER	DET=box	get.hidden-STAT=3POSS

šɛ mɛmaẇs.
šə=mimaẇ-s
DET=cat-3POSS

'Tɛqaw realized that his cat must be hiding in a box.' (sf | BW.2020/04/15)

(320) *Context: Gloria finds out that Roger has a girlfriend and she's excited to spread the news, so she tells me. I've already met his girlfriend though. Later I tell you about it.*

tatawθiyəm	[ʔə] Gloria	s**k̓ʷa** kʷa watlaʔit		Roger.
ta∼taw-θiy-əm	[ʔə=]Gloria	s=**k̓ʷa**=kʷa=watla-ʔəyt		Roger.
PROG∼tell-CTR.1SG.OBJ-PASS	[OBL=]Gloria	3POSS=RPT=CLD=sweetheart-PRF		Roger
toχʷnɛxʷoɬč ʔot.		qəmgusʊxʷoɬč	ʔi	tawθəs.
təx̌ʷ-n<i>xʷ-uɬ=č=ʔut.		qəmgus-əxʷ-uɬ=č	ʔiy	taw-θ-as
know-NCTR<STAT>-PST=1SG.SBJ=EXCL		meet.up-NCTR-PST=1SG.SBJ	CONJ	tell-CTR.1SG.OBJ-3ERG

'Gloria told me (she heard) Roger got a girlfriend. I already knew. I met up with them and he told me.'

(sf | BW.2020/04/15)

(321) *Context: Gloria saw Daniel buying bus tickets to Whistler and thinks he must be going on a trip there. She tells this to me, and then I talk to Daniel and find out that actually he bought them for a friend. Later, I tell you:*

tatawθiyəm	[ʔə] Gloria	hos **c̓̌ɛ** səm	Daniel	ʔəkʷ Whistler.
ta∼taw-θiy-əm	[ʔə=]Gloria	[s=]hu=s=**c̓̌a**=səm	Daniel	ʔə=kʷ=Whistler
PROG∼tell-1SG.OBJ-PASS	[OBL=]Gloria	[NMLZ=]go=3POSS=INFER=FUT	Daniel	OBL=DET=Whistler

k̓ʷʊnɛtasoɬ	yiyqʔamʔos	kʷ pipa	kʷs θos
k̓ʷən-í-t-as-uɬ	[s=]yə∼yq-ʔəm-uɬ=s	kʷ=pipa	kʷ=s=hu=s
see-STAT-CTR-3ERG-PST	[NMLZ=]PROG∼buy-ACT.INTR-PST=3POSS	DET=paper	DET=NMLZ=go=3POSS

ʔəkʷ Whistler.	qʷaqʷaysxʷoɬč	Daniel.	tatawθas	xʷas
ʔə=kʷ=Whistler	qʷa∼qʷay-sxʷ-uɬ=č	Daniel	ta∼taw-θ-as	[s=]xʷaʔ=s
OBL=DET=Whistler	PROG∼talk-CTR-PST=1SG.SBJ	Daniel	PROG∼tell-1SG.OBJ-3ERG	[NMLZ=]NEG=3POSS

hiyas	θo.	hɛɬ	šɛ patnas	yəqʔəmtasoɬ	pipa	kʷs θos	Whistler.
hiy+as	θu	hiɬ	šə=patna-s	yəq-ʔəm-t-as-uɬ	pipa	kʷ=s=θu=s	Whistler
be+3SBJV	go	be	DET=partner-3POSS	buy-IND-CTR-PST	paper	DET=NMLZ=go=3POSS	Whistler

'Gloria told me Daniel must be going to Whistler. She saw him buy tickets for going to Whistler. I talked to Daniel. He told me it's not him that's going. He bought the tickets to Whistler for his friend.'

(sf | BW.2020/05/27)

(322) *Context: Gloria hears Freddie won at bingo so she's excited and tells me about it. I was actually there, and I know that Freddie didn't win.*

tatawθiyəm	[ʔə] Gloria	s**k̓ʷa** kʷa λ̓ʊxʷʔəm	Freddie	ʔəkʷ	qaχ	tala,
ta∼taw-θiy-əm	[ʔə=]Gloria	s=**k̓ʷa**=kʷa=λ̓əxʷ-ʔəm	Freddie	ʔə=kʷ	qəx̌	tala
PROG∼tell-1SG.OBJ-PASS	[OBL=]Gloria	3POSS=RPT=CLD=win-ACT.INTR	Freddie	OBL=DET	lots	money

ʔi	xʷaʔ,	hɛɬ	Daniel	λ̓ʊxʷʔəmoɬ.
ʔiy	xʷaʔ	hiɬ	Daniel	λ̓əxʷ-ʔəm-uɬ.
CONJ	NEG	be	Daniel	win-ACT.INTR-PST

'Gloria told me (she heard) Freddie won a lot of money, but no! It was Daniel who won.'

(sf | EP.2020/05/25)

In this section, we have seen evidence that both *c̓̌ɛ* /c̓̌a/ and *k̓ʷa* can be semantically embedded under attitude verbs. This shows that they can take scope under other at-issue content, supporting a modal analysis where the evidentials themselves contribute at-issue content. This evidence is not conclusive, however, since it is possible that speech act operators could also embed in these environments.

6.6.4 Challengeability

I turn now to challengeability as a test for whether an evidential contributes at-issue content (see e.g., Faller 2002; Papafragou 2000, 2006; Matthewson et al. 2007). At-issue content can be challenged with 'that's not true', while not-at-issue content cannot. This is illustrated in (323). The at-issue content of A's claim – that Freddie went to town this afternoon – can be challenged by B with 'that's not true' (323B), but the not-at-issue presupposition triggered by *again* – that Freddie had been in town previously – cannot (323B').

(323) A. Freddie went to town again this afternoon.

B. That's not true! He was home all afternoon. I was with him.

B'.#That's not true. He didn't go to town earlier.

B". Hey, wait a minute! He wasn't in town earlier.

In order for B to challenge this presupposed content, a different type of challenge must used, such as 'hey, wait a minute!' (323B") (von Fintel 2004).

Since the modal claim provided by a modal evidential is at-issue, it should be possible to challenge it directly with a 'that's not true' challenge, whereas it should only be possible to challenge the prejacent proposition itself where a plain assertion is embedded under an illocutionary evidential (see Matthewson, Rullmann, and Davis 2007; Matthewson 2012). Note that the validity of challengeability as a test has been questioned in previous literature (see e.g., Murray 2010; Korotkova 2016; Tan Almazán 2019), since the evidential contribution cannot be challenged under either analysis (Matthewson, Rullmann, and Davis 2007; Matthewson 2012 also point this out). Under a modal analysis, this is because the evidential restriction takes the form of a presupposition, while under a speech act operator analysis, this is because the contribution of the evidential is generally not-at-issue. I agree with the assessment that challenging the evidential contribution cannot differentiate between the two analyses, but dispute the claim that this test cannot differentiate between the two analyses when targeting the at-issue content (following the arguments of e.g., Matthewson, Rullmann, and Davis 2007; Matthewson 2012).

Challenging a modal claim typically involves denying one of the premises which narrow the set of possible worlds the modal is quantifying over (Faller 2002; Matthewson, Rullmann, and Davis 2007). For instance, in (324), the second detective challenges the premise that only someone with keys could have gotten into the house to steal the necklace. The modal claim contributed by the strong modal *must* is challenged with a weaker modal claim with *might*, which allows worlds where someone entered the house using a ladder into the modal base. Note that the same challenge is not felicitous in response to a plain assertion (325).

(324) a. *Context: There are two detectives discussing the case of a stolen necklace. Knowing the neighbour had keys to the house, one of the detectives utters:*
The neighbour had keys to the house. He must have stolen the necklace.

b. *The other detective, knowing that the gardener had a ladder that would allow him to get in the window, utters:*
That's not true. It might not have been him. It might have been the gardener. He had a ladder that could reach the window.

(325) a. *Context: There are two detectives discussing the case of a stolen necklace. One of the detectives, having interviewed a suspect, is convinced that it was him and utters:*
The neighbour stole the necklace.

b. *The other detective disagrees and utters:*
That's not true. It might not have been him. It might have been the gardener.

In order to elicit modal challenges, then, it is necessary to construct a context where there are two characters making inferences concerning the same proposition, but with different propositions in the modal base of each.

For both the inferential *c̊ɛ* /c̊a/ and the reportative *k̓ʷa* in ʔayʔaǰuθəm, the modal claim can be challenged. The following examples show that both the modal claim and the prejacent are possible targets for a challenge with *xʷaʔ gənʊxʷəs* 'That's not true'.[11] When challenging the modal claim, the challenger does not assert that the prejacent is false, but rather objects to the premises used to narrow down the modal base or the reasoning from the premises. The challenger can therefore still believe there is a possibility that the prejacent is true.

I examine examples involving the inferential first. In (326B), B challenges A's premise that if Freddie's lights are on, he is home (this example is taken from Matthewson, Rullmann, and H. Davis 2007; Matthewson 2012). B uses *qʷayin*, which is an adverb marking epistemic uncertainty; it is variably translated as 'probably', 'might', 'maybe', and 'I think'. B's use of *qʷayin* indicates that B has not determined the prejacent to be false, and so is not challenging the prejacent itself, but rather the reasoning used to assert it. In contrast, the prejacent is directly challenged in (326B').

(326) *Context: A and B are driving past Freddie's house and see that Freddie's lights are on.*

A: χʷawít nɪkʷayus Freddie. ʔamot **c̊ɛ**.
ẋʷəẇ-ít nikʷayu-s Freddie ʔamut=**c̊a**
get.lit-STAT light-3POSS Freddie be.home=INFER
'Freddie's lights are on. He must be home.'

B: xʷaʔ gənʊxʷas. qʷayɪn xʷaʔ ʔamotas. payɛ ʔot χʷawítsxʷas nɪkʷayus.
xʷaʔ gənəxʷ=as qʷayin xʷaʔ ʔamut=as paya ʔ=ʔut ẋʷəẇ-ít-sxʷ-as nikʷayu-s
NEG true=3SBJV maybe NEG be.home=3SBJV always=EXCL get.lit-STAT-CAUS-3ERG light-3POSS
'That's not true. He might not be home. He always leaves his lights on.

B': xʷaʔ gənʊxʷas. tawθasoɬ χʷoχʷ səm xʷukʷts.
xʷaʔ gənəxʷ=as taw-θ-as-uɬ x̌ʷux̌ʷ=səm xʷukʷt=s
NEG true=3SBJV tell-1SG.OBJ-3ERG-PST long.time=FUT not.exist=3POSS
'That's not true. He told me he would be gone a long time.' (sf | BW.2020/05)

The next example involves a dialogue between two detectives on a single case. In (327), detective B challenges detective A's premise that the gardener is no longer a suspect. Detective B's use of *qʷayin* indicates that the prejacent is not directly contradicted: detective B is challenging detective A's certainty, encoded in detective A's strong modal claim.

[11] See von Fintel and Gillies 2007 who show that the prejacent of a modal can be challenged, as well as the modal claim itself.

(327) *Context: Two detectives are discussing the case of a missing necklace. They have two suspects remaining – the nephew of the person whose necklace was stolen and the gardener. Detective A is feeling quite sure that the nephew did it, given all the evidence, but detective B still thinks it could be the gardener.*

A: hɛ **c̓ɛ** ṫᶿeyʊxʷs.
hi[ɬ]=**c̓a** ṫᶿiyəxʷ-s
be=INFER nephew-3POSS
'It must have been the nephew.

B: xʷaʔ gənʊxʷas. qʷayɪn xʷaʔ hiyas. qʷayɪn hɛɬ šɛ niš ṗaṗɛm. čuʔotən k̓ʷa.
xʷaʔ gənəxʷ=as qʷayin xʷaʔ hiy+as qʷayin hiɬ šə=niš ṗaṗim čuʔutən=k̓ʷa
NEG true=3SBJV maybe NEG be+3SBJV maybe be DET=be.here work thief=RPT
'That's not true. It might not have been him. It might have been the gardener. It's said he's a thief.

(sf | BW.2020/05)

For this dialogue, I have a second version from another speaker, in (328). This speaker felt that *xʷaʔ gənʊxʷəs* 'That's not true' could not be used by detective B in this context because detective B is not directly contradicting detective A's claim that the nephew is the thief. Instead she preferred a response beginning with *qʷayɪn xʷaʔ* 'It might not be.' Several conversations with this speaker have made it clear that she feels that using *xʷaʔ gənʊxʷəs* is quite confrontational. In light of this, it seems that for her *xʷaʔ gənəxʷas* is only appropriate where the challenger can challenge the truth of the prejacent itself, not just the reasoning behind the assertion. The absence of *xʷaʔ gənʊxʷəs* is somewhat problematic, however, as it unambiguously targets at-issue content, while challenges without *xʷaʔ gənʊxʷəs* 'that's not true' may target other aspects of the utterance (see Matthewson, Rullmann, and Davis 2007). Though this casts some doubt on the conclusiveness of this data, the content of B's challenge makes it clear that B is not sure that the prejacent is false and is therefore most plausibly challenging A's inference, rather than the prejacent itself. I therefore conclude, though tentatively, that this dialogue also illustrates a challenge to a modal claim.

(328) *Context: As in (327).*

A: hɛ **c̓ɛ** ṫᶿeyʊxʷs.
hi[ɬ]=**c̓a** ṫᶿiyəxʷ-s
be=INFER nephew-3POSS
'It must have been the nephew.' (sf | EP.2020/05)

B: qʷayɪn xʷaʔ. čɪm ga šɛ niš ṗaṗɛm? hoštəm qʷɛqʷaysxʷ
qʷayin xʷaʔ čəṁ=ga šə=niš ṗaṗim hu=štəm qʷiqʷaysxʷ
maybe NEG why/how=DPRT DET=be.here work go=1PL.SBJ+FUT PROG∼talk-CAUS
šɛ niš ṗaṗɛm.
šə=niš ṗaṗim
DET=be.here work
'It might not have been him. What about the gardener? Let's talk to the gardener.'

(vf | EP.2020/05)

I turn now to parallel examples involving the reportative. The reportative evidential is the target of the challenge in (329). If the reportative is modal, as I am arguing here, it is contributing a modal claim: in all worlds where the speaker has the same reported evidence from Daniel (and that are ranked best by a stereotypical ordering source), Freddie is home. B challenges A's premise that the source of the report is reliable; for B, it does not follow from what Daniel said that Freddie must be home.

Note that B is not challenging A's claim that Daniel *said* that Freddie had gotten home, but rather A's certainty that Freddie had gotten home based on this report. Use of *qʷayin* in the challenge indicates that B is not certain that the prejacent is false, so *xʷaʔ gənəxʷas* 'that's not true' cannot be targeting the prejacent directly. (329B'), in contrast, is a challenge to the prejacent itself.

(329) *Context: A had a conversation with Daniel earlier. Now A is telling B what Daniel told her.*

A: tatawθiyəm Daniel ninijɛ Freddie. qʷol **k̓ʷa** hɛwt sǰɛsoɬ.
ta∼taw-θiy-əm Daniel ninija Freddie qʷəl̓=**k̓ʷa** hiwt sǰasuɬ
PROG∼tell-CTR.1SG.OBJ-PASS Daniel about Freddie come=PRT get.home yesterday
'Daniel was telling me about Freddie. He got home yesterday (he said).'

B: xʷaʔ gənʊxʷas. payɛ gaχgaχnomot Daniel. qʷayɪn xʷaʔ ʔamotas Freddie.
xʷaʔ gənəxʷ=as paya? gəx̌∼gax̌-nu-mut Daniel. qʷayin xʷaʔ ʔamut=as Freddie.
NEG true=3SBJV always PL∼dream-NCTR-REFL Daniel maybe NEG be.home=3SBJV Freddie
'That's not true. Daniel's always fantasizing/making up stories. Freddie might not be home.'

B': xʷaʔ gənʊxʷoθəs Daniel. xʷaʔ ʔamotas Freddie.
xʷaʔ gənəxʷ-uθ=as Daniel xʷaʔ ʔamut=as Freddie.
NEG true-mouth=3SBJV Daniel NEG be.home=3SBJV Freddie
'It's not true what Daniel said. Freddie's not home.' (sf | BW.2020/05)

In (330B), B challenges A's certainty in making the reportative claim in (330A). B is clearly not in possession of facts to challenge the prejacent directly, since B is still speculating about the possible identity of the thief; B is therefore challenging the claim that the prejacent proposition follows from the report. (330B') is a challenge to the prejacent itself.

(330) *Context: Two detectives are discussing the case of a missing necklace. They have two suspects remaining – the nephew of the person whose necklace was stolen and the gardener. Detective A is convinced by a witness that the nephew did it, but detective B distrusts the witness.*

A: nɛtəm šɛ payɛ sxʷukʷts talas. hɛ **k̓ʷa** šɛ t̓ᶿeyʊxʷs.
ni-t-əm šə=paya? s=xʷukʷt-s tala-s. hi[ɬ]=**k̓ʷa** šə=t̓ᶿiyəxʷ-s
say-CTR-PASS DET=always NMLZ=not.any-3POSS money-3POSS be=RPT DET=nephew
'It's said he never has money. Based on what's said, it must have been the nephew.'

B: xʷaʔ gənʊxʷəs. qʷayɪn xʷaʔ hiyas šɛ ṫᶿeyʊxʷs. qʷayɪn hɛɬ šɛ niš ṗaṗɛm.
xʷaʔ gənəxʷ=as qʷayin xʷaʔ hiɬ+as šə=ṫᶿiyəxʷ-s qʷayin hiɬ šə=niš ṗaṗim
NEG true=3SBJV maybe NEG be+3SBJV DET=nephew-3POSS maybe be DET=be.here work

hoy k̓ʷot nɛʔoɬ ṗaṗɛm šin ṫᶿok̓ʷ ʔi gaq̓ɛ́toɬ šɛ ʔɛmɛn
huy=k̓ʷa+ʔut niʔ-uɬ ṗaṗim šin̓ ṫᶿuk̓ʷ ʔiy gəq̓-ít-uɬ šə=ʔimin
finish=RPT+EXCL be.there-PST work DEM day CONJ open-STAT-PST DET=door

'That's not true. It might not have been his nephew. It might have been the gardener. He was the only one working there that day and the door was open.'

B': xʷaʔ gənʊxʷoθəs.
xʷaʔ gənəxʷuθ=as
NEG true-mouth=3SBJV
'What he said is not true.' (sf | BW.2020/05)

Note that in (330B), B is not challenging A's assertion that someone *said* it was the nephew, but only the reliablility of this report as the premise of A's assertion.

For this dialogue, I also have a second version from the same speaker as for (328) above. Again, *xʷaʔ gənʊxʷəs* 'That's not true' is absent in B's challenge for this speaker. Nevertheless, B is clearly challenging the premise that the witness is reliable, rather than the prejacent itself.

(331) *Context: As in (330). Note that the witness = Daniel.*

A: qʷɛqʷaysxʷoɬč Daniel. hɛ **k̓ʷa** šɛ ṫᶿeyʊxʷs kʷ maʔt.
qʷɛ∼qʷay-sxʷ-uɬ=č Daniel hi[ɬ]=**k̓ʷa** šə=ṫᶿiyəxʷ-s kʷ=məʔ-t
PROG∼talk-CAUS-PST=1SG.SBJ Daniel be=RPT DET=nephew COMP=take-CTR
'I spoke to Daniel. Given what he said, it must have been the nephew that took it.'

B: qʷayɪn xʷaʔ. qʷayɪn naynayəw Daniel. hoštəm qʷɛqʷaysxʷ šɛ niš
qʷayin xʷaʔ qʷayin nay∼nayəw Daniel hu=štəm qʷi∼qʷay-sxʷ šə=niš
maybe NEG maybe CHAR∼forget Daniel go=1PL.SBJ+FUT PROG∼talk-CAUS DET=be.here

ṗaṗɛm.
ṗaṗim
work

'It might not be. Daniel might be mistaken. Let's go talk to the gardener.' (sf | EP.2020/05)

Throughout these dialogues we have seen challenges to the modal claim as well as the prejacent. Challenging the prejacent involves denying the truth of the prejacent itself. In contrast, challenging the modal claim involves denying the validity of the inference, but allows uncertainty about whether the prejacent is in fact false. Since both types of challenges are possible in response to a claim with *c̓ɛ* /c̓a/ or *k̓ʷa*, these dialogues support an analysis where *c̓ɛ* /c̓a/ and *k̓ʷa* are modals, contributing at-issue content that can be challenged.

6.6.4.1 Entailments and continuations

I now turn to the final test I apply to determine whether the evidentials contribute an at-issue modal claim: whether the evidential has an effect on the entailments of the prejacent proposition. The addition of a modal

changes the at-issue content of the proposition and so is predicted to have an effect on the entailments of the proposition, whereas a not-at-issue evidential should not. As applied here, this is a novel test for the at-issue contribution of evidentials, unlike the other tests applied above. In what follows, I first lay out the predictions for a modal evidential, and then examine the contrasting predictions for a not-at-issue evidential.

A modal claim does not assert the prejacent to be true of the actual world, unlike a plain assertion. Therefore, a continuation that relies on accepting a proposition as true of the actual world should be felicitous following a plain assertion of that proposition, but not a modal claim for which that proposition is the prejacent. For instance, if I have accepted the proposition that Freddie had travelled to New Westminster, and then I accept the proposition that Freddie is home now, then these two propositions together entail that Freddie has returned home. This makes it possible to assert Freddie's return, even though I didn't directly witness his return, as in (332).

(332) *Context: Freddie was on a trip to New Westminster. He's back home now, and I visited him at his home this morning. Now I tell you:*
Freddie is home. He came back from New Westminster.

In contrast, if I am only inferring that Freddie is now home, it is not entailed that Freddie has returned from his trip. I therefore cannot assert that this is the case; I can only infer it, as illustrated by (333), where the modal *must* has to be used in English to indicate that Freddie's return from New Westminster is inferred.

(333) *Context: Freddie was on a trip to New Westminster. This morning, I saw his car in his driveway. Now I tell you:*
Freddie must be home. # He came back from New Westminster. (Ok: He must have come back from New Westminster.)

This gives us concrete predictions for the behaviour of modal evidentials. When the prejacent appears in a modal claim contributed by a modal evidential, the entailments of the prejacent are only entailed in the possible worlds where the prejacent is true. In contrast, a plain assertion of a proposition claims the proposition to be true in the actual world; the entailments of the proposition can therefore be asserted without a modal even if not directly witnessed.

Non-modal evidentials are not expected to show a parallel contrast for examples like (332)–(333). If the evidential only contributes not-at-issue information such that the speaker does not have direct evidence for the prejacent, the continuation *He came back from New Westminster* should require the evidential regardless of whether the evidential occurred in the initial utterance *Freddie is home*; that is, it should occur in the second utterance in both examples like (332) and those like (333).

The hypothetical case outlined above assumes a non-modal evidential that involves an *assertion* of the prejacent. This test cannot distinguish between a modal evidential and an illocutionary evidential that only involves *presenting* the prejacent, as in Faller (2002). However, as discussed in Section 6.6.2, it is not clear that evidentials associated with an illocutionary force of presentation actually exist, since these can all be analyzed instead as involving perspective shift, and certainly neither the ʔayʔaǰuθəm inferential nor reportative can be analyzed as involving an illocutionary force of presentation.

When implementing this test in ʔayʔaǰuθəm, I used short storyboards. The storyboard in Figure 6.1 was used as a baseline. The first panel sets up the background knowledge that Freddie is in New Westminster

(*kʷins pala*), the next shows Freddie at home in his driveway, and the speaker interacting with him. The final panel shows the speaker saying that Freddie is home, having returned from New Westminster. The storyboard was explained to the consultant and then the consultant was asked to judge whether a suggested initial utterance for the speaker in the storyboard was a good fit to the context. I then presented the two continuation options: one where the claim that Freddie returned from New Westminster had the inferential evidential, and one where the claim did not.

Figure 6.1: Testing continuations, baseline context

Figure 6.2 sets up the context where the prejacent proposition is known through inference. The first panel is as in the previous context. The second panel differs. The speaker does not see Freddie at home, but just that his car is in front of his house. In the final panel, the speaker is saying that the Freddie is home, having returned from New Westminster – but in this case, the speaker is basing the claim on Freddie's car being in the driveway. The storyboard was presented to the consultant in the same manner as the previous one.

Figure 6.2: Testing continuations, inferential context

The results for this test indicate that an assertion with *c̓ɛ* /c̓a/ is an assertion about possible worlds, not an assertion about the real world. In both (334) and (335), the speaker does not directly witness Freddie's trip home. However, if the speaker asserts Freddie to be home, it is entailed that he has come home from his trip and the inferential need not be used to assert this second proposition (334). If, on the other hand, the speaker

uses *c̓ɛ* /c̓a/ in the claim that Freddie is home, it does not follow that Freddie has come home from his trip in the real world and the following proposition must be marked with the inferential (335).

(334) *Context: Freddie has been away in New Westminster. This morning I saw him in his driveway. Then I say:*

ʔamot	Freddie.	kʷa	qʷol̓	χəpi		tawa	kʷins	pala.
ʔamut	Freddie	kʷa	qʷəl̓	x̌əpəy		tawa	kʷins	pala
be.home	Freddie	CLD	come	return		from	kʷins	pala

'Freddie is home. He has returned from New Westminster.' (sf | BW.2020/04/15)

(335) *Context: Freddie has been away in New Westminster. This morning I saw his car in the driveway. Then I say:*

ʔamot **c̓ɛ**	Freddie.	#(**c̓ɛ**)	kʷa	qʷol̓	χəpi	tawa	kʷins	pala.
ʔamut=**c̓a**	Freddie	#(**c̓a**)=kʷa		qʷəl̓	x̌əpəy	tawa	kʷins	pala
be.home=INFER	Freddie	INFER=CLD		come	return	from	kʷins	pala

'Freddie must be home. He #(must have) returned from New Westminster.' (sf | BW.2020/04/15)

This test can also be used for the reportative. The baseline case is the same as before. The test case involves the speaker hearing from someone that Freddie is home and then passing this knowledge on to someone else. For this case, I used the storyboard in Figure 6.3. The first panel is as in the previous storyboards (Figures 6.1 and 6.2). In the second panel, the speaker hears from someone that Freddie is home. In the third panel, the speaker again says that Freddie is home, having come back from New Westminster, but is now basing this claim on reported evidence. As before, the consultant was asked to judge whether a suggested initial utterance for the speaker in the storyboard was a good fit to the context. I then presented the two continuation options: one where the claim that Freddie returned from New Westminster had the inferential evidential and one where the claim did not.

Figure 6.3: Testing continuations, reportative context

The results for the reportative are parallel to those for the inferential. If the speaker claims Freddie to be home based on reported evidence, the second proposition must be marked with an inferential (336). The speaker only claims Freddie to be home in the (best) possible worlds where the modal base propositions – including the proposition that Gloria said Freddie is home – are true. The speaker does not claim him to be home in the real world, so his return cannot be asserted of the real world. The inferential, rather than the reportative, is used in the felicitous continuation, because Gloria's report did not include the information that Freddie had returned from New Westminster.

(336) *Context: Freddie has been away in New Westminster. This morning Gloria told me that he is home. Then I say:*

ʔamot **k̓ʷa**	Freddie.	#(**c̓ɛ**) kʷa	qʷol̓	χəpi	tawa	kʷins	pala.
ʔamut=**k̓ʷa**	Freddie	#(**c̓a**)=kʷa	qʷəl̓	x̌əpəy	tawa	kʷins	pala
be.home=RPT	Freddie	INFER=CLD	come	return	from	kʷins	pala

'Freddie must be home. He #(must have) returned from New Westminster.' (sf | BW.2020/06/05)

If Gloria had also provided the information that Freddie had returned from New Westminster, the reportative is used in the second sentence instead of the inferential.

(337) *Context: Freddie has been away in New Westminster. This morning Gloria told me that he has come back from New Westminster and is home. Then I tell you:*

ʔamot **k̓ʷa**	Freddie.	**k̓ʷa** kʷa	qʷol̓	χəpi	tawa	kʷins	pala.
ʔamut=**k̓ʷa**	Freddie	**k̓ʷa**=kʷa	qʷəl̓	x̌əpəy	tawa	kʷins	pala
be.home=RPT	Freddie	RPT=CLD	come	return	from	kʷins	pala

'Freddie must be home. (I heard) he returned from New Westminster.' (sf | BW.2022/06/01)

I also applied this test with a second set of storyboards. In this case, the speaker has a cat that keeps climbing up to the roof. For the first storyboard, the speaker has direct evidence that the cat is on the roof and concludes that the cat climbed up the ladder to get there (338). The inferential is not obligatory in the second sentence (though it can be used), since the first sentence entails the second in the context.

(338) *Context: M has a cat that likes to climb up to the roof, using a ladder that goes up to the roof. The ladder is the only way to the roof. M goes up the ladder and sees her cat on the roof. She says:*

nɛʔ	kʷ ʔiyɪtxʷ	tᶿ mɛmaẇ.	(**c̓ɛ**) θo		šɛʔ	qɛy	tə hayšɪn.
niʔ	kʷ=ʔiyitxʷ	tᶿ=mimaẇ.	(**c̓a**=)∅=θu		šəʔ	qəǰi	tə=hayšin
be.there	DET=roof	1SG.POSS=cat	(INFER=)CLD=go		up	again	DET=ladder

'My cat is on the roof. It went (must have gone) up the ladder again.' (sf | BW.2022/06/12)

For the second storyboard, the speaker does not see the cat on the roof, but only hears it meowing. In this case, where the initial proposition is inferred, the inferential is also required in the second sentence in (481).

(339) *Context: M has a cat that likes to climb up to the roof, using a ladder that goes up to the roof. The ladder is the only way to the roof. M hears her cat meowing from the roof. She says:*

nɛ **ḉɛ**	kʷ ʔiyɪtxʷ	tᶿ mɛmaẇ.	#(**ḉɛ**) θo	šɛ	qey	tə hayšɪn.
niʔ=**ḉa**	kʷ=ʔiyitxʷ	tᶿ=mimaẇ.	#(**ḉa**=)∅=θu	šəʔ	qəǰi	tə=hayšin
be.there=INFER	DET=roof	1SG.POSS=cat	INFER=CLD=go	up	again	DET=ladder

'My cat must be on the roof. It must have gone up the ladder again.' (sf | BW.2022/06/12)

For the final version of the storyboard, the speaker finds out that her cat is on the roof from a friend. In this case, where the initial proposition is based on reported evidence, the inferential is required in the second sentence of (340).

(340) *Context: M has a cat that likes to climb up to the roof, using a ladder that goes up to the roof. The ladder is the only way to the roof. M's friend tells her that her cat is on the roof. She says:*

nɛ **ḱʷa**	kʷ ʔiyɪtxʷ	tᶿ mɛmaẇ.	#(**ḉɛ**)	θo	šɛʔ	qey	tə hayšɪn.
niʔ=**ḱʷa**	kʷ=ʔiyitxʷ	tᶿ=mimaẇ.	#(**ḉa**)	θu	šəʔ	qəǰi	tə=hayšin
be.there=RPT	DET=roof	1SG.POSS=cat	INFER	go	up	again	DET=ladder

'Based on what I'm told, my cat must be on the roof. It must have gone up the ladder again.'
(sf | BW.2022/06/12)

If the inferential and reportative did not contribute a modal claim, but left the at-issue content unaltered, the second target proposition should be entailed in all of the above examples and there should be no contrast in where the evidentials are required to appear. If the inferential and reportative are modals altering the truth conditions so that the prejacent is only asserted to be true in possible worlds, the contrasts in the examples above are expected. I therefore conclude that these results support a modal analysis of these clitics. Since this test successfully showed a difference in entailments between a plain assertion and epistemic modal claims, I propose more generally that it can also be added to the inventory of diagnostic tests used to distinguish between modal and non-modal evidentials.

6.6.5 Conclusion

In this section, I examined whether the inferential *ḉɛ* /ḉa/ and reportative *ḱʷa* in ʔayʔaǰuθəm are best characterized as modal or not-at-issue evidentials. I showed that they can embed under attitude predicates and have an at-issue contribution that can be challenged. I also showed that the presence of *ḉɛ* /ḉa/ or *ḱʷa* affects the entailments of the prejacent proposition. Taken together, the results of these tests indicate that both *ḉɛ* /ḉa/ and *ḱʷa* are best characterized as modal.

6.7 Evidentials in questions

In this section, I discuss inferential *ḉɛ* /ḉa/ and reportative *ḱʷa* in questions, and address a possible counterargument to the claim that the reportative is an epistemic modal. The potential counterargument concerns cases where the reportative appears to take scope over the question operator, rather than taking scope within the question. This behaviour is one of the reasons that Faller (2002) argues that the reportative in Cuzco Quechua

is an illocutionary evidential. Before examining these cases, however, I set a baseline by examining more canonical uses of these evidentials in questions.

Both the inferential and the reportative can occur in questions, taking scope below the question particle. These cases involve interrogative flip, a common phenomenon for evidentials in questions cross-linguistically (see e.g., Garrett 2001; Faller 2002; Murray 2010; see Bhadra 2020 for an overview and also evidence that some languages have evidentials that do not undergo interrogative flip).[12] While the evidence holder in assertions is the speaker, the evidence holder in questions that involve interrogative flip is the addressee. In (341–343), for instance, the speaker asks the addressee to answer based on inferential or reported evidence. These cases are compatible with a modal analysis – the presupposition projects, as the speaker expects the addressee to have indirect or reportative evidence, while the alternative answers are each modal claims (assuming a Hamblin (1973) semantics for questions).[13]

(341) *Context: Using the Tom and Mittens storyboard* (*Rolka and Cable 2014*)*; after going through the story, the speaker was asked to pretend that she was telling the story to a child. I asked her whether, in order to keep the child engaged, she could ask the child where the cat is hiding* (*even though she herself knew*) *and what she might say if so.*

hɛ **c̓ɛ**	kʷ čɛ	ʔəxʷ nɛʔs	kʷayít̓ʔ	t̓amat ga!
hi[ɬ]=**c̓a**	kʷ=ča	ʔə=xʷ=niʔ=s	kʷay-ít	t̓am-at=ga
be=INFER	DET=where	OBL=OBL.NMLZ=be.there=3POSS	hide-STAT	guess-CTR=PRT

'Where do you think the cat is hiding? Guess!' (vf | EP.2018/10/18)

Speaker has direct evidence.

Addressee has inferential evidence.

(342) *Context: Freddie says his dog didn't eat this morning. I ask him:*

kʷukʷtəma **c̓a**?

kʷəkʷt-əm=a=**c̓a**

sick-MD=Q=INFER

'Is he sick?' (sf | EP.2020/02/18)

Speaker does not have indirect evidence (beyond addressee report).

Addressee has indirect evidence.

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[12]Roumyana Pancheva, p.c., 2022, asks if another reading is possible: where the speaker has indirect evidence for the existential presupposition of a *wh*-question (e.g., in *Who arrived?*, the speaker has indirect evidence that someone arrived) and is asking an addressee who has direct information. I have not yet checked if this is a possibility in ʔayʔaǰuθəm, but Roumyana reports this reading in both Bulgarian and Paraguayan Guaraní.

[13]The inferential also appears in conjectural questions; these are cases where the use of the inferential enclitic in a question gives rise to a non-interrogative reading roughly translatable as 'I wonder...', as in (i), repeated from (284a).

(i) a. *Context: It's very cloudy out.*

c̓ɩɬa **c̓ɛ** səm.

c̓əɬ=a=**c̓a**=səm

rain=Q=INFER=FUT

'I wonder if it will rain.' (vf | JF.2018/08/21)

For a modal analysis of conjectural questions, see Littell, Matthewson, and Peterson (2010) and Eckhardt (2020).

(343) *Context: Gloria just got off the phone with Freddie's daughter. I think she might have heard whether Freddie is at home.*

kʷʊna **k̓ʷa** qʷol hɛwt.
kʷən=a=**k̓ʷa** qʷəl̓ hiwt
COMP=Q=RPT come get.home
'Is he home?' (vf | EP.2020/02/18)
Speaker does not have reported evidence
Addressee has reported evidence.

However, the reportative can also receive another interpretation in questions, where the speaker conveys the question of a third party; I will refer to these as 'quotative' uses of the reportative. In these cases, the reportative scopes over the speech act (344). Of the two speakers I have been able to check these with, one accepts (and even volunteers) these cases and the other rejects them.

(344) *Context: Laura, who is soft-spoken, asks Freddie if he wants tea. He doesn't hear, so I pass on the question.*

ʔəθ χaƛ̓a **k̓ʷa** kʷ tihayɛʔ
ʔəθ=x̌aƛ̓=a=**k̓ʷa** kʷ=tihaya?
2SG.POSS=want=Q=RPT DET=tea
'(I heard:) do you want tea?' (vf | EP.2020/02/18)

The ability to scope over speech acts is sometimes taken to be the most convincing evidence for an illocutionary analysis of evidentials (Faller 2002). It is not clear whether a modal could take scope over a speech act, while under Faller's analysis, illocutionary evidentials always compose with speech acts. Her proposal for these cases is that the reportative combines with a speech act that has the illocutionary force of a question and changes the illocutionary force to presentation – the speaker presents someone else's question, but is not actually asking the question. While this accounts for the quotative cases such as (344) quite elegantly, her proposal then faces challenges with the more canonical cases of evidentials in questions, where the evidentials scope *under* the question operator, so that the addressee is expected to answer based on indirect evidence, as in (342)–(343) above. In order for her proposal to work for these more canonical cases, she proposes that questions involve two illocutionary operators: a REQUEST that the addressee ASSERT a proposition from the set of alternative answers. She proposes that the evidential can scope either over or under the REQUEST operator, giving rise to the two readings.

As Faller herself points out, however, the account also predicts that the inferential evidential should similarly be able to scope over the REQUEST operator, as well as under, but this does not seem to be possible. Another problematic prediction, at least for ʔayʔaǰuθəm, is that the reportative should be able to take scope over other types of speech acts, allowing the speaker to pass on someone else's request, for instance. This does not seem to be possible, even for the speaker who accepts the reportative scoping over questions, as shown in (345).[14]

[14]The inferential also cannot appear in imperatives, even if the speaker's motivation for the request is inference (i).

(345) *Context: Gloria asks Freddie to pass the sugar. He doesn't hear so I pass on her request.*

#χanaθ **k̓ʷa** ʔə tə šukʷa.
x̌an-aθ=**k̓ʷa** ʔə=tə=šukʷa.
give-CTR;1SG.OBJ=RPT OBL=DET=sugar
'Pass the sugar (she said).' (sf | EP.2020/06/02)

In any case, since the quotative uses are less common than cases where the reportative scopes under the question operator (and actually impossible for some speakers) in ʔayʔaǰuθəm, it would seem to be misguided to build an analysis that works well for these uses, but complicates the more canonical cases. Of course, adopting an illocutionary analysis would be problematic regardless, given that we have seen evidence that both the inferential and reportative contribute at-issue content.

ʔayʔaǰuθəm is not unique in having a reportative evidential that patterns as a modal, but has quotative uses. Tan Almazán (2019) argues that the reportative *daw* in Tagalog is an epistemic modal, but she also discusses quotative uses of the reportative parallel to (344). Tan Almazán concludes that scope in questions cannot distinguish an illocutionary from a modal evidential. Developing an analysis of the quotative cases will have to await future research, however, and the reader is referred to Tan Almazán (2019) for further discussion (though she also does not provide a complete analysis of these particular cases).

6.8 Modal strength and flavour

Having established that the ʔayʔaǰuθəm inferential and reportative are epistemic modals, I next discuss their strength and flavour. I show that the inferential and reportative are both strong modals, rather than variable strength modals like those found in St'át'imcets (Rullmann et al. 2008), Nsyílxcen (Menzies 2012), and Secwepemctsín (Oliver 2021).[15] The ʔayʔaǰuθəm reportative and inferential have fixed modal flavour, like the modals in these other Salish languages.

6.8.1 Testing modal strength

In this section, I examine whether the inferential and reportative are compatible with contexts supporting strong modal claims, weak modal claims, or both. The choice of a strong or weak modal is determined by whether the prejacent is true in all or just some of the (best) possible worlds in the intersection of the modal base. Since context determines which propositions are in the modal base, and therefore the set of worlds that are accessible for the modal claim, the context needs to be carefully controlled when establishing modal

(i) *Context: I see you are looking quite pale and infer that you are overtired or unwell and should go to bed. I tell you to go to bed and rest.*
ho (#**c̓ɛ**) ga ʔaχɛθ.
hu=(#**c̓a**)=ga ʔax̌iθ.
go=INFER=DPRT lie.down
'Go lie down.' (sf | EP.2020/12/11)

Faller's (2002) speech act analysis may predict this behavior for the inferential. Although Faller proposes that the inferential (referred to as the 'conjectural') in Cuzco Quechua is a speech act operator, she also gives it a modal component, which could be taken to rule out the possibility of it scoping over an imperative speech act operator.

[15] Nsyílxcen has epistemic modals with both variable strength and fixed strength (Menzies 2012), while for Secwepemctsín, the modal strength of only one modal, a circumstantial, has been investigated, and this has variable strength (Oliver 2021).

strength. I used two methods for this: storyboards and guessing games. I argue that both the inferential and the reportative contribute strong modal claims.

6.8.1.1 Tests for modal strength

I used two storyboards for this part of the investigation. The first was the Tom and Mittens storyboard (Rolka and Cable 2014; Figure 6.4). This storyboard sets up a context where Tom's cat is hiding and there are three clear possibilities for where the cat could be hiding: in one of three differently coloured boxes. Tom then eliminates two of the possibilities, one at a time, leaving only one possibility: the blue box. At first, when there is more than one box that the cat could be hiding in, the speaker can only claim that the cat is hiding in a certain box in some of the (best) possible worlds in the modal base, but not all. Once all other possibilities have been eliminated, however, shrinking the set of possible worlds in the modal base, the speaker can claim that the cat must be hiding in the remaining box in all the (best) possible worlds in the modal base.

Figure 6.4: Excerpts from Tom and Mittens storyboard (Rolka and Cable 2014)

Initially, this storyboard is useful to see which modals are volunteered for each of the situations. In follow up elicitation, it provides clear contexts for eliciting negative evidence: it should not be possible to make a strong modal claim until all but one possibility is eliminated, while conversely, it should be infelicitous to make a weak modal claim once there is only one possibility remaining.

(346) a. *Context: The Tom and Mittens storyboard. Tom is looking for the cat Mittens. Mittens has run into a room with three boxes, a red one, a yellow one and a blue one. He could be in any of three boxes. You're wondering if he's in the red one.*
He might / # must be in the red one.

b. *Context: The Tom and Mittens storyboard. Tom is looking for the cat Mittens. Mittens has run into a room with three boxes, a red one, a yellow one and a blue one. Tom has checked that the cat is not in the red box or the yellow box. There's only the blue box left, so the cat must be in that one.*
He # might / must be in the blue one.

In order to replicate the findings from the Tom and Mittens storyboard, I also constructed a Stolen Necklace storyboard, where a detective starts with three suspects for who stole a necklace, and eliminates two

suspects, one at a time, so that he is able to determine that the last suspect must be the thief (as shown in Figure 6.5). The three suspects are the gardener, the neighbour, and the nephew. The gardener turns out to have been out on a boat when the necklace was stolen, and the neighbour turns out to have been having tea with a friend, leaving only the nephew as a suspect.

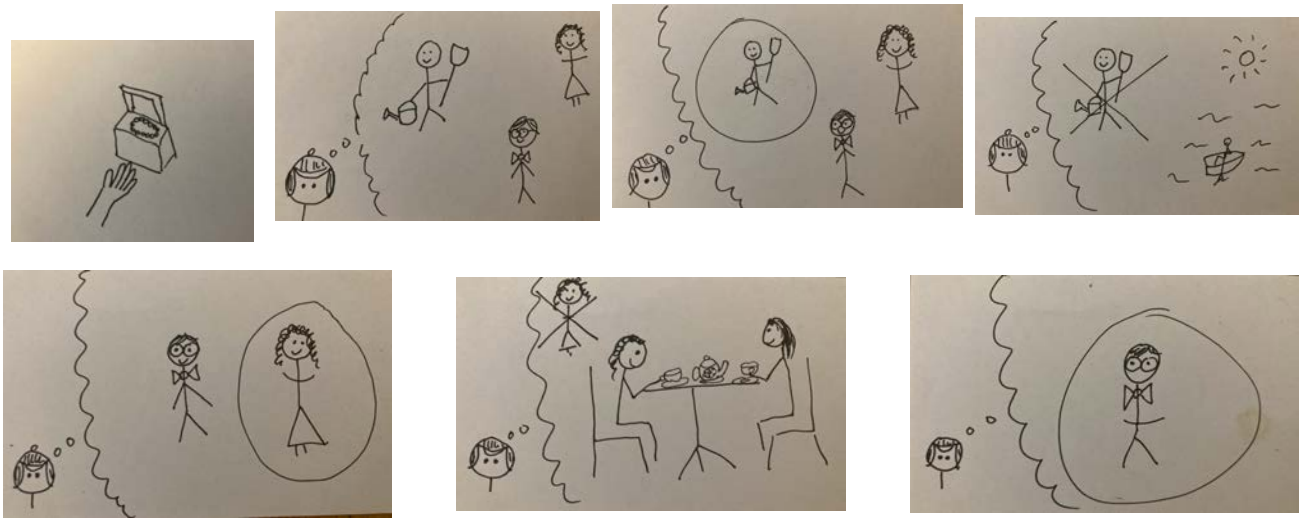


Figure 6.5: Exerpts from the Stolen Necklace storyboard

Finally, I also used a *Guess Who?*-type game context. Using a set of cards with a character on each card, one speaker and I played together. In the game, one player has a character hidden that the other player has to guess; the guessing player has access to pictures of the full set of possible characters. By asking yes-no questions, the player is able to gradually narrow down the possibilities until they are willing to guess which character the other player has hidden. As well as observing which forms the speaker used at different points in the game, I asked follow-up questions about whether I could use the inferential to express my reasoning at various points in the game. This follow up served to elicit minimal pairs and negative evidence.

(347) *There are two characters that have not been eliminated as possibilities in a 'Guess Who'-type game: Roger and Daniel.*

a. It might be Roger.

b. # It must be Roger.

(348) *There's just one character that has not been eliminated as a possibility in a 'Guess Who'-type game: Roger.*

a. It must be Roger.

b. # It might be Roger.

The tests so far were all designed to test the strength of the inferential. I used slightly different tests with the reportative to fit with its different evidential restriction. With the reportative, the tests need to probe whether the speaker believes that the prejacent is true in all possible worlds where the speaker receives the

reported evidence, or only in some of these worlds. I used two tests: 1) whether the speaker has to believe the report to be reliable in order to use the reportative, or whether the speaker can have doubts about its reliability, 2) whether in the case of conflicting reports, it is possible to conjoin RPT(p) and RPT($\neg p$).

The first test is illustrated in (349). Here, a strong modal claim is incompatible with the context, but a weak modal claim is perfectly fine. Expressing epistemic uncertainty in the second conjunct strengthens the contrast, since it is consistent with the context and compatible with a weak, but not a strong, modal claim.

(349) *Context: I've heard a rumour that Roger got a new girlfriend, but I'm not sure that it's reliable.*

a. (Based on a rumour) Roger might have gotten a girlfriend, but I don't know whether it's true.

b. (Based on a rumour) # Roger must have gotten a girlfriend, but I don't know whether it's true.

The second test is illustrated in (350). The speaker is able to make a weak modal claim in each conjunct, based on the conflicting reports, without leading to a contradiction. A strong modal claim creates a contradiction.

(350) *Context: I heard a weather forecast that said it will rain tonight and another weather forecast that said that it wouldn't rain.*

a. (Based on the reports) it might be going to rain and it might not be going to rain.

b. (Based on the reports) # it must be going to rain and it must not be going to rain.

For both tests, if the reportative is compatible with the contexts, this constitutes evidence that it contributes a weak claim, while if it is incompatible with these contexts, this constitutes evidence that it contributes a strong claim.

6.8.1.2 The inferential and reportative are strong modals

Based on these tests, I found that the inferential is only felicitous in contexts supporting a strong modal claim, typically where the speaker has eliminated all contextually-salient alternatives to the prejacent proposition. The adverb *qʷayɩn* /qʷayin/ 'maybe' is used instead where there are still salient alternatives to the prejacent that could be true. As seen in the modal challenges above in Section 6.6.4, /qʷayin/ 'maybe' is used to express epistemic uncertainty. In contrast to the inferential, it is dispreferred when all but one possibility is eliminated. Findings were parallel for both the Tom and Mittens storyboard and the Stolen Necklace storyboard, as illustrated by the data below.

(351) *Context: The Tom and Mittens storyboard* (*Rolka and Cable 2014*). *Tom is looking for the cat Mittens. Mittens has run into a room with three boxes, a red one, a yellow one and a blue one. Mittens could be in any of the three boxes.*

a. #nɛ **c̓ɛ**	nəpɛ́t	tə ʈaʈʲᶿɛm
ni?=**c̓a**	nəp-ít	tə=ʈaʈʲᶿim
be.there=INFER	get.in-STAT	DET=red

'It must be in the red one.' (sf | EP.2019/11/30)

b. **qʷayɪn** nɛʔ nəpɛ́t tə t̓at̓ᶿɛm
qʷayin niʔ nəp-ít tə=t̓at̓ᶿim
maybe be.there=INFER get.in-STAT DET=red
'Maybe it's in the red one.' (vf | EP.2019/11/30)

(352) *Context: The Tom and Mittens storyboard* (*Rolka and Cable 2014*)*. Tom has checked that the cat is not in the red box or the yellow box. There's only the blue box left, so the cat must be in that one.*

a. nɛ **c̓ɛ** nəpɛ́t tə kʷʊsɛm.
niʔ=**c̓a** nəp-ít tə=kʷəsim
be.there=INFER get.in-STAT DET=blue
'It must be the blue one.' (vf | EP.2019/11/30)

b. #**qʷayɪn** nɛʔ nəpɛ́t tə kʷʊsɛm.
qʷayin niʔ nəp-ít tə=kʷəsim
maybe be.there get.in-STAT DET=blue
'Maybe it's in the blue one.' (sf | EP.2019/11/30)

(353) *Context: A storyboard where a detective is investigating the theft of a necklace. He starts with three suspects, the gardener, the neighbour, and the nephew.*

a. #hɛ **c̓ɛ** šɛ *gardener* kʷ maʔt.
hiɬ=**c̓a** šə=*gardener* kʷ=məʔ-t
be=EPST DET=gardener DET=take-CTR
'It must be the gardener who took it.' (sf | EP.2019/12/01)
Consultant's comment: well you're really pinpointing then...

b. **qʷayɪn** hɛɬ šɛ *gardener* kʷ maʔt
qʷayin hiɬ šə=*gardener* kʷ=məʔ-t
maybe be DET=gardener-3POSS DET=take-CTR
'It might be the gardener who took it.' (sf | EP.2019/12/01)

(354) *Context: A storyboard where a detective is investigating the theft of a necklace. He starts with three suspects, the gardener, the neighbour, and the nephew. He rules out the gardener and the neighbour.*

a. hɛ **c̓ɛ** šɛ t̓ᶿeyʊxʷs kʷ maʔt.
hiɬ=**c̓a** šə=t̓ᶿiyəxʷ-s kʷ=məʔ-t
be=EPST DET=nephew-3POSS DET=take-CTR
'It must be his nephew who took it.' (vf | EP.2019/12/01)

b. #**qʷayɪn** hɛɬ šɛ ṫᶿeyʊxʷs kʷ maʔt.
qʷayin hiɬ šə=ṫᶿiyəxʷs kʷ=məʔ-t
maybe be DET=nephew-3POSS DET=take-CTR
'It must be his nephew who took it.' (sf | EP.2019/12/01)
Consultant's comment: You're still guessing then.

The results of playing the *Guess Who*-like game also show that *c̓ɛ* /c̓a/ is only felicitous in strong modal contexts, while *qʷayin* is preferred in weak modal contexts.

(355) *Context: There are two characters left who haven't been ruled out in a* Guess Who-*like game: Roger and Daniel.*

a. #hɛ **c̓ɛ** Roger
hi[ɬ]=**c̓a** Roger
be=INFER Roger
'It must be Roger. (sf | EP.2019/11/30)

b. **qʷayɪn** hɛɬ Roger
qʷayin hiɬ Roger
maybe be Roger
'It might be Roger. (sf | EP.2019/11/30)

(356) *Context: There's just one character left that hasn't been ruled out in a* Guess Who-*like game: Roger.*

a. hɛ **c̓ɛ** Roger
hi[ɬ]=**c̓a** Roger
be=INFER Roger
'It must be Roger. (vf | EP.2019/11/30)

b. #**qʷayɪn** hɛɬ Roger
qʷayin hiɬ Roger
maybe be Roger
'It might be Roger. (sf | EP.2019/11/30)

The results for the reportative are not as clean. Unlike the inferential, the reportative can be used in some weak modal contexts. The reportative can be used when the speaker is uncertain about the reliability of the report, for instance, as in (357).

(357) a. *Context: I heard a rumour that Daniel got a girlfriend, but I'm not sure if I believe it.*

k̓ʷa kʷa	watla?it	Daniel.	xʷač	toχʷnɛxʷən	kʷʊnəs
k̓ʷa=kʷa	watla-?əyt	Daniel.	xʷa?=č	təx̌ʷn<i>xʷ=an	kʷən=as
RPT=CLD	sweetheart-PRF	Daniel.	NEG=1SG.SBJ	know-NCTR<STAT>=1SG.SBJV	COMP=3SBJV

gənʊxʷ.
gənəxʷ
true

'(I heard) Daniel got a girlfriend. I'm not sure whether that's true.' (sf | EP.2020/06/02)

b. *Context: The weather report says it will rain tomorrow, but it's notoriously unreliable.*

čɩɬ **k̓ʷa** səm	kʷisəm.	xʷač	toχʷnɛxʷən	kʷʊnas	gənaxʷ.
čəɬ=**k̓ʷa**=səm	kʷisəm	xʷa?=č	təx̌ʷ-n<i>xʷ=an	kʷən=as	gənaxʷ
rain=RPT=FUT	tomorrow	NEG=1SG.SBJ	know-NCTR<STAT>=1SG.SBJV	COMP=3SBJV	true

'It's said it will rain tomorrow. I don't know whether it's true.' (sf | BW.2020/06/05)

On the other hand, *k̓ʷa* cannot rescue the coordination of two contradictory propositions based on contradictory reports. Both examples in (358) were judged infelicitous.

(358) a. *Context: I heard a weather forecast that said it will rain tonight and another weather forecast that said that it wouldn't rain.*

#čɩɬ **k̓ʷa** səm	?i	xʷa? **k̓ʷa**	səm čɩɬəs.
čəɬ=**k̓ʷa**=səm	?iy	xʷa?=**k̓ʷa**=səm	čəɬ=as
rain=RPT=FUT	CONJ	NEG=RPT=FUT	rain=3SBJV

'(Based on the reports) it must be going to rain and it must not be going to rain.'

(sf | BW.2020/05/27)

b. *Context: I've heard conflicting reports that Freddie is still away in New Westminster and that he's back home.*

#?amot **k̓ʷa**	Freddie	?i	xʷa? **k̓ʷa**	?amotəs.
?amut=**k̓ʷa**	Freddie	?iy	xʷa?=**k̓ʷa**	?amut=as
be.home=RPT	Freddie	CONJ	NEG=RPT	be.home=3SBJV

'(Based on report) Freddie must be home and Freddie must not be home. (sf | BW.2020/05/27)

It seems likely that perspective shift plays a role in these conflicting results. As discussed previously (Section 6.6.1), reportatives cross-linguistically seem to make a second perspective accessible besides the speaker's – that of the reporter. For (357), this would mean that the claim is made from the perspective of the reporter, rather than the speaker. There are limits on when perspective shift can take place, however, since the addressee needs to be able to recover when the shift has occurred. In (358), there are no cues to perspective shift between the two conjuncts, yet each would have to involve the perspective of a different reporter (one perhaps coinciding with that of the speaker). In contrast, the utterances in (357) involve evaluative language (i.e., *xʷač toχʷnɛxʷən kʷʊnəs*... /xʷa?č təχʷnixʷan kʷənas.../ 'I don't know whether...') making the shift to the speaker's perspective clear. The fact that the examples in (358), where there are no cues to support perspective shift, are interpreted as contradictions supports the analysis of *k̓ʷa* as a strong modal.

I conclude that both the inferential *c̓ɛ* /c̓a/ and the reportative *k̓ʷa* are strong modals, rather than weak or variable strength modals. Both of the latter should be possible in contexts supporting weak modal claims (while variable strength modals would also be felicitous in contexts supporting strong modal claims). The inferential and reportative are only felicitous in contexts that would allow the speaker to make a strong modal claim, and infelicitous in contexts that support only a weak modal claim (although perspective shift allows the reportative to occur in a subset of these contexts).

6.8.2 Testing modal flavour

In languages like English and German, it is common for modals used in inferential contexts to also be used to express circumstantial modality. English *must*, for instance, is used to mark inference but can also be used as a deontic modal: *You **must** do your homework first.* Under Kratzer's model, this is because the modal base and ordering source are provided by the context, allowing the same modal to occur with different modal bases and ordering sources.

Kratzer's model also allows for lexical specification of modal base and ordering source, however, where modals have fixed flavour. In analyzing St'át'imcets evidentials as epistemic modals, Matthewson et al. (2007) and Rullmann et al. (2008) argue that they do not have variable flavour. They argue that the St'át'imcets evidentials are lexically specified as epistemic and also carry a lexically specified evidential presupposition. In this section, I examine whether the ʔayʔaǰuθəm inferential and reportative ever have variable flavour. I conclude that they have fixed modal flavour, just like the modal evidentials in St'át'imcets (Matthewson et al. 2007). The ʔayʔaǰuθəm inferential and reportative are therefore best analyzed as carrying lexical specifications for an epistemic modal base and an evidential presupposition.

In order to test whether *c̓ɛ* /c̓a/ and *k̓ʷa* have fixed modal flavour, it is necessary to construct a context that unambiguously provides a circumstantial modal base (i.e., a context that cannot be interpreted as providing an epistemic modal base). This is possible in cases where the modal claim is about whether some event or state is possible, but the context rules out an inference about whether the event or state actually occurs. For instance, in (359), the speaker knows that her brother has lifted the chair, so she can't infer this, though she can talk about his ability to lift it.

(359) *Context: I'm moving and my brother and friends are helping me. I have a heavy chair, but my brother has moved it for me before, so I tell my friends to leave it.*
My brother can lift it.

Similarly, in (360), the speaker knows that blackberries don't grow in her backyard, so it doesn't make sense for her to infer that they do. She can, however, consider the possibility of whether blackberries could grow there (this is based on Kratzer's 1991 hydrangea examples).

(360) *Context: I've moved into a new house and the soil in the back is quite rocky and not very good for growing things. Right now there is nothing growing there. I think that if I remove the concrete slabs the previous owners put in place, probably blackberries could grow there, but I'm not going to move the concrete slabs and plant any, because if blackberries start growing they will take over.*
Blackberries might grow there, but I'm not going to try to grow them.

In order to isolate modal flavour from modal strength, it is important to keep the latter constant. The modals *c̓ɛ* /c̓a/ and *k̓ʷa* both test as strong on their epistemic interpretation, so the relevant contexts for testing whether they can act as circumstantials should also include contexts supporting strong (necessity) readings. In (361), the speaker makes a necessity claim based on her brother's abilities and intentions, for instance.

(361) *Context: I'm moving and my brother and friends are helping me. I have a heavy chair, but my brother has moved it for me before, and I know he'll move it for me again, so I tell my friends to leave it.*
My brother will lift it.

Neither *c̓ɛ* /c̓a/ nor *k̓ʷa* are compatible with a circumstantial interpretation. In (362), the speaker must be inferring that her brother moved the chair, not that he can move it. Here, *c̓ɛ* /c̓a/ is infelicitous

(362) *Context: I'm moving and my brother and friends are helping me. I have a heavy chair, but my brother has moved it for me before, so I tell my friend to leave it.*

#hɛ **c̓ɛ**	tᶿ qɛχ	kʷ tayqaʔəmθ
hiɬ=**c̓a**	tᶿ=qiǐ	kʷ=tayqa-ʔəm-θ
be=INFER	1SG.POSS=younger.sibling	DET=move-IND-CTR;1SG.OBJ

Intended interpretation: 'My brother can lift it.'
Actual interpretation: 'My brother must have lifted it.' (sf | BW.2020/06/05)

Similarly, in (363), the speaker must infer that blackberries have grown in her backyard, and cannot be making a claim about their ability to grow.

(363) *Context: As in (360).*

#**c̓ɛ**	pah	kʷ čɪtʊxʷən	taʔa	ʔi	xʷatᶿəmt	čɛsxʷan
c̓a	pəh	kʷ=čətəxʷən	taʔa	ʔiy	xʷaʔ=tᶿəm+ʔut	ča-sxʷ=an
INFER	grow	DET=blackberry	DEM	CONJ	NEG=1SG.SBJ=EXCL	QUEX-CAUS-1SG.SBJV

Intended interpretation: 'Blackberries might grow there, but I'm not going to do anything with it [that area of the yard].'
Actual interpretation: 'Blackberries must have grown there, but I'm not going to do anything with it.' (sf | BW.2020/0605)

The results do not change when *c̓ɛ* /c̓a/ occurs in a context that supports a strong circumstantial claim, as in (364): *c̓ɛ* /c̓a/ is infelicitous.

(364) *Context: I'm moving and a few of my friends are helping. My brother is also coming a little later to help. I have one chair that is quite heavy but my brother has moved it for me before and I know he will move it for me again. I tell my friends:*

#hɛ **c̓ɛ**	tᶿ qɛχ	tayqaʔəmθ	ʔə tətᶿ θukʷnačtən.
hiɬ=**c̓a**	tᶿ=qiǐ	tayqa-ʔəm=θ	ʔə=tə=tᶿ=θəkʷnačtən
be=INFER	1SG.POSS=younger.sibling	move-IND-CTR;1SG.OBJ	OBL=DET=1SG.POSS=chair

'My brother will lift my chair.' (sf | EP.2022/11/25)

The reportative behaves in parallel. In (365), the speaker must have a report that her brother moved the chair, and cannot be making a claim that he can move it, even if this claim is based on a report.

(365) *Context: I'm moving and my brother and friends are helping me. I have a heavy chair, but my brother has moved it for me before and told me he could move it for me, so I tell my friend to leave it.*

#hɛ **ƙʷa** tᶿ qɛχ kʷ tayqaʔəmθ
hiɬ=**ƙʷa** tᶿ=qiǐ kʷ=tayqa-ʔəm-θ
bɛ=INFER 1SG.POSS=younger.sibling DET=move-IND-CTR;1SG.OBJ
Intended interpretation: 'My brother can lift it (he said).'
Actual interpretation: 'My brother lifted it (he or someone else said).' (sf | BW.2020/0605)

Similarly, the speaker of (366) must have a report that blackberries have grown in the backyard, and cannot be a claim about whether they can.

(366) *Context: I've moved into a new house and the soil in the back is quite rocky and not very good for growing things. Right now there is nothing growing there. My friend tells me that if I remove the concrete slabs the previous owners put in place, blackberries could grow there, but I'm not going to move the concrete slabs and plant any, because if blackberries start growing they will take over.*

#pah **ƙʷa** kʷ čɩtʊxʷən taʔa ʔi xʷatᶿəmt čɛsxʷan
pəh=**ƙʷa** kʷ=čətəxʷən taʔa ʔiy xʷaʔ=tᶿəm+ʔut ča-sxʷ=an
grow=RPT DET=blackberry DEM CONJ NEG=1SG.SBJ=EXCL QUEX-CAUS-1SG.SBJV
Intended interpretation: 'Blackberries could grow there (someone said), but I'm not going to do anything with it.'
Actual interpretation: 'Blackberries have grown there (someone said), but I'm not going to do anything with it.' (sf | BW.2020/0605)

The reportative is infelicitous where the context supports a strong circumstantial modal claim as well.[16]

[16] Example (367) becomes good if the future modal clitic co-occurs with the reportative, but then the speaker is making an epistemic modal claim based on a report about the circumstantial modal claim (involving the future clitic) heard from the reporter:

(i) *Context: I'm moving and a few of my friends are helping. My brother is also coming a little later to help. I have one chair that is quite heavy but my brother has moved it for me before and he told me he would move it for me again. I tell my friends:*

hɛ **ƙʷa səm** tᶿ qɛχ tayqaʔəmθ ʔə tətᶿ θukʷnačtən.
hiɬ=**ƙʷa=səm** tᶿ=qiǐ tayqa-ʔəm-θ ʔə=tə=tᶿ=θəkʷnačtən
bɛ=RPT=FUT 1SG.POSS=younger.sibling move-IND-CTR;1SG.OBJ OBL=DET=1SG.POSS=chair
'My brother will lift my chair.' (sf | EP.2022/11/25)

(367) *Context: I'm moving and a few of my friends are helping. My brother is also coming a little later to help. I have one chair that is quite heavy but my brother has moved it for me before, and he told me he would move it for me again. I tell my friends:*

#hɛ **k̓ʷa**	tᶿ qɛχ	tayqaʔəmθ	ʔə tətᶿ θukʷnačtən.
hiɬ=**k̓ʷa**	tᶿ=qiš̆	tayqa-ʔəm-θ	ʔə=tə=tᶿ=θəkʷnačtən
be=RPT	1SG.POSS=younger.sibling	move-IND-CTR;1SG.OBJ	OBL=DET=1SG.POSS=chair

'My brother will lift my chair.' (sf | EP.2022/11/25)

For both *c̓ɛ* /c̓a/ and *k̓ʷa*, the modal claim must involve a claim about what the world is like based on available evidence. Neither can be a claim about what is possibly or necessarily the case given the circumstances of the world. I therefore conclude that both *c̓ɛ* /c̓a/ and *k̓ʷa* have fixed epistemic modal flavour.

6.9 Temporal perspective and orientation

At this point, I have argued that the inferential *c̓ɛ* /c̓a/ and reportative *k̓ʷa* are epistemic modals that contribute a strong modal claim. Besides modal flavour and modal strength, there is a third relevant dimension of analysis for modals: modal-temporal interactions. As discussed in Section 5.2, modals come with a temporal perspective giving the time at which the modal claim is evaluated and a temporal orientation relating the time of the prejacent eventuality to the temporal perspective (Condoravdi 2002 et seq.). Examining English modal auxiliaries, Condoravdi (2002) proposes that modals receive present temporal perspective through present tense scoping over the modal and past temporal perspective through the perfect taking scope over the modal. This allows circumstantial modals to take past and present temporal perspective, but she stipulates that past temporal perspective is not possible for epistemic modals. (Future temporal perspective is disallowed for all types of modals since one cannot utter a modal claim for which the modal base does not yet exist.) Temporal orientation is determined by a combination of the contribution of the modal and the aspectual properties of the prejacent eventuality.

Rullmann and Matthewson (2018) propose several amendments to this system based on an examination of modal-temporal interactions in English, Dutch, Gitksan, and St'át'imcets. They argue for a uniform compositional analysis of temporal perspective and orientation, where both circumstantial and epistemic modals scope under tense (both past and present) and where temporal orientation is always given by aspectual operators in the scope of the modal.[17] They show convincingly that epistemic modals in these languages take past temporal perspective when given a past reference time by tense.

I argue here that the inferential and reportative in ʔayʔaǰuθəm only take present temporal perspective, but can take past, present, and future temporal orientation depending on the temporal properties of the prejacent proposition they combine with. Temporal operators such as the future clitic and past tense suffix, as well as lower aspectual operators, contribute to temporal orientation. Due to this finding as well as the position of the inferential and reportative in the hierarchy of functional projections that underlies the clitic string, I argue that the inferential and reportative compose above tense.

In what follows, I first illustrate past perspective for epistemic modals using St'át'imcets and Gitksan examples (Section 6.9.1). I then show how the same types of tests which show that St'át'imcets and Gitksan

[17] In Rullmann and Matthewson's system, a modal may be restricted to combining specifically with prospective aspect in order to have future temporal orientation satisfying the Diversity Condition.

modals can take past temporal perspective show that the ʔayʔaǰuθəm evidential and reportative take only present temporal perspective (Section 6.9.2).

6.9.1 Epistemic modals with past perspective

Matthewson (2013) and Chen et al. (2017) show that epistemic modals in both Gitksan and St'át'imcets can take past temporal perspective when scoping under a tense that provides a past reference time. Both Gitksan and St'át'imcets have a null non-future tense (Matthewson 2006, 2013). This means that sentences without tense marking can be interpreted as present or past.[18] When the context provides a present reference time, the inferentials *imaa* in Gitksan and *k'a* in St'át'imcets are interpreted with present temporal perspective (368).

(368) a. Limx=**imaa**=t Bob.
sing=EPIS=DM Bob
'Bob might be singing.' [Gitksan] (Matthewson 2013: 359)

b. *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 know that John is the person in your household who really loves ts'wan and usually eats lots whenever he gets a chance.*
ts'aqw-an'-ás=**k'a** i=ts'wán-a kw=s-John.
eat-DIR-3ERG=INFER DET.PL=wind-dried.salmon-EXIS DET=NMLZ=John
'John must have eaten the *ts'wan*.' [St'át'imcets] (Matthewson et al. 2007: 207)

When the context provides a past reference time, the inferentials *imaa* in Gitksan and *k'a* in St'át'imcets are interpreted with past temporal persective (369).

(369) a. *Context: When you looked out your window earlier today, water was falling, so it looked like it was raining. But you found out later it was the gutters leaking.*
Yugw=**imaa**=hl wis da'awhl.
IPFV=EPIS=CN rain then
'It might have been raining earlier.' [Gitksan] (Matthewson 2013: 363)

b. *Context: The Canucks were playing last night. You weren't watching the game, but you heard your son sounding excited from the other room, where he was watching. You thought the Canucks were winning, and you called up your friend and said: 'Good sports news!' But after the game, you found out that the Canucks had actually lost, and your son was excited about something his friend was telling him on his cellphone. Today, your friend asks you why you had told him there was good sports news when the Canucks had actually lost. You say:*
Wá7=**k'a** t'cum i=Canucks=a.
IPFV=INFER win DET.PL=Canucks=EXIS
'The Canucks might have been winning.' [St'át'imcets] (Chen et al. 2017: 250)

[18] Matthewson (2006: 676) discusses aspectual restrictions on how tense is interpreted in St'át'imcets: for predicates entailing culmination, the event must be complete prior to the utterance time (unless culminating *at* the very moment of utterance), giving rise to a past interpretation, while for predicates that do not entail culmination, the event may present or past.

Examples such as (369) unambiguously involve a past temporal perspective because the modal claim is compatible with the speaker's knowledge at the past reference time, but not at the utterance time.

6.9.2 Temporal perspective for the ʔayʔaǰuθəm inferential and reportative

ʔayʔaǰuθəm has a null non-future tense, like St'át'imcets and Gitksan (see Section 1.11). If the ʔayʔaǰuθəm inferential and reportative could take scope below tense, with tense providing the temporal perspective, we would expect the inferential and reportative to be compatible with both past and present temporal perspective. This is not the case. In this section, I show that both the inferential and reportative take only present temporal perspective.

I begin by examining the inferential *c̓ɛ* /c̓a/. Speakers reject use of *c̓ɛ* /c̓a/ in contexts where the speaker can only make the modal claim from a past reference time. For instance, in (370), the context specifies that the speaker had evidence of rain earlier in the day, but by the time of speaking knows that the evidence was misleading. Speakers reject the sentence with the inferential in this context (370a) and instead use a sentence with the embedding predicate *nɛʔɛt* /niʔit/ 'to think' (370b).

(370) a. *Context: I thought I heard rain on the roof when I was getting ready to go to work this morning, so I brought an umbrella, but then it wasn't raining. When I got to work, Gloria asked me* 'čɩṁ θ qʷolsxʷ θ ṯʰaytən?' *'Why did you bring your umbrella?'*[19]

#c̓ɩc̓łoł **c̓ɛ** skʷiǰoł.
c̓ə∼c̓ł-uł=**c̓a** skʷiǰuł
PROG∼rain-PST morning
'It must have been raining this morning.' (sf | EP.2019/12/01)

b. **nɛʔɛtč** ga c̓ɩc̓łəs skʷiǰoł.
niʔ-it=č ga c̓ə∼c̓łas skʷiǰuł
think-CTR=1SG.SBJ COMP PROG∼rain=3SBJV morning
'I thought it was raining this morning.' (vf | EP.2019/12/01)

(371) is similar. In this case, the speaker had evidence that pointed towards the car being broken down, but then realizes the evidence was misleading. After this realization, the speaker can no longer use *c̓ɛ* /c̓a/, but again must use the embedding predicate *nɛʔɛt* /niʔit/ 'to think'.

(371) *Context: I see my friend's old car at the side of the road, and it breaks down quite often, so I think her car is broken down again. I slow down, but then I see that she is just picking blackberries by the side of the highway. My passenger asks me:* 'čɩṁ θ hahaysθot'? *'Why did you slow down?'*

a. #łaχłaχaw **c̓ɛ**.
łaǰłaǰaw=**c̓a**
broken.down=INFER
Intended interpretation: 'It had to have been broken down.'
Actual interpretation: 'It must have been broken down.' (sf | EP.2019/12/01)

[19]This example was inspired by a storyboard created by Vander Klok (2013), though adapted for a strong modal.

b. nɛʔɛtč ga łaχłaχawəs.
ni?-it=č ga łaxłaxaw=as
think-CTR=1SG.SBJ COMP broken.down=3SBJV
'I thought it might have broken down.' (vf | EP.2019/12/01)

Finally, (372) also cannot be interpreted with past temporal perspective. It was rejected as a claim about the past and instead interpreted as a claim about the present.

(372) *Context: A necklace was stolen and a detective is working on the case. There were three suspects, one of whom was a salesman. The detective arrested the salesman after ruling out all other suspects. Later, however, it came to light that the necklace was never stolen, but the owner hid it to get the insurance money and set the whole thing up. The detective says this after all this has happened.*

#hɛɬoɬ **c̓ɛ** kʷ *salesman* kʷ maʔt.
hiɬ-uɬ=**c̓a** kʷ=*salesman* kʷ=məʔ-t
COP-PST=INFER DET=salesman DET=get-CTR
Intended interpretation: 'It had to have been the salesman who took it.'
Actual interpretation: 'It must have been the salesman that took it.' (sf | EP.2019/12/01)
Consultant's comment: *hɛɬoɬ c̓ɛ* /hiɬuɬ c̓a/ is when you're pretty sure he's the one that took it, the now, right now, you're accusing him.

With the reportative *k̓ʷa*, the findings are somewhat different. Speakers accept use of the reportative in cases where the speaker originally believed the reported evidence but now knows the report to be inaccurate. In both (373) and (374), the speaker earlier had reported evidence for the prejacent, but by the time of speaking has additional information that means that they cannot felicitously utter a modal claim based on the report from a present temporal perspective. Nevertheless, the reportative is accepted in these contexts and no embedding predicate is required, in contrast to the examples with the inferential above.

(373) *Context: I was talking to Koosen this morning. I understood from her that Freddie was at the elders' gathering this morning. This afternoon, I talked to Freddie and found out that he didn't go. Later, I tell you about it:*

nɛʔoɬ **k̓ʷa** Freddie ʔəkʷ q̓aṯʰaws kʷ λ̓aλ̓aχay ʔi tawθiyəmoɬ
niʔ-uɬ=**k̓ʷa** Freddie ʔə=kʷ=q̓aṯʰ-aw-s kʷ=λ̓aλ̓aχay ʔiy taw-θiy-əm-uɬ
be.there-PST=RPT Freddie OBL=DET=gather-PL-3POSS DET=elders CONJ tell-CTR;1SG.OBJ-PASS-PST
Freddie tiṅ kʷʊtayɪtən xʷaʔs hahasoɬ.
Freddie tiṅ kʷətayitən xʷaʔ=s ha-h=as-uɬ
Freddie DEM afternoon NEG=3POSS go-EPEN=3SBJV-PST
'I heard Freddie went to the elders' gathering, but Freddie told me this afternoon that he didn't go.'
(sf | EP.2020/09/18)

(374) *Context: Yesterday I heard that Freddie got a new dog. Today I talk to Freddie and find out that he's babysitting someone else's dog. He still doesn't have one of his own.*

k̓ʷa kʷa	maʔamʔit	Freddie	kʷ c̓aṅo.	qʷɛqʷaysxʷołč	Freddie	skʷiǰoł.
k̓ʷa=kʷa	ma-ʔəm-ʔəyt	Freddie	kʷ=c̓aṅu.	qʷi∼qʷay-sxʷ-uł=č	Freddie	skʷiǰuł.
RPT=CLD	get-ACT.INTR-PRF	Freddie	DET=dog	PROG∼speak-CAUS-PST=1SG.SBJ	Freddie	morning

xʷa k̓ʷa	naʔsas.	nəngałoł k̓ʷa.
xʷa=k̓ʷa	naʔ-s-as.	nəngał-uł=k̓ʷa
NEG=RPT	own-3POSS-3SBJV	babysit-PST=RPT

'(I heard) Freddie got a dog. I talked to Freddie this morning. He said it wasn't his. He said he was babysitting it.' (sf | EP.2020/09/18)

Earlier, in Section 6.6.2, we saw that reportatives generally facilitate perspective shift. The question therefore naturally arises whether the felicity of (373) and (374) is due to the ability of the reportative to take past temporal perspective or is due to the speaker taking the perspective of the reporter for the initial target sentence, and then shifting perspective for the subsequent sentence. One way of testing this is to reduce the possibility of perspective shift through having fewer cues that multiple perspectives are involved. Earlier examples such as (305), repeated as (375), indicate that where perspective shift is made more difficult by directly opposing the false claim based on a report with the true claim that corrects it, the presence of the reportative cannot save the felicity of the utterance. This would be suprising if the reportative could take past temporal perspective, since the claim with the reportative could be made from a point in time before the rumour was corrected.

(375) *Context: There was a rumour that Freddie won the lottery, but I talked to him and found out the rumour is not true. Later we're talking about this and I say:*

#λ̓ʊxʷʔəm **k̓ʷa**	Freddie	qəχ	tala.	xʷa	λ̓ʊxʷʔəməs.
λ̓əxʷ-ʔəm=**k̓ʷa**	Freddie	qəx̌	tala.	xʷaʔ	λ̓əxʷ-ʔəm=as
win-ACT.INTR	Freddie	lots	money	NEG	win-ACT.INTR=3SBJV

'Freddie won a lot of money (I heard). He didn't win it. (sf | EP.2019/12/04)

The same is true of examples similar to (373)–(374) above, but with fewer cues to perspective shift. In contexts where it is difficult to recover the shift in perspective, the use of the reportative for a claim that the speaker no longer believes to be true is infelicitous. (376), for instance, contrasts with (373) in removing the information *tawθiyəmoł Freddie tiṅ kʷʊtayɪtən* 'I talked to Freddie this afternoon'. Without this phrase, which indicates that the speaker has information beyond what was available for the claim with the reportative, signalling a shift in perspective, the utterance is dispreferred.

(376) *Context: As in (373).*

??nɛ?oɬ **k̓ʷa**	Freddie	?əkʷ qamɛ́t	kʷ ƛ̓aƛ̓aχay	skʷiǰoɬ	?iy
ni?-uɬ=**k̓ʷa**	Freddie	?ə=kʷ=qam-í-t	kʷ ƛ̓aƛ̓ax̌ay	skʷiǰoɬ	?iy
be.there-PST=RPT	Freddie	OBL=DET=accompany-STAT-CTR	DET=elders	morning	CONJ

xʷa?ak̓ʷa nɛ?asoɬ.
xʷa=ala=k̓ʷa ni?=as-uɬ.
NEG=EXCLAM=RPT be.there=SBJV-PST

'I heard Freddie was at the elders' gathering but he said he wasn't there.' (sf | EP.2020/09/18)

If the reportative took past as well as present temporal perspective, examples like (375)–(376) would be expected to be felicitous. The fact that they are not indicates that the felicitous cases in (373–374) involve a shift to the perspective of another attitude holder, not a past temporal perspective. I therefore do not propose a difference between the inferential and reportative in terms of the availability of past temporal perspective. Intead, I analyze both as taking only present temporal perspective.

6.9.3 Temporal orientation for the ?ay?aǰuθm inferential and reportative

Rullmann and Matthewson (2018) show that in languages where modals scope under tense, tense determines the temporal perspective of the modal, while temporal orientation is determined by aspect. However, Chen et al. (2017) report that the epistemic modal adverbs *?i?wawə* in SENĆOŦEN and *wəẇa?* in Hul'q'umi'num', both Central Salish languages, always take present temporal perspective. They propose that these epistemic adverbs scope *over* tense, preventing tense from providing the temporal perspective for the modal, but allowing it to contribute to its temporal orientation. In ?ay?aǰuθəm, tense also seems to contribute to the temporal orientation of the inferential and reportative, along with aspect.

Both the ?ay?aǰuθəm inferential and reportative can be oriented to past, present, or future, depending on the tense and aspect of the prejacent. The examples in (377) and (378) are cases where these modals take past temporal orientation. Past orientation can arise with unmarked predicates, as in (377a) and (378a) (second sentence); these cases involve a past reference time provided by the null nonfuture tense in ?ay?aǰuθəm. Past temporal orientation is frequently reinforced by overt temporal markers. The clausal demonstratives *kʷi* and *kʷa*, as shown in (377b) and (378b–c), have a perfect-like contribution and place perfective events before the utterance time, contributing to past orientation; see Chapter 7 for analysis of these elements. Use of the optional past tense suffix, as in (377c), (378a) and (378c) likewise results in past orientation.

(377) a. *Context: I had made some cookies this morning. This afternoon my brothers come to visit. Not only do they eat the fresh cookies I made, but they eat the package of cookies we kept in the cupboard as a back-up as well. When Felipe comes home, I tell him:*

hɛhɛw **c̓ɛ** q̓aq̓amɛw.
hihiw=**c̓a** q̓aq̓a-m-iw
really=INFER hungry-MD-3PL

'They must have been really hungry.' (vf | BW.2020/10/20)

b. *Context: I head over to pick my friend up and go to a meeting. When I get to her house, she's already left.*

qʷolčɛn ƛ̓əƛ̓ʔost ʔi **č̓ɛ kʷi**t θo ʔɛmaš.
qʷəl̓=čən ƛ̓ə∼ƛ̓ʔus-t ʔiy **č̓a=kʷi**+ʔut=θu ʔimaš
come=1SG.SBJ PROG∼give.ride-CTR CONJ INFER=CLD+EXCL=go walk
'I came to pick her up but she must have already walked.' (vf | EP.2020/06/23)

c. *Context: I go over to Betty's house for dinner and as I'm approaching her front door, I see fresh shavings of cedar roots scattered on the grass. I say to Gloria who's with me:*

ʔɛʔɛχaǰɛʔ**oł č̓ɛ** Betty. niš kʷikʷʔɛ́t tə k̓ʷimɛns.
ʔi∼ʔiχaǰa-**uł=č̓a** Betty niš kʷi<kʷ>ʔ-ít tə=k̓ʷimin-s
PROG∼clean.roots-PST=INFER Betty be.here laid.out<PL>-STAT DET=waste-3POSS
'Betty must have been cleaning roots. The waste bits are scattered about.' (sf | EP.2020/10/02)

(378) a. *Context: From a version of the story of Mink and Frog.*

χʷoχmot**oł k̓ʷa** ʔəł pɛpayɛʔəs. hɛhɛw **k̓ʷa** sawsuqos.
x̌ʷux̌ʷ-mut-**uł=k̓ʷa** ʔəł=pipaya-ʔ=as hihiw=**k̓ʷa** sawsuqos
long.time-INT-PST=PRT COMP=one.person-EPEN=3SBJV really=RPT lonely
'He was alone for a long time. He was really lonely.' (vf | EP.2020/11/06)

b. *Context: Daniel told me that Freddie got a boat. I'm excited, so when I see you, I tell you:*

k̓ʷa kʷa yəqʔəmʔit Freddie kʷ nuxʷɛł nɛʔɛtəm Daniel.
k̓ʷa=kʷa yəq-ʔəm-ʔəyt Freddie kʷ=nəxʷiɬ niʔ-it-əm Daniel
RPT=CLD buy-ACT.INTR-PRF Freddie DET=canoe say-CTR-PASS Daniel
'Daniel told me Freddie got a boat.' (vf | EP.2020/10/02)

c. *Context: We're expecting some people from Squirrel Cove and someone tells me they've gotten in. Then I say:*

k̓ʷa kʷi qʷol təs tawa kʷ toq.
k̓ʷa=kʷi qʷəl̓ təs tawa kʷ=tuʔq
RPT=CLD come arrive from DET=Squirrel.Cove
'The people have arrived.' (vf | EP.2019/12/04)

d. *Context: I heard from Freddie's daughter that Freddie didn't go to the elders' gathering this year. I'm letting you know he didn't go.*

xʷaʔ **k̓ʷa** θahas**oł** Freddie kʷ q̓at̓θaws kʷ ƛ̓aχƛ̓aχay.
xʷaʔ=**k̓ʷa** θa-h=as-**uł** Freddie kʷ=q̓at̓θ-aw-s kʷ=ƛ̓ax̌∼ƛ̓ax̌ay
NEG=RPT go-EPEN=SBJV-PST Freddie DET=gather-PL-3POSS DET=PL∼elder
'Freddie didn't go to the elders' gathering.' (vf | BW.2020/05/27)

Present orientation is common with stative and progressive predicates, which are interpreted as ongoing at utterance time by default, although they can also receive past interpretations (see (377) above and Section 1.11). Present orientation with stative predicates is illustrated in (379a–379b) for the inferential and (380a–

380b) for the reportative. It is illustrated with a progressive predicate in (379c) for the inferential and (380c) for the reportative.

(379) a. *Context: We go past Freddie's home and I say that he must be home because his lights are on.*

ʔamot **c̓ɛ** Freddie. χʷaʔwít tə nɩkʷayus.
ʔamut=**c̓a** Freddie. x̌ʷaẇ-ít tə=nikʷayu-s
be.home=INFER Freddie get.lit-STAT DET=light-3POSS
'Freddie must be home. His lights are on.' (vf | EP.2020/12/11)

b. *Context: You hear the cat meowing from under the car.*

nɛʔ **c̓ɛ** λ̓ɛpəms tə car.
niʔ=**c̓a** λ̓ip-əm-s tə=car
be.there=INFER below-MD-3POSS DET=car
'It must be under the car.' (vf | EP.2019/08/26)

c. *Context: I hear raindrops on the roof.*

c̓ɩc̓ɬ **c̓ɛ**
c̓ə∼c̓ɬ=**c̓a**
PROG∼rain=INFER
'It must be raining.' (sf | PD.2018/11/08)

(380) a. *Context: Someone told you there was a strange woman on the beach. Then you say:*

nɛʔ **k̓ʷa** kʷa:náč kʷ šaɬtxʷ ʔəkʷ q̓ʷɛt.
niʔ=**k̓ʷa** kʷanáč kʷ=saɬtxʷ ʔə=kʷ=q̓ʷit
be.there=RPT sit STAT DET=woman OBL=DET=beach
'There is a woman sitting on the beach (someone said).' (sf | EP.2020/07/21)

b. χaλ̓-s **k̓ʷa** Daniel hos ʔɛmaš
x̌aλ̓s=**k̓ʷa** Daniel hu=s ʔimaš
want-3POSS=RPT Daniel go=3POSS walk
'Daniel (said he) wants to go for a walk.' (vf | PD.2018/10/25)

c. *Context:* (*In Tla'amin*)*, I hear it's been snowing in Vancouver since this morning.*

ʔaʔaxʷ **k̓ʷa** [ʔə]kʷ Vancouver.
ʔa∼ʔaxʷ=**k̓ʷa** [ʔə=]kʷ=Vancouver
PROG∼SNOW=RPT [OBL=]DET=Vancouver
'It is snowing in Vancouver (it's said).' (sf | EP.2022/07/01)

Future orientation arises when *c̓ɛ* or *k̓ʷa* co-occur with the future clitic *səm*. Future orientation is shown for the inferential in (381) and for the reportative in (382).

(381) a. *Context: You feel a change in the weather and see storm clouds gathering.*

ḉɩɬ **ḉɛ səm**. ti qʷol nɛʔayɩtanəm.
ḉəɬ=**ḉa**=**səm**. ti qʷəḷ niʔayitan-əm
rain=INFER=FUT CLD come cloudy-MD
'It must be going to rain. It's clouding over.' (sf | EP.2020/10/02)

b. *Context: You predict a baby is going to grow big because he is already big. You're telling his mother your prediction.*

hɛhɛw **ḉɛ səm** tihmot tə qaymɩxʷ
hihiw=**ḉa**=**səm** tih-mut tə=qaymixʷ
really=INFER=FUT big-INT DET=Fn.person
'He's going to be a really big person.' (vf | EP.2019/08/26)

c. *Context: The weather is bad so we may not be able to travel back to Vancouver. We're told:*

təqosɛ́tčxʷ **ḉɛ səm** niš.
təqus-ít=čxʷ=**ḉa**=**səm** niš
stuck-STAT=2SG.SBJ=INFER=FUT be.here
'You're going to be stuck here.' (vf | EP.2018/04/10)

(382) a. *Context: Daniel told me he's going home to Germany. Later, you ask me what we're all doing for Christmas. I tell you:*

ho **ḵʷa səm** ǰu Daniel ʔəkʷ Germany. ho ḵʷa ḵʷutəs kʷ ƛ̓aχƛ̓aχs.
hu=**ḵʷa**=**səm** ǰu Daniel ʔə=kʷ=Germany hu=ḵʷa ḵʷə[n]-t-as kʷ=ƛ̓aǎƛaǎ-3POSS
go=RPT=FUT home Daniel OBL=DET=Germany go=RPT see-CTR-3ERG DET=parents-3POSS
'Daniel is going home to Germany. He's going to go see his parents.' (sf | EP.2020/10/02)

b. *Context: Daniel is the weather man. He says it's going to rain.*

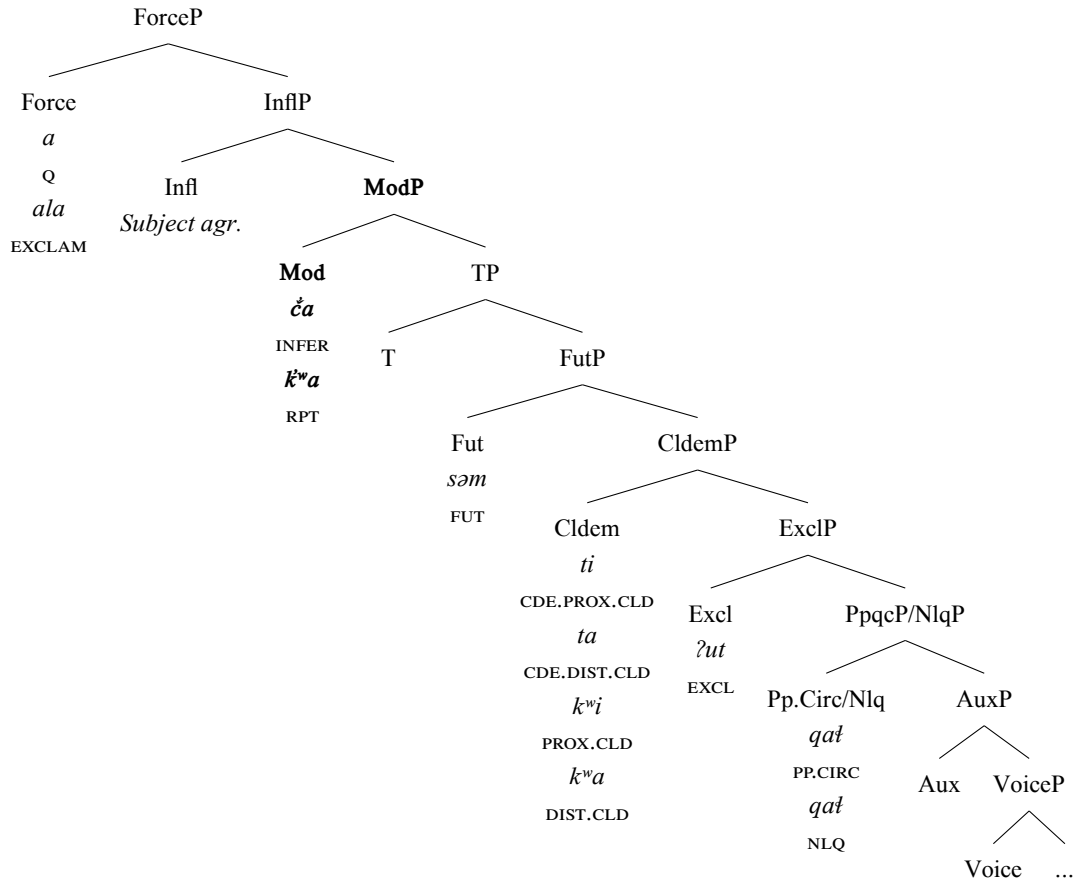
ḉɩɬ **ḵʷa səm** nɛʔɛtəm Daniel.
ḉəɬ=**ḵʷa**=**səm** niʔ-it-əm Daniel
rain=RPT=FUT say-CTR-PASS Daniel
'Daniel said it's going to rain.' (vf | EP.2018/08/08)

6.9.4 Summary

Both the inferential and reportative take only present temporal perspective. The reportative mimics past temporal perspective through perspective shift but this is constrained by the availability of cues that a shift has taken place. Both the evidentials are much more flexible with respect to temporal orientation, taking past, present, and future orientation. The orientation of these epistemic modals is determined by a combination of tense and aspect. The fact that neither the inferential nor reportative can take past perspective suggests that these modals take scope above tense. The inferential and reportative are therefore unlike the modals examined in Rullmann and Matthewson (2018), but like the epistemic modal adverbs *ʔiʔwawə* and *wəẇaʔ* in

SENĆOŦEN and Hul'q'umi'num' analyzed in Chen et al. (2017). I conclude that the ʔayʔaǰuθəm inferential and reportative occur below Infl but above T in the syntax, as shown in (383), repeated from (286) above.

(383)



6.10 Formal analysis

I have now shown that *č̓ɛ* /č̓a/ and *k̓ʷa* contribute to the at-issue content of the clause and are therefore best analyzed as epistemic modals. I have also shown that they contribute a strong modal claim, with present temporal perspective but variable temporal orientation. In this section, I propose a formal analysis to capture the behavior of each of these modals. Following in the tradition of Izvorski (1997), Garrett (2001), Matthewson et al. (2007), and others, I analyze these two evidentials as epistemic modals with an evidential presupposition such that the speaker does not have direct evidence for the proposition. The reportative carries an additional presupposition that the modal base contains a report of the prejacent proposition.

I propose an analysis of the contribution of the inferential in Section 6.10.1, using a Kratzerian modal framework. In this section, I also outline how to capture the inferential's behaviour in embedded contexts and questions. In Section 6.10.2, I turn to the reportative, discussing the presuppositions needed to capture its incompatibility with direct evidence and its requirement that the speaker has heard the prejacent proposition as a report. I also outline how to capture perspective shift in the model developed here.

6.10.1 Formal semantic analysis of the inferential

I adopt the evidential presupposition that the speaker does not have direct evidence as it is formalized in von Fintel and Gillies (2010). Von Fintel and Gillies propose that epistemic modals such as English *must* carry an evidential presupposition such that the speaker's direct information in the context does not settle whether the prejacent proposition p is true or false; for our purposes, direct information can be understood as direct evidence and common knowledge. A speaker's direct information will settle whether p if the speaker's direct information contains a proposition that entails p (which may be p itself) or if the speaker's direct information contains a proposition that entails $\neg p$. The speaker's direct information is encoded in the modal base, so this can be formalized as follows, where f is the modal base.

(384) $f_{\text{EPIS}}(w)$ settles whether p if $q \subseteq p$ or $q \cap p = \oslash$ for some $q \in f_{\text{EPIS}}(w)$
(based on von Fintel and Gillies 2010: 374)

Note that I do not adopt von Fintel and Gillies's proposal that strong epistemic modals are maximally strong, where a strong epistemic modal claim with English *must* entails the prejacent proposition; they propose a denotation for *must* that does not include an ordering source. However, I argued in Section 6.6.4.1 that use of the inferential and reportative means the prejacent proposition is *not* entailed (and therefore the entailments of the plain assertion of the prejacent proposition are also not entailed). The ordering source therefore plays a crucial role in my analysis.

I propose the denotation for *čɛ̌* /čǎ/ in (385). *čɛ̌* /čǎ/ carries a presupposition that the modal base does not directly settle whether the prejacent proposition p is true or false. If the speaker has direct evidence for p, p will be included in the modal base, violating the presupposition. The presupposition therefore rules out the speaker knowing p through direct evidence. When this presupposition is met, *čɛ̌* /čǎ/ contributes a strong at-issue epistemic modal claim such that the prejacent proposition is true in all the best (most stereotypical) possible worlds where all the information in the epistemic modal base f_{EPIS} is true. The subscript on the modal base is meant to indicate that *čɛ̌* /čǎ/ is lexically specified as having an epistemic modal base: it does not have variable flavour. The modal base is calculated at t_0 given as a parameter of interpretation through the context. Tense is already saturated at the point at which the modal combines with the prejacent, so there is no separate reference time variable. As in Section 5.1.3, I treat the modal base f and ordering source h as parameters of interpretation given by the context.

(385) $[\![\ \check{c}\check{e}a\ ]\!]^{g,t_0,f,h} = \lambda p_{\langle st \rangle}.\lambda w.\forall w'[w' \in BEST_{h(w)}(\bigcap f_{\text{EPIS}}(w,t_0)) \rightarrow p(w')]$;
defined iff $f_{\text{EPIS}}(w)$ does not directly settle whether p
where $f_{\text{EPIS}}(w)$ settles whether p if $q \subseteq p$ or $q \cap p = \oslash$ for some $q \in f_{\text{EPIS}}(w)$
(presupposition based on von Fintel and Gillies 2010: 374)

This analysis captures the crucial aspects of the behavior of the inferential. It predicts its epistemic flavour and strong modal strength (Section 6.8), its present temporal perspective (Section 6.9), and its requirement that the speaker does not have direct evidence for the prejacent (Section 6.4.2). Because the modal contribution is at-issue, this analysis also captures its challengeability (Section 6.6.4).

The presence of the ordering source means that the modal claim does not entail that the prejacent is true in the actual world: the prejacent proposition is claimed to be true in only the best worlds in the intersection of the modal base, i.e., those that are most stereotypical. The actual world may not be in the set of best worlds,

since it is always possible that the actual world will deviate from what its norms are in some way. This means that a strong modal claim can be true even if the prejacent proposition is not true in the actual world. This in turn means that entailments of the prejacent are not guaranteed to be true in the real world. This gives rise to the continuation patterns discussed in Section 6.6.4.1.

While the denotation proposed in (385) captures the crucial aspects of the semantics of *c̓̌ɛ* /c̓̌a/ examined in this chapter, I will propose an update to the semantics of the inferential in Chapter 8. I add an additional presupposition to the denotation of the inferential, placing restrictions on the timing of the evidence relative to the prejacent eventuality. This is needed to capture contrasts in the distribution of the future and the inferential when used to make inferences about non-future eventualities.

6.10.1.1 Embedding under attitude predicates

In the case of embedding under attitude predicates, the modal base must reflect the direct information available to the matrix subject, rather than the speaker (Section 6.6.3.3). Formally, this can be represented by having the matrix attitude predicate provide the modal base for the embedded proposition.

I base my approach on Anand and Hacquard's (2013) analysis of attitude predicates. They claim that certain attitude predicates – those they call representational[20] – provide the information state for embedded epistemic modals. Adopting Anand and Hacquard's (2013) analysis, we can give *nopʊxʷ* /nupəxʷ/ 'realize' in (386) (repeated from (319)) the denotation in (387).

(386) *Context: Based on the Tom* (*Tɛqaw*) *and Mittens storyboard* (*Rolka and Cable 2014*)*. The cat just ran out of the room and into another where it hid in a box. I saw the cat run and hide in the box and then I watched Tɛqaw figuring it out. Now I'm describing Tɛqaw.*

nopʊxʷəm	Tɛqaw	hɛs **c̓̌ɛ**	kʷ k̓ʷaxʷa	kʷayíts	šɛ mɛmaẇs.
nup-əxʷ-əm	Tiqaw	hiɬ=s=**c̓̌a**	kʷ=k̓ʷaxʷa	kʷay-ít=s	šə=mimaẇ-s
think-NCTR-PASS	Tiqaw	be=3POSS=INFER	DET=box	get.hidden-STAT=3POSS	DET=cat-3POSS

'Tɛqaw realized that his cat must be hiding in a box.' (sf | BW.2020/04/15)

(387) $[\![\ nupəx^w\ \phi\ ]\!]^{g,f,h,t_0} = \lambda x.\lambda t.\lambda w.\ \bigcap f_x^{\text{EPIS}}(w,t) \subseteq [\![\ \phi\ ]\!]^{g,f_x,h,t}$

The denotation given in (387) is a simplified representation that captures only the epistemic and factive character of this predicate, not the details of meaning that would differentiate *nopʊxʷ* /nupəxʷ/ 'realize' from a predicate like *toχʷnéxʷ* /təx̌ʷníxʷ/ 'know', for instance. This denotation asserts the embedded proposition ϕ to be entailed by the intersection of the direct information available to the matrix subject x in w at t; the embedded proposition is true in all worlds compatible with all the matrix subject's direct information. The embedding predicate also provides the modal base f_x as a parameter of interpretation for the embedded predicate. This means that any epistemic modal within the embedded proposition will be evaluated relative to the matrix subject's direct knowledge as reflected in the modal base; I assume that the temporal argument will also be shared as a parameter of interpretation for the embedded predicate – the time of Tɛqaw's realizing, for instance, will be the time at which the modal base is evaluated.

[20] For Anand and Hacquard (2013), following Bolinger (1968), representational attitudes describe the content of a propositionally consistent attitudinal state.

(386) then has the truth conditions in (388). The attitude predicate provides the modal base for the embedded epistemic modal, including the presuppositional content. The at-issue content of the modal essentially replicates the contribution of the matrix predicate, but the presupposition ensures that the matrix subject does not have direct information settling whether the prejacent is true.

(388) $[\![$ *nupəxʷ Tiqaw his* ***c̓a*** *kʷ k̓ʷaxʷa kʷayíts šə mimaẇs* $]\!]^{g,f,h,t_0}(w)$ is defined only if:

i. $f_x^{\text{EPIS}}(w,t)$ does not directly settle whether $[\lambda w'$. *his*$_T$ *cat is hiding in a box in w'*$]$

ii. If defined, $[\![$ *nupəxʷ Tiqaw his* ***c̓a*** *kʷ k̓ʷaxʷa kʷayíts šə mimaẇs* $]\!]^{g,f,h,t_0}(w) = 1$ iff $\cap f_x^{\text{EPIS}}(w,t) \subseteq \{$ $\lambda w'.\forall w''[w'' \in \cap f_x^{\text{EPIS}}(w',t) \rightarrow$ *his*$_T$ *cat is hiding in a box in w''*$]$ $\}$

6.10.1.2 Formal analysis of the inferential in questions

We turn now to questions. In questions the modal base can be addressee–oriented, as seen in Section 6.7. Adopting a Hamblin (1973) semantics for questions, where a question denotes its set of possible answers, a question with an epistemic modal will denote a set of modalized propositions. The modal base for the modal claim of each proposition in the set of possible answers reflects the knowledge of the addressee. This captures the readings where the speaker asks a question she expects the addressee to answer based on an inference, as in (341–343). For instance, the semantics for the polar question with the inferential in (342), repeated here as (389), would be as in (390), where the modal base for each proposition in the set of possible answers is determined by the addressee's knowledge, as represented with a subscript A. (The specification of the modal base as epistemic is omitted for simplicity.)

(389) *Context: Freddie says his dog didn't eat this morning. I ask him:*
kʷukʷtəma **c̓a**?
kʷə∼kʷt-əm=a=**c̓a**
PROG∼sick-MD=Q=INFER
'Is he sick?' (sf | EP.2020/02/18)
Speaker does not have indirect evidence (beyond addressee report).
Addressee has indirect evidence.

(390) $\{\forall w'[w' \in BEST_{h(w)}(\bigcap f_A(w,t_0)) \rightarrow is.sick(he_1)(w')], \forall w'[w' \in BEST_{h(w)}(\bigcap f_A(w,t_0)) \rightarrow \neg is.sick(he_1)(w')]\}$
Where each proposition in the set of answers is defined iff $\bigcap f_A(w,t_0)$ does not settle whether the prejacent is true.

In order to capture the shift in the orientation of the modal base formally, we need a shift operator for questions. I adapt (391) from McCready (2007), who proposes a similar operator to shift the judge parameter from the speaker to addressee in questions involving predicates of personal taste. In (391), I represent the modal base as indexed to the speaker by default, and then shifted by the shift operator (*Sh*) to be indexed to the addressee.

(391) $Sh([\![\ \phi\ ]\!]^{g,f_S,h,t_0}(\mathrm{w})) = [\![\ \phi\ ]\!]^{g,f_A,h,t_0}(w)$
where S is the speaker and A is the addressee in the utterance context.

McCready proposes that this shift operator accompanies the question operator, but is independent of it. The shift operator applies prior to the question operator. Applying the shift operator in the analysis of (389), we get (392) (using *pro* to represent the null third person subject). The modal base is shifted from representing the speaker's direct information f_S to representing the addressee's direct information f_A. The result captures the semantics in (390) above, where the addressee is presupposed not to have direct information settling whether the dog is sick, and in answering, the addressee is expected to make an epistemic modal claim.

(392) $Q(Sh([\![\ k^w\text{ə}k^w t\text{ə}m\ pro_1\ ]\!]^{g,f_S,h,t_0}(w))) = \mathrm{Q}([\![\ k^w\text{ə}k^w t\text{ə}m\ pro_1\ ]\!]^{g,f_A,h,t_0}(w)) =$
$\{\forall w'[w' \in BEST_{h(w)}(\bigcap f_A(w,t_0)) \rightarrow is.sick(he_1)(w')], \forall w'[w' \in BEST_{h(w)}(\bigcap f_A(w,t_0)) \rightarrow \neg is.sick(he_1)(w')]\}$
Where each proposition in the set of answers is defined iff $\bigcap f_A(w,t_0)$ does not settle whether the prejacent is true.

6.10.2 Formal semantic analysis of the reportative

I turn now to the modifications required to capture the contribution of the reportative. Matthewson (2010b) adapts von Fintel and Gillies's (2010) indirect evidence presupposition to analyze the reportative *ku7* in St'át'imcets. She proposes that *ku7* has a two-fold presupposition: (i) that the speaker does not have direct sensory evidence (SENS) for the prejacent ϕ, and (ii) the speaker's modal base contains a report of ϕ. I adopt this analysis for the ʔayʔaǰuθəm reportative *k̓ʷa*, as shown in (393).[21]

(393) $[\![\ \text{k̓}^w a\ ]\!]^{g,f,h,t_0} = \lambda p_{\langle st\rangle}.\lambda w.\forall w'[w' \in BEST_{h(w)}(\bigcap f_{\text{EPIS}}(w,t_0)) \rightarrow p(w')]$;

i. defined iff $f_{\text{SENS}}(w,t_0)$ does not directly settle whether p

ii. and $f_{\text{EPIS}}(w,t_0)$ contains a proposition of the form 'someone said ϕ'
where $f_{\text{SENS}}(w)$ settles whether p if $q \subseteq p$ or $q \cap p = \emptyset$ for some $q \in f_{\text{SENS}}(w)$.

(adapted from Matthewson 2010b)

[21] The requirement in (393ii) is quite strong, since it places a restriction on the form of the reported evidence. While it may be possible to somewhat weaken the requirement, it is not sufficient for the reported evidence to give rise to an inference that the prejacent is true, as shown in (ia); the inferential is used instead (ib).

(i) *Context: Gloria tells me in the morning that Daniel is on his way to Tla'amin. Later, in the afternoon, I tell you Daniel is coming: 'qʷoqʷol k̓ʷa Daniel,' nɛʔɛtəm Gloria. 'Gloria said Daniel is coming.' You ask me when Daniel will be here. Gloria didn't tell me when he would arrive, but I guess based on when she told me he left:*

a. #hɛ **k̓ʷa** səm tiṅ nanat qʷol̓s təs.
hił=**k̓ʷa**=səm tiṅ nanat qʷəl̓=s təs
COP=RPT=FUT DEM evening come=3POSS arrive
'He'll arrive tonight.' (sf | EP.2020/12/11)

b. hɛ **c̓ɛ** səm tiṅ nanat qʷol̓s təs.
hił=**c̓a**=səm tiṅ nanat qʷəl̓=s təs
COP=RPT=FUT DEM evening come=3POSS arrive
'He'll arrive tonight.' (vf | EP.2020/12/11)

It may be that the report can differ in content from the prejacent so long as it entails the prejacent. This requires further investigation.

Notice that Matthewson's approach imposes structure on the modal base so that direct sensory evidence f_{SENS} can be referenced separately from direct information in general. This is because the S'tát'imcets reportative can be used even where the proposition is general knowledge as long as the speaker does not have direct sensory evidence for *p*; this is different than for epistemic modals like *must* which seem odd used for general knowledge even if not experienced directly (e.g., ?#*Antarctica must be cold.*). Since general knowledge would typically count as direct information for epistemic modals, Matthewson partitions the modal base so that the presupposition that the modal base does not settle whether *p* involves only direct sensory evidence for the reportative.

The same facts are true of ʔayʔaǰuθəm. *k̓ʷa* is compatible with knowledge that has not been directly experienced, but is general knowledge learnt from a teacher or textbook (394) ((394a) is based on Matthewson 2015: 153, example (30)).

(394) a. *Context: I've learnt that it's cold in the Antarctic but I've never been there. Now I'm passing on this knowledge to a child.*

c̓ɩmc̓ɩm̓mot **k̓ʷa**	gɩǰɛ.
c̓əm∼c̓əm̓-mut=**k̓ʷa**	gəǰa
CHAR∼cold-INT=RPT	land

'It is a cold land.' (vf | EP.2020/06/02)

b. *Context: I learnt about the Titanic, but I wasn't alive yet when it sank.*

θayɛʔmoɬ **k̓ʷa**	kʷ tihmot	tinpot	sχʷoχʷoɬ.
θay-əm-uɬ=**k̓ʷa**	kʷ=tih-mut	tinput	s=x̌ʷux̌ʷuɬ
sink-MD-PST=RPT	DET=big-INT	steam.boat	NMLZ=long.time

'The big steamboat sank a long time ago.' (vf | EP.2020/06/02)

To account for the ʔayʔaǰuθəm reportative, I therefore adopt the partition of the modal base proposed in Matthewson (2010b), allowing direct sensory evidence to be referenced apart from direct information in general.

6.10.2.1 Formal analysis of perspective shift with the reportative

The semantics for *k̓ʷa* proposed in (394) does not predict the ability of the speaker to utter *p* without believing *p* to be true. I have been attributing this possibility to perspective shift, following AnderBois (2014). Perspective shift can be formally implemented by allowing the modal base to reflect the perspective of the reporter, rather than the speaker. The presupposed content remains anchored to the speaker. So, for example, (395) (repeated from (304)) signals that the speaker has reported evidence for the prejacent and does not have direct information that settles the prejacent. The claim that Freddie won is attributed to the reporter.

(395) *Context: There was a rumour that Freddie won the lottery, but I talked to him and found out the rumour is not true. Later we're talking about this and I say:.*

?ƛ̓ʊxʷʔəm **k̓ʷa** Freddie qaχ tala. xʷaʔak̓ʷʊt!
ƛ̓əxʷ-ʔəm=**k̓ʷa** Freddie qəx̌ tala. xʷaʔ+ala+k̓ʷa+ʔut
win-ACT.INTR Freddie lots money NEG=EXCLAM=RPT=EXCL
'Freddie won a lot of money (I heard), but it turns out not! (sf | EP.2019/12/04)

The perspective shift of (395) can be modeled with a perspective shift operator similar to the one I proposed to handle interrogative flip in questions. Adding a *P-Sh* operator to (395), we would get (396). The *P-Sh* operator shifts the anchoring of the modal base and ordering source to a body of information associated with the reporter *rep* who made the report, as in (396ii). The presupposition remains anchored to the speaker, as in (396i).

(396) $P\text{-}Sh_{rep}([\![\, k'^{w}a \,]\!]^{g,f_S,h,t_0}([\![\phi]\!]^{g,f_S,h,t_0})(w))$ is defined only if:

i. $f_S(w,t_0)$ contains a proposition of the form 'rep said ϕ'.

ii. If defined,
$P\text{-}Sh_{rep}([\![\, k'^{w}a \,]\!]^{g,f_S,h,t_0}([\![\phi]\!]^{g,f_S,h,t_0})(\mathrm{w})) = 1$ iff $\forall w'[w' \in BEST_{h_{rep}(w)}(\bigcap f_{rep}(w,t_0)) \rightarrow [\![\phi]\!]^{g,f_S,h,t_0}(w')]$

Since perspective shift allows the speaker to utter *p* when knowing it to be false, I analyze the modal claim in these cases as based on an informational conversational background, rather than a realistic one (where a realistic modal base *f* applied to world *w* returns a set of propositions true in *w*; see Section 5.1.4). According to Kratzer 2012: 34, fn.6, an informational conversational background involves an empty modal base with an informational ordering source. An informational ordering source is a function returning a set of propositions that represent a body of information; these propositions are not necessarily true of the actual world and do not have to be consistent. Such a body of information could include information from a reporter that may not be true. Kratzer (2012) proposes an analysis along these lines for the German reportative *sollen* in Kratzer (2012) (see also discussion in Matthewson 2012).[22]

[22]The speaker's modal base for the reportative cannot always consist of a body of information associated with the reporter, since this would predict any proposition that the speaker has heard from a third party to be felicitous with *k̓ʷa*, provided the speaker does not have direct information that settles whether the proposition is true. Such an approach would not predict the infelicity that arises in cases like (i) (repeated from (305)) where there are no cues to perspective shift, for instance.

(i) a. *Context: There was a rumour that Freddie won the lottery, but I talked to him and found out the rumour is not true. Later we're talking about this and I say:*

#ƛ̓ʊxʷʔəm **k̓ʷa** Freddie qaχ tala. xʷaʔ ƛ̓ʊxʷʔəməs.
ƛ̓əxʷ-ʔəm=**k̓ʷa** Freddie qəx̌ tala. xʷaʔ ƛ̓əxʷ-ʔəm=as
win-ACT.INTR Freddie lots money NEG win-ACT.INTR=3SBJV
'Freddie won a lot of money (I heard). He didn't win it. (sf | EP.2019/12/04)

b. *Context: It was forecasted that it would be raining all day today, but it hasn't been raining, just a bit overcast.*

#c̓ɬ **k̓ʷa** səm ʔi xʷaʔ c̓a səmt.
c̓əɬ=**k̓ʷa**=səm ʔiy xʷaʔ=c̓a=səm+t
rain=RPT=FUT CNJ NEG=INFER=FUT+EXCL
'It's going to rain (I heard) but it's not going to.' (sf | EP.2019/12/04)
Consultant's comment: It kind of contradicts.

Of course, there is still work to be done to fully determine the environments where perspective shift is available. At this point, I have identified an environment where perspective shift does not occur – between two conjoined clauses without linguistic cues that the shift has taken place. I have also found cases where mirativity is used to signal perspective shift (Section 6.6.2). More generally, AnderBois's generalization that there must be contextual and linguistic cues, often some sort of evaluative language, in order for perspective shift to felicitously occur, seems to hold for the ʔayʔaǰuθəm reportative. The range of environments that prevent or facilitate perspective shift remains to be explored, however.

6.11 Conclusion

In this chapter, I first argued that the inferential clitic *c̓ɛ* /c̓a/ and the reportative clitic *k̓ʷa* in ʔayʔaǰuθəm are epistemic modals. In order to establish their modality, I identified and implemented three diagnostic tests to probe whether they contribute to the at-issue content of the clause: (i) embeddability, (ii) challengeability, and (iii) the status of continuations entailed by the prejacent. The first two of these diagnostics appear frequently in previous literature and were discussed critically in terms of how they are applied and what they show; the third was introduced as a novel test. The results of these three tests indicate that both the inferential and the reportative contribute to the at-issue content of the clause and are best analyzed as epistemic modals. The reportative exhibits unexpected behaviour under this analysis, allowing the speaker to utter the prejacent without believing it to be true. I proposed that this behaviour is best understood in terms of perspective shift (AnderBois 2014). For the formal analysis of these elements, I adopted a Kratzerian analysis, along with evidential presuppositions based on von Fintel and Gillies (2010) and Matthewson (2010b). I also outlined how modal embedding and perspective shift might be modeled in this framework.

The fact that these ʔayʔaǰuθəm evidentials behave as epistemic modals provides further evidence for a tight link between evidentiality and epistemic modality (contra De Haan 1999; Aikhenvald 2004). Evidentials from a wide range of languages have now been argued to encode epistemic modality, including Bulgarian (Izvorski 1997), Tibetan (Garrett 2001), St'át'imcets (Matthewson, Rullmann, and Davis 2007), Gitksan (Peterson 2010a; Matthewson 2013), and Tagalog (Tan Almazán 2019), among others. However, it does not necessarily follow that all evidentials in all languages are modal. In the following chapter, I will argue that the clausal demonstratives *ti* and *ta* are non-modal evidentials, using a similar set of diagnostics.

In addition to establishing that *c̓ɛ* /c̓a/ and *k̓ʷa* contribute an at-issue modal claim, I have argued that both are strong modals that take only present temporal perspective. This means that even within the Salish language family, there is variation in the specification of modal strength. St'át'imcets only has modals with variable strength (Matthewson et al. 2007; Rullmann et al. 2008; Davis et al. 2009), while in Nsyílxcen (a Southern Interior Salish language) epistemic modals are split: one has variable strength and one has fixed strength (Menzies 2012); Oliver (2021) also argues that a circumstantial modal in Secwepemctsín has variable strength. ʔayʔaǰuθəm appears to represent the opposite extreme from St'át'imcets: as will be seen also in upcoming chapters, the modal strength of all modals investigated so far is fixed.[23] There is also variation in the temporal profile of epistemic modals, with St'át'imcets epistemic modals scoping below tense and able to take past temporal perspective, while their ʔayʔaǰθəm counterparts *c̓ɛ* /c̓a/ and *k̓ʷa* scope above tense and do

[23]The adverb *qʷayɩn* /*qʷayin*/ 'maybe' may be a modal with variable strength, since it is used in contexts that support a weak modal claim but also somewhat stronger claims, where it is translated 'I think'. It is not used in strong modal contexts, as seen in Section 6.8.1, however, so a variable strength analysis would only be tenable if this can be explained in terms of competition with the inferential. A full investigation of *qʷayɩn* /*qʷayin*/ should be undertaken in future research.

not take past temporal perspective.

Chapter 7

Clausal Demonstratives

7.1 Introduction

In this chapter, I discuss the clitics I label clausal demonstratives (CLDs), following Huijsmans and Reisinger (2018, 2021a,b). These clitics, shown in Table 7.1, contribute evidential and spatio-temporal deictic information regarding the event described by the proposition. The *t*-initial forms encode direct evidence, while both *t*-initial and *kʷ*-initial forms encode spatio-temporal deixis.

Table 7.1: Clausal demonstrative paradigm

	Proximal	Distal
Direct evidence	*ti*	*ta*
Evidence neutral	*kʷi*	*kʷa*

The term 'clausal demonstrative' arises due to striking parallels in form and function between these clitic elements and the demonstratives that occur in the nominal domain (Huijsmans and Reisinger 2018, 2021a; Reisinger and Huijsmans 2021; Huijsmans and Reisinger 2022a). The nominal demonstratives encode evidentiality and deixis in reference to entities and locations. The CLDs encode information about whether the speaker currently has direct evidence for the prejacent eventuality (usually through seeing it) and the spatio-temporal proximity of the eventuality relative to the speaker at the utterance time.

7.1.1 Previous literature

Prior to Huijsmans and Reisinger (2018, 2021a), the CLDs in ʔayʔaǰuθəm were not recognized as a paradigm. Previous literature provides only brief descriptions of individual forms or pairs of forms, and while these descriptions often implicate evidentiality and deixis, the predictions about the relationships between forms are often incomplete or not quite accurate. Harris (1977: 149), for instance, notes a present/absent contrast between *ti* and *kʷi*, while Blake (2000: 438–439) suggests that *kʷi* encodes recency and *kʷa* marks direct evidence. Watanabe (2003: 520, 528) also relates *kʷa* to direct evidence and suggest that *ta* is used when the speaker has directly observed the described event.

CLDs do not seem to occur in other Salish languages, though Sechelt has auxiliaries with similar forms that seem to have evidential functions (Beaumont 1985: 39, 43): Beaumont writes that the auxiliary *ku* is used to indicate that 'what happens (happpened) is out of sight of the speaker, the listener, or both' (Beaumont 1985:

39), while the auxiliary *t'i* is used 'to indicate a fact (or possible fact) in the present or past whether it can be seen or not' (Beaumont 1985: 43). Other Central Salish languages such as Halkomelem and Sḵwx̱wú7mesh have auxiliaries that encode spatial deixis (e.g. Suttles 2004; Gerdts 2010; Kuipers 1967; Jacobs 2011), but these seem to be more similar to the ʔayʔaǰuθəm auxiliaries *niš* 'be here' and *nɛʔ* /niʔ/ 'be there' than to the CLDs. Looking beyond the Salish language family, there are examples of 'clausal determiners' found cross-linguistically: determiners occurring in the verbal or clausal domain but resembling determiners found in the nominal domain. These have been analyzed as contributing parallel semantics across nominal and verbal/clausal domains, encoding familiarity/givenness in relation to events or the information provided by the clause (see e.g., Lefebvre 1992, 1998; Arkoh and Matthewson 2013; Renans 2016; Grubic and Renans 2016; Renans 2021). While the ʔayʔaǰuθəm CLDs and these clausal determiners should be compared in future work, I will not attempt to them directly here, focusing instead on establishing the semantics of the ʔayʔaǰuθəm CLDs themselves.

7.1.2 Preview of analysis

Following Huijsmans and Reisinger (2021a), I analyze the contribution of the CLDs as involving similar evidential and spatial deictic components to the regular demonstratives, but not equivalent semantic contributions. Following work on nominal determiners and demonstratives in ʔayʔajuθəm, I analyze the evidential and spatio-temporal deictic components of the meaning of the CLDs as relations between situations (following Speas 2010 and Kalsang et al. 2013). Following Faller (2004) and Chung (2007), I also make use of a function tracking the speaker's perceptual trace to account for the direct evidence requirement of the *t*-initial forms.

While I argue that the *t*-initial CLDs have an evidential component, I follow Huijsmans and Reisinger (2022a) in arguing that they are non-modal evidentials. The *t*-initial CLDs therefore contrast with the inferential *c̓ɛ* /c̓a/ and reportative *k̓ʷa*, which are epistemic modals, as discussed in Chapter 6. I apply a variety of tests for an at-issue modal contribution of the evidential CLDs, including whether the evidentials can be semantically embedded, whether they affect the entailments of the prejacent, and whether they contribute a claim consistent with the predictions of modal direct evidential analysis. The *t*-initial CLDs do not test as modals on any of these tests.

7.2 Outline of Chapter

In Section 7.3, I lay out the syntax of the clausal demonstratives, based on the proposals in Chapter 2. In Section 7.4, I then present paradigms for both nominal and clausal demonstratives and discuss parallels between them. Section 7.5 discusses the evidential contribution of the *t*-initial CLDs and Section 7.6 discusses the deictic component of the CLDs. Section 7.7 discusses how the clausal demonstratives interact with predicates of different aspectual classes. In Section 7.8, I propose a formal semantic analysis, building on Huijsmans and Reisinger (2021a,b), which accounts for the behaviour of the CLDs with respect to evidentiality and spatio-temporal deixis. Finally, in Section 7.9, I show that the non-modal analysis provided for the *t*-initial CLDs correctly predicts their behaviour with respect to a series of tests for an epistemic modal claim, comparing these results to the behaviour of the inferential *c̓ɛ* /c̓a/ and reportative *k̓ʷa*.

7.3 Syntax of CLDs

The CLDs occur in the clitic string following the future clitic and preceding the discourse particle *ga* (397) and the scalar exclusive *ʔot* /ʔut/ (398). The CLDs frequently occur pre-predicatively in a proclitic string that maintains the order of the post-predicative clitic string, as in (397) (see Section 2.6.2 for discussion).[1]

(397) *Context: I know Daniel was over on the island for the day. In the evening I hear on the radio that the ferries had been cancelled, so I know that Daniel will have gotten stuck there overnight. Then the next morning I hear that they are running again, so I know that means Daniel will be heading back to the mainland on the morning ferry. I tell Gloria:*

səm**kʷa ga**	čɛt	qʷoqʷol.
səm=**kʷa**=**ga**	čaʔat	qʷə∼qʷəl̓
FUT=CLD=DPRT	NOW	PROG∼come

'I guess he's on his way now.' (vf | EP.2021/03/05)

(398) *Context: I'm headed over to pick my friend up and head to a meeting. When I get close to her house, I see her already out walking towards the meeting.*

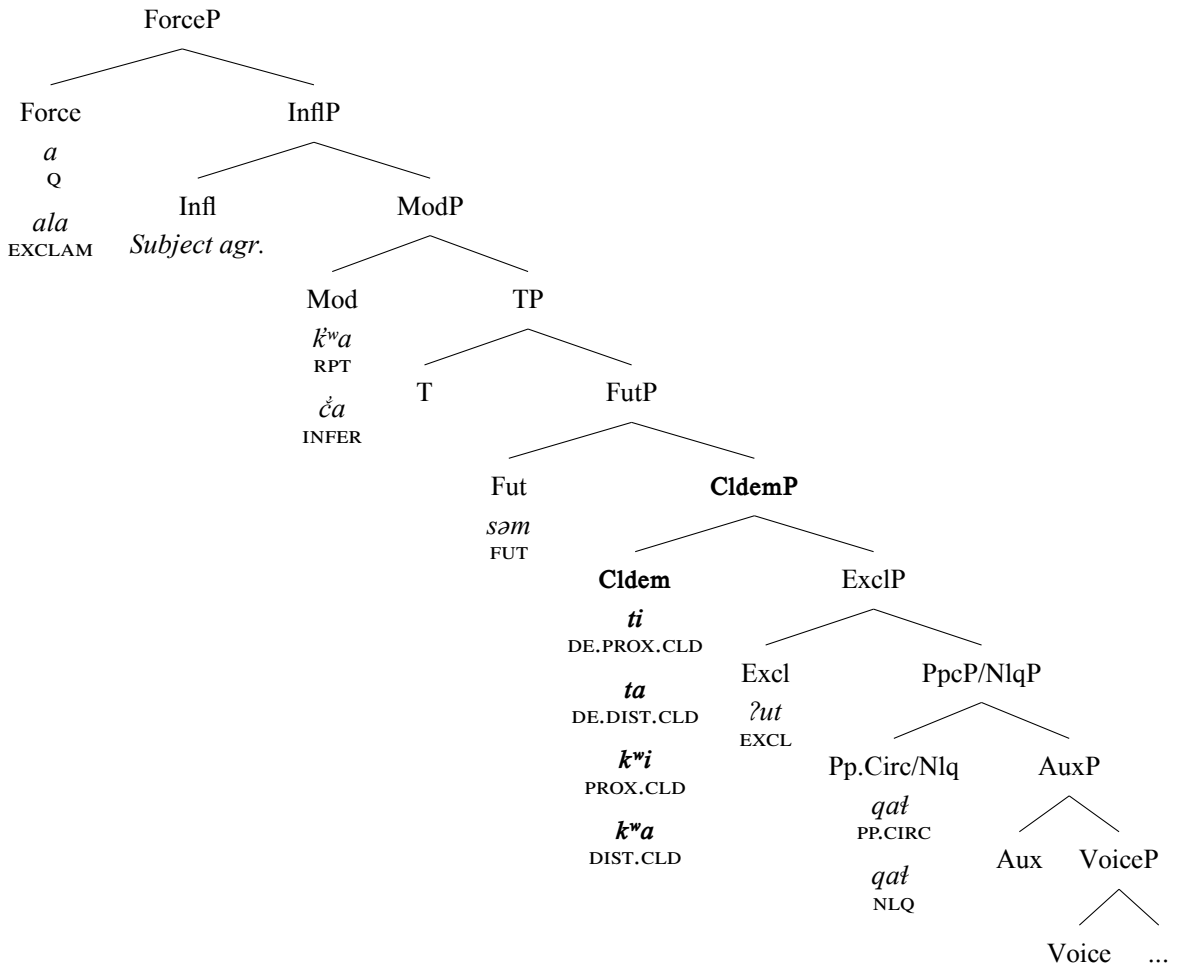
qʷolčɛn	ƛ̓əƛ̓ʔost	ʔi	**tit**	θo	ʔɛmaš.
qʷəl̓=čan	ƛ̓ə∼ƛ̓ʔos-t	ʔiy	**ti+ʔut**	θu	ʔimaš
come=1SG.SBJ	PROG∼pick.up-CTR	CONJ	CLD+EXCL	go	walk

'I came to pick her up and she's already left walking.' (vf | EP.2020/06/23)

Based on the CLDs' position within the clitic string and their semantic composition with the other elements of the clause (as discussed below and in Chapter 8), I propose that they occupy a syntactic head below the future modal and above the scalar exclusive *ʔot* /ʔut/, as shown in (399) (repeated from (383) above).

[1] It is common for *ʔot* /ʔut/ to coalesce with preceding vowel-final clitics.

(399)



7.4 A comparison with nominal demonstratives

As mentioned above, the clausal demonstratives resemble nominal demonstratives in form and function, but encode information relating to the verbal domain, rather than the nominal domain. In this section, I provide background on nominal demonstratives in order to support this comparison. I first provide basic information about the distribution and paradigmatic organization of nominal demonstratives (Section 7.4.1). I then discuss their deictic (Section 7.4.2) and evidential (Section 7.4.3) contributions. Finally, I compare the form and function of the nominal demonstratives to the clausal demonstratives (Section 7.4.4).

7.4.1 Nominal demonstratives

ʔayʔaǰuθəm nominal demonstratives occur in the position of determiners (400a) or as demonstrative pronouns (400b); they also serve as locative adverbs in combination with the oblique marker *ʔə* (401) (see Reisinger and Huijsmans 2021; Huijsmans and Reisinger 2022a).

(400) *Context: Someone asks if you recognize anyone in a picture.*

a. ṫogotč **tɛʔɛ** tumiš.
ṫug-út=č **tiʔi** tumiš
recognize-CTR\STAT=1SG.SBJ PROX.DEM man
'I recognize this/that man.' [PRE-NOMINAL] (Reisinger and Huijsmans 2021: 313)

b. ṫogútč **tɛʔɛ**.
ṫug-út=č **tiʔi**
recognize-CTR\STAT=SG.SBJ PROX.DEM
'I recognize this one.' [PRONOMINAL] (Reisinger and Huijsmans 2021: 313)

(401) *Context: A stage manager is giving directions.*

niščx^{w} **ʔə tɛʔɛ**.
niš=čx^{w} **ʔə=tiʔi**
be.here=2SG.SBJ OBL=PROX.DEM
'You stay (lit.: be) here.' [LOCATIVE] (vf | EP.2021/07/24)

While there are two paradigms of nominal demonstratives, I focus on the gesture demonstrative paradigm here, which most closely resembles the clausal demonstratives. The gesture demonstratives obligatorily co-occur with co-speech gesture to identify the referent (Reisinger and Huijsmans 2021; Huijsmans and Reisinger 2022a).[2]

The gesture demonstrative paradigm is given in Table 7.2. The gesture demonstratives encode evidentiality through their initial consonant: *t-* for direct evidence forms and *k^{w}-* for evidence-neutral forms. They encode deixis through their vowels: *i* for proximal and *a* for distal.

Table 7.2: Gesture demonstrative paradigm

	Proximal	Near-distal	Distal
Direct evidence	*tɛʔɛ* /tiʔi/	*tita* /təẏta/	*taʔa*
Evidence neutral	*k^{w}ɩši* /k^{w}əši/	*k^{w}ik^{w}a* /k^{w}əẏk^{w}a/	*k^{w}aʔa*

7.4.2 Spatial deixis in the nominal domain

The gesture demonstratives make a three-way distinction in spatial deixis. I illustrate the proximal vs. near-distal contrast here. The proximal form *tɛʔɛ* 'this/here' is felicitous in (402a) where the speaker is referring to a location within reach, but the near-distal form *tita* 'that/there' is not. In contrast, the near-distal form is good for talking about a location within the immediate vicinity of the speaker but out of reach in (402b), but the proximal form is not.

[2]The second paradigm of demonstratives, labelled salience demonstratives in Reisinger and Huijsmans (2021); Huijsmans and Reisinger (2022a), are not discussed here as they do not resemble the clausal demonstratives as closely, although they also have parallels with the gesture and clausal demonstratives.

(402) a. *Context: A and B are seated at the kitchen table. A asks B for the salt, which is in front of B. Handing it to A, B says:*

niš [ʔə] {**tɛʔɛ** / #**tita**}.
niš [ʔə]={**tiʔi** / #**təẏta**}
be.here OBL={DE.PROX.DEM / DE.NDIST.DEM}
'Here it is.' (Reisinger and Huijsmans 2021: 340)

b. *Context: A and B are seated at the kitchen table. A has forgotten where she left her purse. A says, thinking out loud "I wonder where I left my purse". B replies pointing to a purse on the kitchen counter:*

nɛʔ [ʔə] {**#tɛʔɛ** / **tita**}.
niʔ [ʔə]={**#tiʔi** / **təẏta**}
be.there OBL={DE.PROX.DEM / DE.NDIST.DEM}
'There it is.' (Reisinger and Huijsmans 2021: 340)

For a full discussion of the deictic distinctions exhibited by the nominal demonstratives, see Reisinger and Huijsmans (2021); Huijsmans and Reisinger (2022a).

7.4.3 Demonstratives encode evidentiality

In addition to encoding spatial deixis, ʔayʔaǰuθəm demonstratives encode evidentiality (Reisinger and Huijsmans 2021; Huijsmans and Reisinger 2022a).[3] In particular, the demonstratives encode whether the speaker has direct evidence for the referent of the DP at the utterance time. Usually, the speaker has direct evidence when seeing the referent of the DP at the utterance time.[4]

(403) a. *Context: My boat is beached on a point in the distance* (*on the near side of the point*)*. We can't really make out my boat from here, but we can see the beach where it is. I tell you:*

nɛʔ [ʔə] {**taʔa** / #**kʷaʔa**} sɛʔɛqʷ šɛtᶿ nuxʷɛɬ.
niʔ [ʔə=]{**taʔa** / #**kʷaʔa**} siʔiqʷ šə=tᶿ=nəxʷiɬ
be.there [OBL=]{DE.DIST.DEM / DIST.DEM} point DET=1SG.POSS=boat
'My boat is beached over on that point.' (sf | EP.2021/07/16)

b. *Context: My boat is beached around a point in the distance. I wave in that direction and tell you:*

nɛʔ [ʔə] {**#taʔa** / **kʷaʔa**} θohɛqʷ šɛtᶿ nuxʷɛɬ.
niʔ [ʔə=]{**#taʔa** / **kʷaʔa**} θu-h-iqʷ šə=tᶿ=nəxʷiɬ
be.there [OBL=]{DE.DIST.DEM / DIST.DEM} go-EPEN-point DET=1SG.POSS=boat
'My boat is beached over on that point.' (sf | EP.2021/07/16)

[3] ʔayʔaǰuθəm determiners also encode evidentiality (Huijsmans et al. 2018b; Reisinger et al. 2021), as discussed further in Chapter 10.

[4] With the gesture demonstratives, it is possible that direct evidence is always visual evidence, since the speaker has to locate the referent in physical space. See Reisinger et al. (2021), however, for discussion of other types of direct evidence licensing ʔayʔaǰuθəm direct evidence determiners.

While the evidence-neutral form does not encode the absence of direct evidence, Reisinger and Huijsmans (2021) and Huijsmans and Reisinger (2022a) argue that competition between the forms means that the more informative direct evidence form is preferred whenever its evidential requirement is met.

7.4.4 Comparing the CLD and demonstrative paradigms

The paradigm of gesture demonstratives is repeated in Table 7.3 (from Table 7.2). Recall that the demonstratives encode evidentiality through their initial consonant and deixis through their vowels.

Table 7.3: Gesture demonstrative paradigm

	Proximal	Near-distal	Distal
Direct evidence	*tεʔε* /tiʔi/	*tita* /tə̏ta/	*taʔa*
Evidence neutral	*kʷɩši* /kʷəši/	*kʷikʷa* /kʷə̏kʷa/	*kʷaʔa*

The CLDs form a parallel paradigm to the gesture demonstratives but without near-distal forms. The initial consonants convey information about evidentiality and the following vowels convey information about spatio-temporal deixis. I motivate these distinctions in Sections 7.5–7.6.

Table 7.4: Clausal demonstrative paradigm

	Proximal	Distal
Direct evidence	*ti*	*ta*
Evidence neutral	*kʷi*	*kʷa*

The CLDs are not simply reduced versions of the regular demonstratives, however, as they do not refer to entities. Initial evidence for this conclusion comes from weather predicates, which frequently co-occur with CLDs but do not have any entity argument to locate (404).[5]

(404) *Context: I hear rain on the roof.*

ḉɛ **kʷi** ḉɩɬ.
ḉa=**kʷi** ḉəɬ
INFER=CLD rain
'It must have started to rain.' (vf | EP.2019/11/30)

The clausal demonstratives also interact with aspect in ways that are not associated with the regular demonstratives, as will be discussed in Section 7.7. Instead, they are best understood as contributing evidential and deictic information parallel to the regular demonstratives, but in relation to the *eventuality* described by the prejacent, rather than in relation to entities.

7.5 Evidentiality

The *t*-initial CLDs occur in contexts where the speaker has direct evidence for the event described by the proposition and the evidence is available at the utterance time. I take direct evidence for an event to be

[5] *ḉɩɬ* /ḉəɬ/ 'to rain' is an eventive predicate. While it can be interpreted as a noun when preceded by a determiner, it cannot be interpreted as a noun in (404), since then the sentence would lack a predicate altogether.

evidence that allows the speaker to know the event occurred (or is occurring) without further inference; this means witnessing or experiencing the event. In (405), for instance, the speaker has visual evidence of the event. Here, the direct evidence forms are felicitous and the evidence-neutral forms are infelicitous.

(405) *Context: I'm looking out the window and notice that it is snowing.*

{**ti** / **ta** / #kʷi / #kʷa} ƛ̓a?ayɩn ?axʷ.
{**ti** / **ta** / #kʷi / #kʷa}=ƛ̓a?ayin ?axʷ
{DE.PROX.CLD / DE.DIST.CLD / PROX.CLD / DIST.CLD}=start snow
'It has started to snow.' (Huijsmans and Reisinger 2022a)

The *kʷ*-initial CLDs, on the other hand, are evidence-neutral. This allows them to be used in cases where the speaker had direct evidence for the proposition prior to the time of speaking, as in (406), or where the speaker infers the proposition through indirect evidence, as in (407). The direct evidence CLDs are not felicitous in these contexts.

(406) *Context: I'm outside and see snow. Then I come inside, where I can no longer see the snow, and tell someone.*

{#ti / #ta / **kʷi** / **kʷa**} ƛ̓a?ayɩn ?axʷ.
{#ti / #ta / **kʷi** / **kʷa**}=ƛ̓a?ayin ?axʷ
{DE.PROX.CLD / DE.DIST.CLD / PROX.CLD / DIST.CLD}=start snow
'It has started to snow.' (Huijsmans and Reisinger 2022a)

(407) *Context: I see Freddie's car in his driveway, and I know he'd been out earlier.*

č̓ɛ {#ta / **kʷa**} qʷol̓ hɛwt.
č̓a={#ta / **kʷa**}=qʷəl̓ hiwt
INFER={DE.DIST.CLD / DIST.CLD}=come get.home
'He must have gotten home.' (EP.2022/07/01)

7.6 Deictic distance

The vowels in the CLDs encode whether the spatio-temporal distance between the prejacent event and the time and place of the utterance counts as proximal or distal, a distinction which is context-dependent. Below, I first present cases where spatial and temporal distance match: the eventuality is proximal on both dimensions or distal on both dimentions. I then examine cases where these mismatch: the eventuality is temporally proximal and spatially distal, or vice versa. I examine which of the CLDs is felicitous in each of these cases.

7.6.1 Spatio-temporally proximal

The *i*-final CLDs — i.e., *ti* and *kʷi* — are used for proximal events, as illustrated by (408) and (409). In both of these cases, the event immediately precedes the utterance time and is close to the utterance location.

(408) *Context: The traffic light just changed color, but the driver hasn't noticed. The passenger says:*

θo ga. {**ti** / #**ta**} ʔaǰɩm.

θu=ga. {**ti** / #**ta**}=ʔaǰ-əm

go=DPRT {DE.PROX.CLD / DE.DIST.CLD}=change-MD

'Go! It changed.' (Huijsmans and Reisinger 2022a)

(409) *Context: Daniel walks out the door and five seconds later, Gloria comes downstairs with his coat. I tell her:*

{**kʷi** / #**kʷa**} θo ƛ̓əq.

{**kʷi** / #**kʷa**}=θu ƛ̓əq

{PROX.CLD / DIST.CLD}=go go.out

'He just went outside.' (Huijsmans and Reisinger 2022a)

7.6.2 Spatio-temporally distal

The *a*-final CLDs — i.e., *ta* and *kʷa* — mark distal events, as exemplified in (410) and (411). In both of these examples, time passes between the occurrence of the event and the utterance time and the discourse takes place in a different location than the event.

(410) *Context: I finished weaving a basket at my home last night. Today, I go to visit you, and I bring along my finished basket to show you. I show it to you, and I tell you:*

č{#**ti** / **ta**} hoǰuxʷən tətᶿ pɩču snanatoł.

č={#**ti** / **ta**}=huǰ-əxʷ-an tə=tᶿ=pəču snanat-uł

1SG.SBJ={DE.PROX.CLD / DE.DIST.CLD}=finish-CTR-1SG.ERG DET=1SG.POSS=basket evening-PST

'I finished my basket last evening.' (sf | EP.2022/08/12)

(411) *Context: I finished weaving a basket at my home last night. Today, I go to visit you, but I forget to bring my finished basket to show you. I tell you:*

č={**#kʷi** / **kʷa**} hoǰuxʷən šɛtᶿ pɩču snanatoł.

č={**#kʷi** / **kʷa**} huǰ-əxʷ-an šə=tᶿ=pəču snanat-uł

1SG.SBJ={PROX.CLD / DIST.CLD} finish-CTR-1SG.ERG DET=1SG.POSS=basket evening-PST

'I finished my basket last evening.' (sf | EP.2022/08/12)

Consultant's comment: Because it was last night I would say *čkʷa*.

7.6.3 Temporally proximal, spatially distal

In the previous examples, temporal and spatial deixis matched. However, it also seems to be possible to calculate deictic distance purely based on time. In (412), for example, the proximal form can be used because the birth is recent, even though the birth takes place in another country.

(412) *Context: I talk on the phone with my family in Holland. I find out that my cousin just had her baby less than a half hour before. I tell my husband:*

čɛʔɛtmot k̓ʷa{**kʷi** / **kʷa**}	ʔɛʔana.	tutamɩš k̓ʷa.
ča?at-mut=k̓ʷa={**kʷi** / **kʷa**}	ʔiʔana	tutamiš=k̓ʷa
NOW-INT=RPT={PROX.CLD / DIST.CLD}	born	boy.DIM=RPT

'She's just had her baby. It's a little boy.' (sf | EP.2022/05/27)

The distal form is also possible.

In (413), a parallel case is shown with the direct evidence CLDs. The event is recent but occurs away from the speaker down the beach (but still visible). Both the proximal and the distal form were accepted in this context.

(413) *Context: My brother goes to check out a boat that is washed up down the beach. We see him get to it.*

θo {**ti** / **ta**}	təstəs	[ʔə] tə nuxʷɛɬ.
θu={**ti** / **ta**}	təstəs	[ʔə]=tə=nəxʷiɬ
go={DE.PROX.CLD / DE.DIST.CLD}	arrive	OBL=DET=boat

'He's just arrived at it.' (sf | EP.2022/05/27)

Finally, the following pair with evidence-neutral CLDs contrast a context where the eventuality is both temporally and spatially proximal with one that is temporally proximal but spatially distal (414)–(415). Where the arriving event is spatially and temporally close to the speaker at utterance time, the proximal CLD is preferred to the distal one. When the arriving event is spatially removed, though still temporally proximal, both the proximal and the distal CLD can be used.

(414) *Context: My brother asked my mum to tell him when my husband and I arrive at my parents' place in Victoria to visit. My brother also lives in Victoria and wants to come spend the evening once we are there. Once we arrive my mum calls him and says:*

{**kʷi** / ?**kʷa**} qʷoḷ	təs.
{**kʷi** / ?**kʷa**}=qʷəḷ	təs
{PROX.CLD / DIST.CLD}=come	arrive

'They've arrived.' (vf/sf | EP.2022/07/01)

Consultant's comment: [you use *kʷa*] if you're talking about they've arrived in the community somewhere.

(415) *Context: My brother is coming to visit and will be staying with my cousin. I've asked my cousin to let me know when he arrives so I can go over to visit. My cousin calls to let me know that my brother has just arrived there, and then I tell my partner:*

k̓ʷa{**kʷi** / **kʷa**} qʷoḷ	təs.
k̓ʷa={**kʷi** / **kʷa**}=qʷəḷ	təs
RPT={PROX.CLD / DIST.CLD}=come	arrive

'They've arrived.' (sf | EP.2022/07/01)

7.6.4 Temporally distal, spatially proximal

Unlike with temporally proximal eventualities, where both proximal and distal CLDs may be felicitous (depending on whether the eventuality is spatially proximal or distal), with temporally distal eventualities, only distal CLDs may be used. This is illustrated in (416)–(417). In both contexts, the prejacent eventuality occurs temporally removed from the utterance time. The utterance location is the same as the location where the prejacent eventuality took place, however. Only the distal CLDs are felicitous in these contexts.

(416) *Context: Felipe went to campus for the day. In the morning, I was washing one of his mugs and dropped it. When he gets home in the evening, I'm cooking in the kitchen. When he comes into the kitchen, I tell him:*

č{#**kʷi** / **kʷa**} yɛp̓ʊxʷən	šɛθ k̓ʷasta	skʷiǰoɬ.
č={#**kʷi** / **kʷa**}=yəp̓-əxʷ-an	šə=θ=k̓ʷasta	skʷiǰuɬ
1SG.SBJ={PROX.CLD / DIST.CLD}=break-NCTR-1SG.ERG	DET=2SG.POSS=cup	this.morning

'I broke your cup this morning.' (vf/sf | EP.2022/05/27)

(417) *Context: At an event, we were given kits to make little earrings. I made mine yesterday, while sitting at the kitchen table. Today, you come to visit, and I see that you notice the earrings are lying on the table where I left them when I finished. I tell you:*

č{#**ti** / **ta**} hoǰuxʷən	[tə]tᶿ ɬak̓ʷaʔnatən	snanatoɬ.
č{#**ti** / **ta**}=huǰ-əxʷ-an	[tə=]tᶿ=ɬak̓ʷaʔnatən	snanat-uɬ
1SG.SBJ={DE.PROX.CLD / DE.DIST.CLD}=finish-NCTR-1SG.ERG	[DET]=1SG.POSS=earring	evening-PST

'I finished my earrings last night.' (vf/sf | EP.2022/08/14)

Where an event is temporally distal, temporal deixis takes precedence over spatial deixis.

7.6.5 Proximal vs. distal

There is a second asymmetry in the spatio-temporal deixis encoded by the CLDs: the proximal CLDs are more restricted than the distal CLDs. While proximal CLDs are rejected in contexts where the event is temporally distal (418) (and (416) and (417) above), distal CLDs are accepted in contexts where the event is temporally proximal ((412), (413), and (415) above). Distal CLDs are sometimes accepted even in cases where the event is both temporally and spatially proximal (419).[6]

(418) *Context: We had a leaky tap, but Felipe managed to fix it this morning, My mum calls in the evening to see how we're getting on.*

A: kʷʊna	p̓ap̓ɛʔit?
kʷən=a	p̓ap̓i-ʔ-it
AUX=Q	get.fixed-EPEN-STAT

'Is it fixed?' (vf | EP.2022/07/01)

[6]While the distal CLD was originally rejected in (408) and (409) from Huijsmans and Reisinger (2022a), these judgments have been variable with the same speaker in subsequent fieldwork, for instance.

b: ʔɛ, {#**kʷi** / **kʷa**} ṗaṗɛʔʊxʷəs skʷiǰoɬ.
ʔɛ, {#**kʷi** / **kʷa**}=ṗaṗi-ʔ-əxʷ-as skʷiǰuɬ
yes {PROX.CLD / DIST.CLD}=get.fixed-EPEN-NCTR-3ERG this.morning
'Yes, he fixed it this morning.' (sf | EP.2022/07/01)

(419) *Context: We had a leaky tap, but Felipe just finished fixing it. As he starts to put away his tools, my mum calls to see how we're getting on.*

A: kʷʊna ṗaṗɛʔit?
kʷən=a ṗaṗi-ʔ-it
AUX=Q get.fixed-EPEN-STAT
'Is it fixed?' (vf | EP.2022/07/01)

b: ʔɛ, {**kʷi** / **kʷa**} ṗaṗɛʔʊxʷəs.
ʔɛ, {**kʷi** / **kʷa**}=ṗaṗi-ʔ-əxʷ-as
yes {PROX.CLD / DIST.CLD}=get.fixed-EPEN-NCTR-3ERG
'Yes, he fixed it.' (sf | EP.2022/07/01)

This suggests that distal CLDs are not fully ruled out with proximal eventualities, although they are often dispreferred in these cases.

7.6.6 Summary

The judgements for different combinations of temporal and spatial deixis are summarized in Table 7.5. Overall, the judgments show that temporal deixis takes precedence over spatial deixis, and that proximal forms have a more restricted distribution than distal forms.

Table 7.5: Spatio-temporal deixis of the CLDs

Contexts	Proximal CLDs (kʷi/ti)	Distal CLDs (kʷa/ta)
Temp. Prox., Spat. Prox	✓	?
Temp. Prox., Spat. Dist	✓	✓
Temp. Dist, Spat. Prox	#	✓
Temp. Dist, Spat. Dist	#	✓

7.7 Clausal demonstratives and aspect

In this section, I discuss the interactions between CLDs and aspect. In particular, I examine their interpretation with stative predicates, progressive predicates, and perfective predicates. I show that the CLDs contribute a time span similar to the Perfect Time Span (Iatridou et al. 2001), but with a reference time fixed to the utterance time. In order to provide background for the discussion, I first briefly revisit the interpretation of stative, progressive, and perfective predicates, as introduced in Section 1.11.

7.7.1 Interpretation of statives, progressives, and perfectives in ʔayʔaǰuθəm

As discussed in Section 1.11, stative and progressive predicates are interpreted as ongoing at the reference time, which may be present or past when unmarked (while future is obligatorily marked).

(420) **Stative predicates**

a. Present

təqét məmḱiyustən sčɛʔɛt.
təq-ít məmḱayustən s=čaʔat
close-STAT window NMLZ=now
'The window is closed now.' (vf | JF.2018/05/25)

b. Past

Context: From a narrative about the speaker's childhood.

hɛɬ tə nɛʔs tə *fishbox* ʔəms **kʷaykʷyít**.
hiɬ tə=niʔ-s tə=*fishbox* ʔəms=**kʷa∼kʷy-ít**
be DET=be.there-3SG.POSS DET=fishbox 1PL.POSS=PL∼hide-STAT
'It was in the fish box that we were hidden.' (vf | PD.2019/01/25)

(421) **Progressive predicates**

a. Present

Context: Talking about the consultant's cat.

ḱʷʊt gi Patlɩk. **ʔɛʔɛɬtən**.
ḱʷə[n]-t=gi Patlik. **ʔi∼ʔiɬtən**.
see-CTR=PRT Patrick PROG∼eat
'Look at Patrick. He's eating.' (vf | JF.2018/05/01)

b. Past

ṯᶿəṯᶿχʷtəs tə cars skʷiǰoɬ ʔi hɛwtəm s čɩɬʔos.
ṯᶿə∼ṯᶿx̌ʷ-t-as tə=car-s skʷiǰuɬ ʔi hiwt-əm s=čəɬ-uɬ-s
PROG∼wash-CTR-3ERG DET=car-3POSS this.morning CONJ ahead-MD NMLZ=rain-PST-3POSS
'He was washing his car this morning before it rained.' (vf | PD.2019/04/10)

Unlike progressive and stative predicates, perfective eventive predicates cannot be interpreted as ongoing at the utterance time, as shown in (422).

(422) a. *Context: Pointing out a guy pushing out a boat to a kid, when walking on the beach.*

ḱʷʊt gi tita. #**ǰuθotəs** tə nuxʷɛɬs.
ḱʷə[n]-t=gi təỷta #**ǰuθ-ut-as** tə=nəxʷiɬ-s
see-CTR=PRT DEM push-CTR-3ERG DET=canoe-3POSS
'Look at that guy. He's pushing his boat.' (sf | JF.2019)

b. *Context: Talking about the consultant's cat.*

k̓ʷʊt gi Patlɩk. #**ʔɛɬtən**.

k̓ʷə[n]-t=gi Patlik #**ʔiɬtən**

see-CTR=PRT Patrick eat

'Look at Patrick. He's eating.' (sf | JF.2019)

Instead, they must be interpreted as preceding the utterance time, as shown in (423).[7]

(423) a. *Context: From a story where children outwit the wild man of the woods t̓al who captured them.*

ǰuʎ̓mɛtɛw k̓ʷa ʔi **ǰuθotəs**.

ǰəʎ̓-mi-t-iw=k̓ʷa ʔiy **ǰuθ-ut-as**

run-REL-CTR-PL=RPT CONJ push-CTR-3ERG

'They ran towards him and pushed him.' (vf | EP.2020/06/16)

b. **łaq̓atəm** [ʔə] Gloria Marianne hos hɛwt ʔi čɛt **ʔɛɬtən**.

łaq̓-at-əm [ʔə=]Gloria Marianne hu=s hiwt ʔiy čaʔat **ʔiɬtən**.

wait-CTR-PASS Gloria Marianne go=3POSS home CONJ then eat

'Gloria waited for Marianne to get home and then ate.' (vf | JF.2019/06/18)

As discussed in Section 1.11.2, I analyze the perfective as placing the event as a whole within the reference time. However, the present is a short interval, more or less coinciding with the utterance, and will therefore be too small to contain a whole event in most cases.[8] As a result an event described by a perfective predicate must precede the utterance time.

7.7.2 Clausal demonstratives with statives, progressive eventives, and perfective eventives

In combination with the clausal demonstratives, stative and progressive predicates describe an event occurring throughout an interval that begins preceding the utterance time and continues up to the utterance time. They are frequently associated with 'already' in the translation.

(424) **Stative**

Context: We put down our child to rest and right away she falls asleep. I tell my husband:

kʷi ʎ̓ičt̓.

kʷi=ʎ̓<i>čt̓

PROX.CLD=sleep<STAT>

'She's already asleep.' (sf | EP.2022/02/25)

[7]Unless they co-occur with the future *səm*, discussed in the following chapter.

[8]This is not the case in St'át'imcets (Matthewson 2006) or Sk̲wx̲wú7mesh (Bar-el 2005), however, where perfective eventive predicates *can* be interpreted as ongoing at the utterance time. This means that languages vary within the family in terms of whether the present must be interpreted as a short, near instantaneous interval, giving rise to the Bennett and Partee Effect (Bennett and Partee 1978). While the present must be interpreted in this way in ʔayʔaǰuθəm, neither St'át'imcets nor Sk̲wx̲wú7mesh have this restriction.

(425) **Progressives**

a. *Context: I'm out early in the morning and see someone barbecuing all her fish.*

ti t̓ɛt̓ɛn?əm. hɛhɛw c̓̌ɛ qəǰi kʷi ?i x̌a?ayɛ?noɬ.
ti=t̓i∼t̓in-?əm. hihiw=c̓̌a qəǰi kʷəǰ̌ ?iy x̌a?ayin-uɬ.
DE.PROX.CLD=PROG∼bbq.fish-ACT.INTR really=INFER still early CONJ start-PST
'She's already barbecuing her fish. She must have started really early.'

(Huijsmans and Reisinger 2022a)

b. *Context: I heard the weather report on the radio and then tell someone:*

k̓ʷa **kʷa** ?a?axʷ [?ə]kʷ Vancouver.
k̓ʷa=**kʷa**=?a∼?axʷ [?ə=]kʷ=Vancovuer
RPT=DIST.CLD=PROG∼snow [OBL=]DET=Vancouver
'It has been snowing for a while in Vancouver (I heard).' (sf | EP.2022/07/01)

If a clausal demonstrative is present, the eventuality described by the prejacent *must* continue up to the utterance time when the predicate is stative or progressive. It cannot be interpreted as ongoing at some past reference time located by the clausal demonstratives. This is shown in the contrast between (426)–(427), where the predicate *t̓ɛt̓ɛn?əm* /t̓it̓in?əm/ 'barbecuing fish' is fine with the past tense suffix in (426) referring to an action ongoing at a past time but not up to the present, but the same predicate is not acceptable in this context with a CLD, as in (427) (regardless of whether the past tense suffix is present).

(426) *Context: I had seen Elsie already out barbecuing her fish early when I went for a walk. Later Gloria and I drive by and see that she is putting out the fire and taking in the fish. I tell Gloria:*

c̓̌ɛ kʷi hoy kʷ t̓ɛn?əms. k̓ʷʊnɛtoɬč šɛtᶿ θo
c̓̌a=kʷi=huǰ kʷ=t̓in-?əm-s k̓ʷən-í-t-uɬ=č šə=tᶿ=θu
INFER=CLD=finish DET=bbq.fish-ACT.INTR-3POSS see-STAT-CTR-PST=1SG.SBJ DET=1SG.POSS=go
?ɛmašoɬ skʷiǰoɬ, **t̓ɛt̓ɛn?a?moɬ**.
?imaš-uɬ skʷiǰuɬ **t̓i∼tin-?əm-uɬ**
walk morning PROG∼bbq.fish-ACT.INTR-PST
'She must be finished barbecuing her fish. I saw her when I walked this morning, she was barbecuing.'

(vf | EP.2022/05/17)

(427) *Context: Same as (426).*

c̓̌ɛ kʷi hoy kʷ t̓ɛn?əms. k̓ʷʊnɛtoɬč šɛtᶿ θo
c̓̌a=kʷi huǰ kʷ=t̓in-?əm-s k̓ʷən-í-t-uɬ=č šə=tᶿ=θu
INFER=CLD finish DET=bbq.fish-ACT.INTR-3POSS see-STAT-CTR-PST=1SG.SBJ DET=1SG.POSS=go
?ɛmašoɬ skʷiǰoɬ, **(#kʷa) t̓ɛt̓ɛn?a?m(oɬ)**.
?imaš-uɬ skʷiǰuɬ **(#kʷa=)t̓i∼tin-?əm-(uɬ)**
walk morning CLD=PROG∼bbq.fish-ACT.INTR-PST
'She must be finished barbecuing her fish. I saw her when I walked this morning, she was already barbecuing.' (sf | EP.2022/05/17)

Similarly, *ṗəṗƛaʔam* ‘picking fruit’ is fine when interpreted as ongoing at a past reference time if it bears the optional past tense suffix *-oɬ* /uɬ/, as in (428a), but cannot be interpreted as ongoing at a past reference time with either of the clausal demonstratives *kʷi* or *kʷa*, as shown in (428b).

(428) *Context: I saw Freddie out picking blackberries early this morning when I was out running. Now we see him walking towards his house with two full buckets.*

a. qəǰimot kʷi ʔi nɛʔ **ṗəṗƛaʔaʔmoɬ** Freddie. c̓ɛ kʷi yɛc̓ɛʔɛc̓.
qəǰi-mut kʷəǰ ʔi niʔ **ṗə∼ṗƛ-aʔam-uɬ** Freddie c̓a=kʷi yac̓aʔac̓
still-INT early CONJ be.there PROG∼pick-ACT.INTR-PST Freddie INFER=CLD PL.filled
θo ti ǰɛʔǰu.
θu=ti=ǰəʔǰu
go=DE.PROX.CLD=PROG∼home
‘Freddie was out picking blackberries early this morning. He must have filled his buckets because there he’s going home.’ (sf | EP.2022/05/17)

b. #qəǰimot kʷi ʔi {**kʷi** / **kʷa**} nɛʔ **ṗəṗƛaʔam** Freddie. c̓ɛ kʷi
qəǰi-mut kʷəǰ ʔi {**kʷi** / **kʷa**}=niʔ **ṗə∼ṗƛ-aʔam** Freddie c̓a=kʷi
still-INT early CONJ {PROX.CLD / DIST.CLD}=be.there PROG∼pick-ACT.INTR Freddie INFER=CLD
yɛc̓ɛʔɛc̓. θo ti ǰɛʔǰu.
yac̓aʔac̓ θu=ti=ǰəʔǰu
PL.filled go=DE.PROX.CLD=PROG∼home
‘Freddie was out picking blackberries early this morning. He must have filled his buckets because there he’s going home.’ (sf | EP.2022/05/17)

Stative and progressive predicates in combination with the clausal demonstratives therefore provide evidence that the clausal demonstratives contribute a temporal interval stretching up to the utterance time, rather than an interval located sometime in the past.

I turn next to perfective eventive predicates. In combination with the clausal demonstratives, perfective events are interpreted as occurring within an interval preceding the utterance time, as shown in many of the examples in the preceding sections, including (429a–b), repeated from (407 and (408) above.

(429) **Perfective**

a. *Context: I see someone’s car is in the driveway.*
c̓ɛ**kʷi** θo hɛwt.
c̓a=**kʷi**=θu hiwt
INFER=PROX.CLD=go get.home
‘He must have gotten home.’ (Huijsmans and Reisinger 2022a)

b. *Context: The traffic light just changed color, but the driver hasn't noticed. The passenger says:*

θo ga. **ti** ʔajɩm.
θu=ga. **ti**=ʔaj-əm
go=DPRT DE.PROX.CLD=change-MD
'Go! It changed.' (Huijsmans and Reisinger 2022a)

In all of the above examples, the CLDs contribute a perfect time span-like interval stretching back from the utterance time. With the CLDs, the reference time is always fixed to the utterance time. While they contribute present perfect-like interpretations, they cannot be used for either past perfect or future perfect readings. (430a) shows that the proximal CLD *kʷi* cannot introduce an interval preceding a past reference time (the time of leaving); the utterance in (430b) was volunteered instead, with *čɛʔɛt* /čaʔat/ 'then', a temporal deictic that is not fixed to the utterance time.

(430) a. #**kʷi** ʎ̓aʔayin ʔaxʷ šɩms hɛqɛθotoɬ.
kʷi=ʎaʔayin ʔaxʷ šə=ms=hiq-iθut-uɬ
PROX.CLD=start snow DET=1PL.POSS=pull.out-CTR.REFL-PST
'It had just started to snow when we left.' (sf | EP.2018/02/18)

b. χʷɛt ʔot čɛt ʎ̓aʔayin ʔaxʷ šɩms hɛqɛθotoɬ.
x̌ʷit=ʔut ča?at ʎaʔayin ʔaxʷ šə=ms=hiq-iθut-uɬ
really=EXCL then start snow DET=1PL.POSS=pull.out-CTR.REFL-PST
'It started to snow just then when we left.' (vf | EP.2018/02/18)

Similarly, the proximal CLD *kʷi* is shown to be incompatible with a future perfect reading in (431a), which was corrected to (431b) without the CLD.

(431) a. *Context: When we arrive in Tla'amin tomorrow evening, Freddie will have already left for Vancouver. He's leaving tomorrow morning. You tell us:*

#**səmkʷi** ho ʔəkʷ Vancouver kʷəθ qʷolsəm təs.
səm=**kʷi**=hu ʔə=kʷ=Vancouver kʷ=əθ qʷəl̓=səm təs
FUT=PROX.CLD=hu OBL=DET=Vancouver DET=2SG.POSS come=FUT arrive
'Freddie will have left for Vancouver when you arrive.' (sf | EP.2020/06/23)

b. *Context: Volunteered for the context in (431a).*

xʷukʷt k̓ʷa **səm** niš Freddie kʷəθ qʷolsəm təs. θok̓ʷasəm Vancouver
xʷukʷt=k̓ʷa=**səm** niš Freddie kʷ=əθ=qʷəl̓=səm təs θu=k̓ʷa=səm Vancouver
not.exist=RPT=FUT be.here Freddie DET=1SG.POSS=come=FUT arrive go=RPT=FUT Vancouver
qəǰi səm kʷi.
qəǰi=səm kʷəǰ
still=FUT early
'Freddie won't be here when you come. He's going to Vancouver early.' (vf | EP.2020/06/23)

The following is a similar case where neither *kʷi* nor *kʷa* can be used with the future for a future perfect reading.

(432) *Context: My mum asks me if I can go on a trip with her this summer. I have a big project to finish, but I look at my calendar and think:*

ʔi ʔot,	hoǰuxʷtᶿəm (#**kʷi** / #**kʷa**)	kʷʊtᶿ ṗaṗɛm	hɛwtəm
ʔəǰ=ʔut	huǰ-əxʷ=tᶿ=əm=(#**kʷi** / #**kʷa**)	kʷ=ətᶿ=ṗaṗim	hiwt-əm
good=EXCL	finish-NCTR=1SG.SBJ=FUT=(PROX.CLD/DIST.CLD)	DET=1SG.POSS=work	before-MD

[ʔə] kʷʊms θo.
[ʔə=]kʷ=əms=θu
[OBL=]DET=1PL.POSS=go

'It's ok. I will have finished my work before we go.' (sf | EP.2022/05/06)

While the CLDs do co-occur with the future, they are never interpreted as future perfects in these cases, but rather give rise to inferences about non-future eventualities, as discussed in Chapter 8.

7.8 Formal semantic analysis

In this section, I provide a formal semantic analysis of the CLDs, building on Huijsmans and Reisinger (2021a), who derive the evidential and deictic components through relations between situations, following Speas (2010) and Kalsang et al. (2013). I also adopt the *perceptual trace function* from Faller (2004) and Chung (2007), which tracks the spatio-temporal locations perceived by the speaker at each moment, in order to model direct evidence. I propose that the CLDs introduce a situation preceding and continuing up to the utterance time. The location of the prejacent eventuality relative to this situation is determined by aspect. I encode direct evidence as overlap between the CLD situation and the speaker's perceptual trace.

In what follows, I lay out the spatio-temporal deictic contribution of the CLDs in Sections 7.8.1–7.8.3 and then the evidential contribution and its relation to the deictic contribution in Section 7.8.4. Finally, I discuss the pragmatics involved in the choice between direct evidence and evidence-neutral forms in Section 7.8.5.

7.8.1 Spatio-temporal deixis

All the CLDs have a spatio-temporal deictic contribution, illustrated above in Section 7.6. I encode the spatio-temporal span introduced by the CLDs as a *situation s*, which I will refer to as the CLD situation. Situations are parts of worlds and are located in time and space (see Kratzer 2020 for an overview of situation semantics). The proximal and distal relations are encoded as relations between the CLD situation and the salient situation in which the discourse occurs, the s_D (building on Speas 2010; Kalsang et al. 2013; Huijsmans and Reisinger 2022a). I also employ a temporal trace function in order to reference specifically the temporal dimension of the CLD situation for the cases where deixis is purely temporal, as in (412) above: the temporal trace function τ is a function from an eventuality or situation to times, mapping the eventuality or situation to the temporal interval that is its run-time (for trace functions see e.g., Link 1998; Krifka 1989, 1998).

The proximal relation in (433) requires the CLD situation to be contained within the discourse situation s_D, as illustrated in Figure 7.1 (where the speech bubble symbolizes the discourse situation), or the temporal

trace of the CLD situation to be contained within the temporal trace of the discourse situation, as illustrated in Figure 7.2.[9] In Figure 7.1, t_0 is the utterance time and l_0 is the utterance location.

(433) $PROX(s, s_D, t_0) = 1$ iff $[s \subseteq s_D \vee \tau(s) \subseteq \tau(s_D)] \wedge t_0$ is the final subinterval of $\tau(s)$

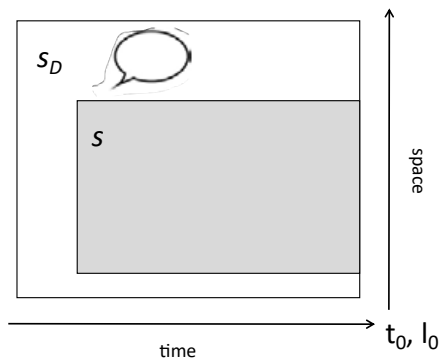


Figure 7.1: Spatio-temporal proximity

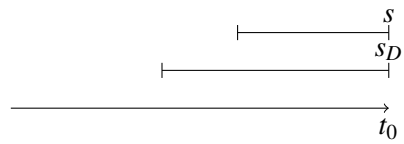


Figure 7.2: Temporal proximity

An eventuality located by a proximal CLD will be within or overlapping the CLD situation, depending on its aspectual properties, while the CLD situation will be within the discourse situation.

The distal relation in (434) requires the discourse situation s_D to be contained within the CLD situation s, as illustrated in Figure 7.3, or the temporal trace of the discourse situation to be contained within the temporal trace of the CLD situation, as illustrated in Figure 7.4.

(434) $DIST(s, s_D, t_0) = 1$ iff $[s_D \subseteq s \vee \tau(s_D) \subseteq \tau(s)] \wedge t_0$ is the final subinterval of $\tau(s)$

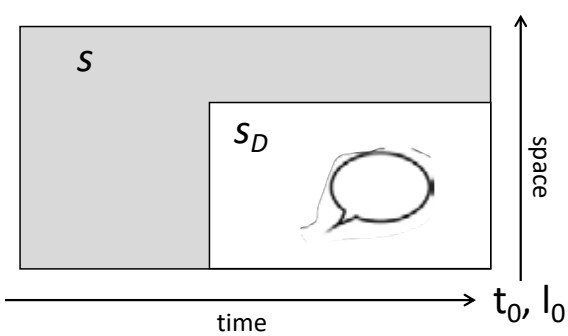


Figure 7.3: Spatio-temporally distal

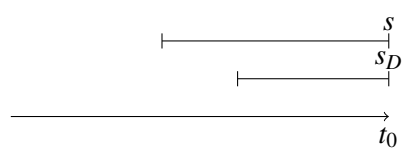


Figure 7.4: Temporally distal

An eventuality located by a distal CLD also occurs within or overlapping the CLD situation s, but typically occurs outside of the discourse situation s_D by temporally preceding it or being spatially removed from it. Since the CLD situation contains the discourse situation, however, an eventuality located by a distal CLD *can* occur within the discourse situation as well. This predicts the possibility of sometimes using a distal CLD even with proximal events, as in (409) above. Of course, the proximal form will also be felicitous in such cases and is more informative, since it is more restrictive, and so is typically used instead for these cases.

[9] Thanks to Daniel Reisinger, p.c., 2022 for suggesting that I model the deictic distance relations specifically through the relationship between the CLD situation and discourse situation.

The denotations for the evidence-neutral CLDs *k^w^i* and *k^w^a* are given in (435) and (436) below; the direct evidence CLDs have an additional meaning component and are discussed in Section 7.8.4. I propose that the clausal demonstratives place a presupposition on the reference time such that it must be the utterance time t_0; the reference time itself is introduced by tense (see Section 1.11.1).[10] The proximal and distal spatio-temporal relations involve situations stretching back from the utterance time. In (435), the CLD situation s is introduced and existentially closed. The denotation requires that t_0 is the final subinterval of the temporal trace of s. It encodes that s or the temporal trace of s is contained within the contextually-given discourse situation s_D or the temporal trace of s_D. The proposition p is claimed to be true of s in w.

(435) $[\![k^w i]\!]^{c,g,s_D,t_0} = \lambda p.\lambda t.\lambda w : t = t_0.\exists s[p(s)(w) \wedge PROX(s, s_D, t_0)]$
Where $PROX(s, s_D, t_0) = 1$ iff $[s \subseteq s_D \vee \tau(s) \subseteq \tau(s_D)] \wedge t_0$ is the final subinterval of $\tau(s)$

The denotation for the distal evidence-neutral CLD *k^w^a* in (436) likewise introduces the CLD situation s and requires that t_0 is the final subinterval of the temporal trace of s. It encodes that the contextually-given discourse situation is contained in the CLD situation or the temporal trace of the discourse situation is contained within the temporal trace of the CLD situation and the proposition p is true of s in w.

(436) $[\![k^w a]\!]^{c,g,s_D,t_0} = \lambda p.\lambda t.\lambda w : t = t_0.\exists s[p(s)(w) \wedge DIST(s, s_D, t_0)]$
Where $DIST(s, s_D, t_0) = 1$ iff $[s_D \subseteq s \vee \tau(s_D) \subseteq \tau(s)] \wedge t_0$ is the final subinterval of $\tau(s)$

The disjunction in the deictic relations proposed in this section allows for the possibility of calculating deixis based either on spatio-temporal distance or purely on temporal distance.[11] In Section 7.8.3, I illustrate how this captures the patterns of felicitous use for the proximal and distal CLDs that were shown in Section 7.6. I first turn to the interaction between the CLDs and aspect, however, in order to more clearly illustrate how the prejacent eventuality is located relative to the CLD situation.

7.8.2 Aspect and deixis

In order for the CLDs, which provide their prejacent with a situation argument rather than a time, to combine with lower aspectual phrases, I assume that the lower aspectual operators undergo type shift in order to require a situation argument instead of a temporal argument.[12] Following this type shift, they express relations between a situation and event. In the following sections, I examine perfective (Section 7.8.2.1), progressive (Section 7.8.2.2), and stative (Section 7.8.2.3) predicates in combination with the clausal demonstratives.

7.8.2.1 Perfective

As shown in (437), the type-shifted perfective requires the temporal and spatial traces of an event e meeting the description of the predicate P in w to take place within the temporal and spatial traces of the situation s;

[10] The clausal demonstratives compose below T, so the reference time t is unsaturated when the clausal demonstratives enter the derivation.

[11] Of course, a disjunctive analysis is not ideal, but the distributional facts are not amenable to a purely temporal or purely spatio-temporal account. A purely spatial account of deixis is ruled out, as illustrated in Section 7.6.

[12] This raises the question of whether type shift is necessary or whether the aspectual operators could be always defined in terms of situations. Apart from in combination with the clausal demonstratives, however, the aspectual operators discussed here show no evidence of placing restrictions on the spatial trace of the event relative to a topic situation. I therefore do not treat them as generally involving a spatial component, but only where this is required in combination with the CLDs.

this is illustrated in Figure 7.5. σ is the spatial trace function which maps an event or situation to the space it encompasses (e.g. Link 1998; Krifka 1989, 1998).

(437) $[\![PFV]\!] = \lambda P.\lambda s.\lambda w.\exists e[P(e)(w) \wedge \tau(e) \subseteq \tau(s) \wedge \sigma(e) \subseteq \sigma(s)]$

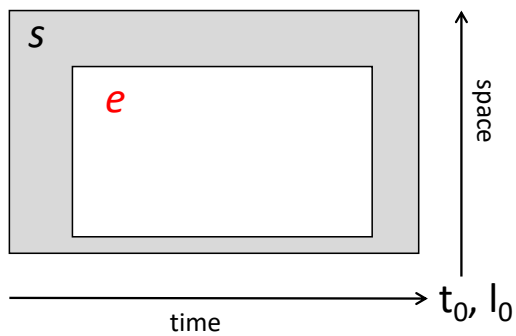


Figure 7.5: Perfective aspect: reference situation s contains eventuality e

In order to illustrate the spatio-temporal deixis that results when a perfective predicate occurs with the proximal CLD, I turn to a concrete example (438), repeated from (409) above.

(438) *Context: Daniel walks out the door and five seconds later, Gloria comes downstairs with his coat. I tell her:*

{**kʷi** / #**kʷa**} θo ƛ̓əq.
{**kʷi** / #**kʷa**} θu ƛ̓əq
{PROX.CLD / DIST.CLD} go go.out
'He just went outside.' (Huijsmans and Reisinger 2022a)

The prejacent proposition has the denotation in (439). The temporal and spatial traces of the going out event e involving pro_i in w are contained in the temporal and spatial traces of the reference situation s.

(439) $[\![PFV]\!]^{c,g,s_D,t_0}([\![\ \theta u\ ƛ̓əq\ ]\!]^{c,g,s_D,t_0}([\![pro_i]\!]^{c,g,s_D,t_0})) = \lambda s.\lambda w.\exists e[go.out(g(i))(e)(w) \wedge \tau(e) \subseteq \tau(s) \wedge \sigma(e) \subseteq \sigma(s)]$

In combination with the proximal CLD, we get the relations illustrated in Figure 7.6.[13] The proximal CLD introduces the CLD situation s, which saturates the reference situation of the lower aspectual phrase. The proximal CLD requires the discourse situation s_D to contain the CLD situation s, which in turn temporally and spatially contains the leaving eventuality e. As always, the CLD situation has the utterance time t_0 as its final subinterval.

(438) is felicitous with the proximal CLD because the perfective eventuality is temporally and spatially within s, which is itself within the discourse situation s_D. Formally, the denotation for (438) is as in (440).

[13] Figure 7.6 includes a free image of a person exiting a building, created by dooder - www.freepik.com and retrieved June. 20, 2022 from www.freepik.com/vectors/business-wallpaper.

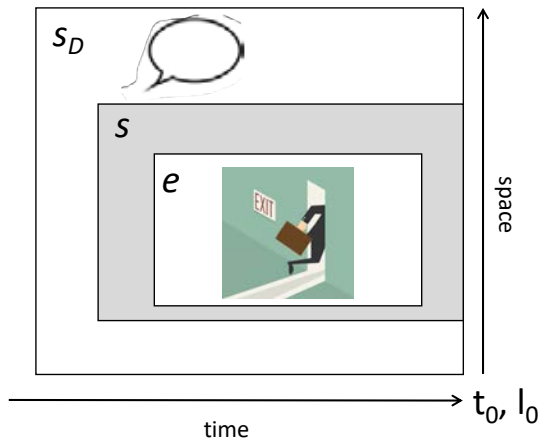


Figure 7.6: Spatio-temporal proximity and perfective aspect in (438); where s_D = discourse situation, s = CLD situation, and e = the prejacent eventuality

(440) $[\![k^w i]\!]^{c,g,s_D,t_0}([\![PFV]\!]^{c,g,s_D,t_0}([\![\theta u \grave{\lambda} \partial q]\!]^{c,g,s_D,t_0}([\![pro_i]\!]^{c,g,s_D,t_0}))) =$
$\lambda t.\lambda w : t = t_0 \,.\, \exists s \exists e[go.out(g(i))(e)(w) \wedge \tau(e) \subseteq \tau(s) \wedge \sigma(e) \subseteq \sigma(s) \wedge PROX(s, s_D, t_0)]$
Where $PROX(s, s_D, t_0)$ = 1 iff $[s \subseteq s_D \vee \tau(s) \subseteq \tau(s_D)] \wedge t_0$ is the final subinterval of $\tau(s)$

I turn next to an example with the distal CLD *kʷa* (441), repeated from (411) above, where the CLD occurs with a prejacent proposition with a perfective predicate.

(441) *Context: I finished weaving a basket at my home last night. Today, I go to visit you, but I forget to bring my finished basket to show you. I tell you:*

č={#**kʷi** / **kʷa**}	hoǰuxʷən	šɛtᶿ pɩčʊ	snanatoɫ.
č={#**kʷi** / **kʷa**}	huǰ-əxʷ-an	šə=tᶿ=pəču	snanat-uɫ
1SG.SBJ={PROX.CLD / DIST.CLD}	finish-CTR-1SG.ERG	DET=1SG.POSS=basket	evening-PST

'I finished my basket last evening.' (sf | EP.2022/08/12)

The denotation for the prejacent is as in (442). I assume that the temporal adverb combines with the *v*P and contributes a temporal interval (see e.g., Cable 2013).[14] The temporal and spatial traces of the basket-finishing eventuality are contained within the temporal and spatial traces of s and the runtime of the event is contained within the interval of the preceding evening.

(442) $[\![PFV]\!]^{c,g,s_D,t_0}(([\![\text{huǰəx}^{\text{w}}]\!]^{c,g,s_D,t_0}([\![t^{\theta} p\partial\check{c}u]\!]^{c,g,s_D,t_0}))([\![pro_I]\!]^{c,g,s_D,t_0}))([\![snanato\text{ɫ}]\!]^{c,g,s_D,t_0}) =$
$\lambda s.\lambda w.\exists e[finish(my.basket)(I)(e)(w) \wedge \tau(e) \subseteq \tau(s) \wedge \sigma(e) \subseteq \sigma(s) \wedge \tau(e) \subseteq last.evening]$

With the addition of the distal CLD, the relations are as illustrated in Figure 7.7. The CLD situation s includes the time and location of the basket-finishing eventuality e and continues up to the utterance time t_0. The discourse situation does not begin at the time when the basket is finished but the following day and in a different location. It is therefore contained within s, rather than the other way around. The denotation

[14] I abstract away from the type mismatch introduced if the temporal adverb is a predicate of times – the verb phrase being a predicate of events – but see Cable (2013: 235) for dicussion of how this can be handled with a Temporal Event Modification rule.

therefore correctly predicts the distal CLD to be felicitous and the proximal CLD, which would require the CLD situation to fit within the discourse situation, to be infelicitous.

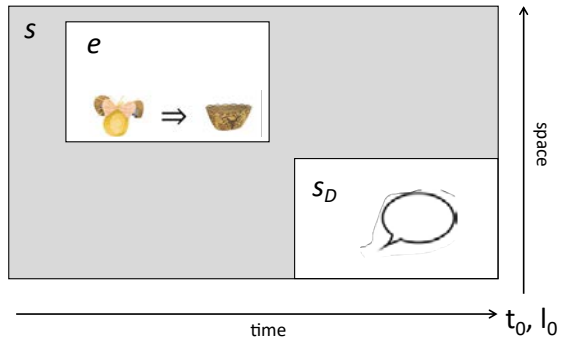


Figure 7.7: Spatio-temporal distance and perfective aspect in (441); where s_D = discourse situation, s = CLD situation, and e = the prejacent eventuality

The denotation for (441) is as in (443).

(443) $[\![k^w a]\!]^{c,g,s_D,t_0}([\![PFV]\!]^{c,g,s_D,t_0}(([\![\text{huǰəx}^{\text{w}}]\!]^{c,g,s_D,t_0}([\![t^{\theta} pəču]\!]^{c,g,s_D,t_0}))([\![pro_I]\!]^{c,g,s_D,t_0}))([\![snanato\text{ł}]\!]^{c,g,s_D,t_0})) =$
$\lambda t.\lambda w. : t = t_0.\exists s \exists e[finish(my.basket)(I)(e)(w) \wedge \tau(e) \subseteq \tau(s) \wedge \sigma(e) \subseteq \sigma(s) \wedge \tau(e) \subseteq last.night \wedge$
$DIST(s, s_D, t_0)]$
Where $DIST(s, s_D, t_0) = 1$ iff $[s_D \subseteq s \vee \tau(s_D) \subseteq \tau(s)] \wedge t_0$ is the final subinterval of $\tau(s)$

7.8.2.2 Progressive

As in Section 1.11.2, I adopt a somewhat simplified denotation for the progressive, where it contributes only imperfective semantics, though it likely also involves modal semantics (e.g. Dowty 1979). Since my focus is not on the progressive itself here, but on the way in which it interacts with the clausal demonstratives, this simplified denotation is sufficient for my purposes. In order to combine with the clausal demonstratives, the progressive undergoes a type shift to require a reference situation instead of a reference time argument (in parallel to the perfective, discussed above). Following the type shift, the progressive denotation requires the temporal trace of an event e matching the description of the predicate P in w to encompass the temporal trace of the reference situation s, meaning that the event is ongoing throughout s. For the spatial relations encoded by the progressive, I introduce a variation of the spatial trace function, ς, which returns the spatial trace of a situation or event at a specific time.[15] The denotation requires that the spatial trace of the event overlaps the spatial trace of the CLD situation throughout the runtime of e.

(444) $[\![PROG]\!] = \lambda P.\lambda s.\lambda w.\exists e[P(e)(w) \wedge \tau(s) \subseteq \tau(e) \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e)(t)]]$

I turn now to a case where the proximal CLD combines with a progressive predicate (445).

[15] I borrow the ς function from Henderson 2017 who proposes it for the spatial traces of individuals at specific times.

(445) *Context: Hoss comes to split wood for us and starts early in the morning. I see him out in our yard and tell my husband:*

kʷi gutʲᶿa?am	Hoss.
kʷi=gə∼gtʲᶿ-a?am	Hoss
PROX.CLD=PROG∼split.wood-ACT.INTR	Hoss

'Hoss is already splitting wood.' (sf | EP.2022/08/12)

The prejacent has the contribution in (446). The splitting-wood eventuality e in w is ongoing within the situation s and s overlaps e spatially throughout its duration.

(446) $[\![\text{PROG}]\!]^{c,g,s_D,t_0}([\![\textit{gətʲᶿ?əm}]\!]^{c,g,s_D,t_0}([\![\textit{Hoss}]\!]^{c,g,s_D,t_0})) = \lambda s.\lambda w.\exists e[split.wood(Hoss)(e)(w) \wedge \tau(s) \subseteq \tau(e) \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e)(t)]]$

With the addition of the proximal CLD, the relations are as in Figure 7.8. The wood-splitting eventuality e done by Hoss in w occurs throughout the temporal trace of the CLD situation s which is temporally and spatially contained within the discourse situation s_D.

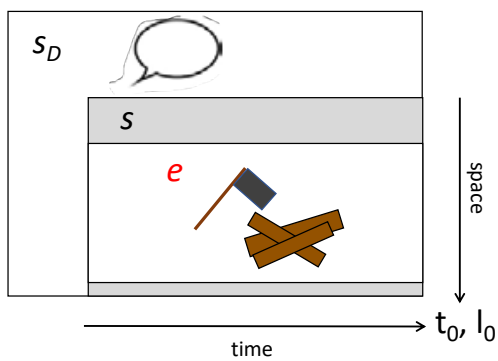


Figure 7.8: Spatio-temporal proximity and progressive aspect in (445); ; where s_D = discourse situation, s = CLD situation, e = wood-splitting event

The denotation for (445) is as in (447).

(447) $[\![\text{kʷi}]\!]^{c,g,s_D,t_0}([\![\text{PROG}]\!]^{c,g,s_D,t_0}([\![\textit{gətʲᶿ?əm}]\!]^{c,g,s_D,t_0}([\![\textit{Hoss}]\!]^{c,g,s_D,t_0}))) =$
$\lambda t.\lambda w : t = t_0.\exists s \exists e[split.wood(Hoss)(e)(w) \wedge \tau(s) \subseteq \tau(e) \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e)(t)] \wedge PROX(s, s_D, t_0)]$
Where $PROX(s, s_D, t_0) = 1$ iff $[s \subseteq s_D \vee \tau(s) \subseteq \tau(s_D)] \wedge t_0$ is the final subinterval of $\tau(s)$

I next examine a case where a distal CLD combines with a progressive predicate (448).

(448) *Context: I hear from someone that Gail is barbecuing fish and then pass this information on to someone else:*

k̓ʷa**kʷa**	tʲcʲcɛn?əm	Gail.
k̓ʷa=**kʷa**	tʲi∼tʲin-?əm	Gail
RPT=DIST.CLD	PROG∼barbecue.fish-ACT.INTR	Gail

'Gail has been barbecuing fish (I heard).' (vf | EP.2020/06/30)

The prejacent has the contribution in (449). The barbecuing eventuality e done by Gail in w continues temporally throughout the situation s and s overlaps e spatially throughout its duration.

(449) $[\![\text{PROG}]\!]^{c,g,s_D,t_0}([\![\textit{tin?əm}]\!]^{c,g,s_D,t_0}([\![\textit{Gail}]\!]^{c,g,s_D,t_0})) = \lambda s.\lambda w.\exists e[barbecue.fish(Gail)(e)(w) \wedge \tau(s) \subseteq \tau(e) \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e)(t)]]$

With the addition of the distal CLD, the relations are as in Figure 7.9. The barbecuing fish eventuality e done by Gail in w occurs throughout the temporal trace of the CLD situation s which itself encompasses the discourse situation s_D, beginning prior to the discourse situation and continuing up to the utterance time t_0. The CLD situation s overlaps e spatially throughout its duration. The spatial coordinates of the barbecuing event and discourse situation do not overlap since these take place in different places. This is possible because the CLD situation contains the discourse situation s_D, rather than the other way around.

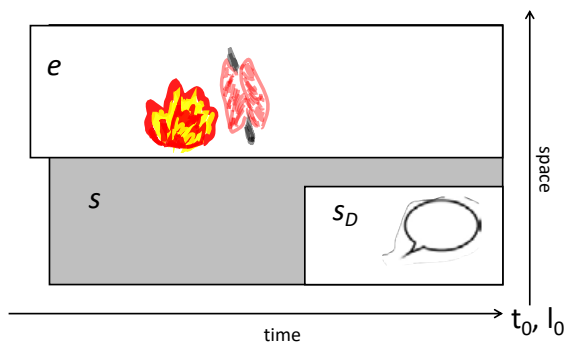


Figure 7.9: Spatio-temporal distance and progressive aspect in (448); where s_D = discourse situation, s = CLD situation, e = barbecuing-fish event

The denotation for (448) (minus the contribution of the reportative, which would compose next) is as in (450).

(450) $[\![\text{k}^{\text{w}}\text{a}]\!]^{c,g,s_D,t_0}([\![\text{PROG}]\!]^{c,g,s_D,t_0}([\![\textit{tin?əm}]\!]^{c,g,s_D,t_0}([\![\textit{Gail}]\!]^{c,g,s_D,t_0}))) =$
$\lambda t.\lambda w : t = t_0.\exists s \exists e[barbecue.fish(Gail)(e)(w) \wedge \tau(s) \subseteq \tau(e) \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e)(t)] \wedge DIST(s, s_D, t_0)]$
Where $DIST(s, s_D, t_0) = 1$ iff $[s_D \subseteq s \vee \tau(s_D) \subseteq \tau(s)] \wedge t_0$ is the final subinterval of $\tau(s)$

7.8.2.3 Stative

While there are a few different types of stative predicates in ?ay?ajuθəm, I focus on examples with the resultative stative, since these are the best understood (see Section 1.11.3 for discussion). The resultative statives pattern with the progressives in terms of describing an eventuality that holds throughout the CLD situation (see Section 7.7.2). Following Davis et al. (2020b), I adopt a target state semantics for this morpheme from Kratzer (2000) (as in Section 1.11.2). The stative morpheme combines with a predicate P that has both an event argument e and a target state argument e', existentially closing the event argument so that the result is a predicate of states (as in Kratzer 2000). For simplicity, I combine the stative with imperfective viewpoint aspect to encode that the target state holds throughout the reference time interval. Following the type shift

that allows a stative predicate to combine with a clausal demonstrative, the denotation relates the target state to a reference situation. The target state e' is claimed to hold throughout the temporal trace of the reference situation s and also overlap the reference situation spatially throughout the duration of s.[16]

(451) $[\![STAT]\!] = \lambda P.\lambda w.\exists e'\exists e[P(e)(e')(w) \wedge \tau(s) \subseteq \tau(e') \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e')(t)]]$

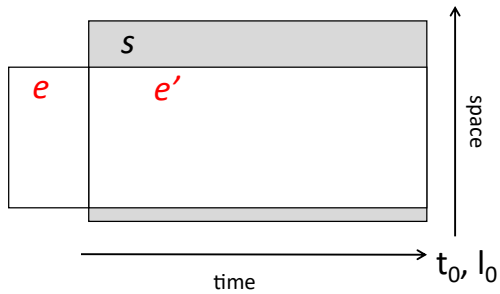


Figure 7.10: Stative aspect: target state e' is ongoing through reference situation s and spatially overlaps s

I turn next to a concrete example where the proximal CLD combines with a stative predicate (452).

(452) *Context: We put down our child to rest and right away she falls asleep. I tell my husband:*
kʷi ƛ̓iči̓t.
kʷi ƛ̓<i>či̓t
CLD sleep<STAT>
'She's already asleep.' (sf | EP.2022/02/25)

The prejacent for (452) has the denotation in (453). The root *ƛ̓ıči̓t* /ƛ̓əči̓t/ is eventive, meaning 'fall asleep', with a target state of sleeping. The addition of the stative morpheme existentially closes the event e and relates the target sleeping state e' to the reference situation: the temporal trace of the reference situation s is contained within the temporal trace of the sleeping target state e' involving pro_i (the sleeping child) and the spatial trace of the reference situation s overlaps the spatial trace of the sleeping target state e' throughout the duration of s.

(453) $[\![STAT]\!]^{c,g,s_D,t_0}([\![\text{ƛ̓əči̓t}]\!]^{c,g,s_D,t_0}([\![pro_i]\!]^{c,g,s_D,t_0})) = \lambda s.\lambda w.\exists e'\exists e[fall.asleep(g(i))(e)(e')(w) \wedge \tau(s) \subseteq \tau(e') \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e')(t)]]$

The proximal CLD then contributes the CLD situation s, which saturates the reference situation of the prejacent. The proximal CLD requires the CLD situation to be within the discourse situation and continue up to the utterance time. The relations between the sleeping eventuality, CLD situation, and discourse situation are illustrated in Figure 7.11. The sleeping eventuality e' is ongoing throughout the CLD situation s beginning recently and lasting up to the utterance time and spatially located within the discourse situation s_D. The 'already' translation arises contextually since the baby was not expected to be asleep yet at this interval. The formal denotation for (452) is given in (454).

[16]The existential closure of e' occurs with the application of imperfective viewpoint aspect. See Section 1.11.3.

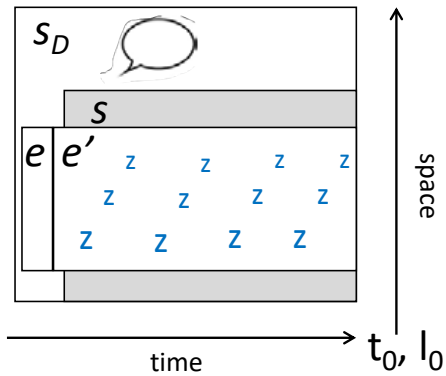


Figure 7.11: Spatio-temporal proximity and stative aspect in (452); where s_D = discourse situation, s = CLD situation, e = falling asleep event, e' = target state of sleeping

(454) $[\![k^w i]\!]^{c,g,s_D,t_0}([\![STAT]\!]^{c,g,s_D,t_0}([\![\grave{\lambda}\partial\grave{c}t]\!]^{c,g,s_D,t_0}([\![pro_i]\!]^{c,g,s_D,t_0}))) =$
$\lambda t.\lambda w : t = t_0.\exists s \exists e' \exists e[fall.asleep(g(i))(e)(e')(w) \wedge \tau(s) \subseteq \tau(e') \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e')(t)]$
$\wedge PROX(s, s_D, t_0)]$
Where $PROX(s, s_D, t_0) = 1$ iff $[s \subseteq s_D \vee \tau(s) \subseteq \tau(s_D)] \wedge t_0$ is the final subinterval of $\tau(s)$

7.8.3 Temporal vs spatio-temporal deixis

Having illustrated the spatio-temporal contribution of the CLDs in combination with predicates of different aspectual classes, I now turn to the relationship between temporal deixis and spatio-temporal deixis. Table 7.6 (repeated from Table 7.5) summarizes the felicity judgements for the proximal and distal CLDs with different combinations of values for spatial and temporal deixis.

Table 7.6: Spatio-temporal deixis of the CLDs

Contexts	Proximal CLDs (k^wi/ti)	Distal CLDs (k^wa/ta)
Temp. Prox., Spat. Prox	✓	?
Temp. Prox., Spat. Dist	✓	✓
Temp. Dist, Spat. Prox	#	✓
Temp. Dist, Spat. Dist	#	✓

The cases above primarily involved contexts where the eventuality was both temporally and spatially proximal or both temporally and spatially distal. In this section, I focus on accounting for cases where temporal and spatial deixis have opposing values.

I begin with a case where the eventuality is temporally proximal but spatially distal. In (455), repeated from (412) above, the eventuality is recent, but took place in another country; here, either the proximal or distal CLD can be used.

(455) *Context: I talk on the phone with my family in Holland. I find out that my cousin just had her baby less than a half hour before. I tell my husband:*

čɛʔɛtmot k̓ʷa{**kʷi** / **kʷa**}	ʔɛʔana.	tutamɩš k̓ʷa.
ča?at-mut=k̓ʷa={**kʷi** / **kʷa**}	ʔiʔana	tutamiš=k̓ʷa
NOW-INT=RPT={PROX.CLD / DIST.CLD}	born	boy.DIM=RPT

'She's just had her baby. It's a little boy.' (sf | EP.2022/05/27)

As illustrated with the relations between times in Figure 7.12, the proximal CLD is predicted to be good because the temporal trace of the CLD situation – which itself contains the perfective event – is contained within the temporal trace of the discourse situation. As illustrated with the relations between situations in Figure 7.13, the distal CLD is also predicted to be good because the CLD situation cannot contain the event spatially and fit within the discourse situation; instead the CLD situation must contain the discourse situation. Both the proximal and the distal CLD are therefore correctly predicted to be felicitous in this context.

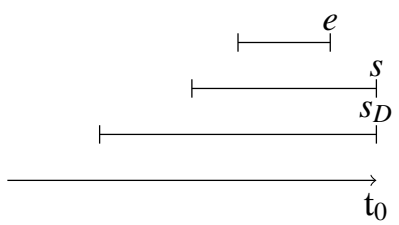


Figure 7.12: Temporal proximity

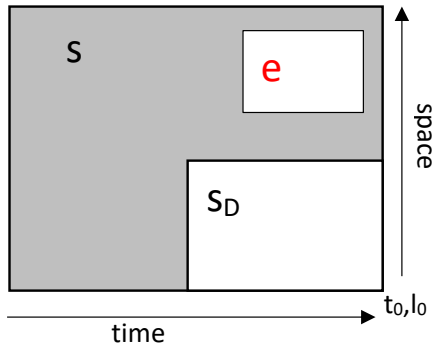


Figure 7.13: Temporal proximity, spatial distance

I turn now to cases where the eventuality is temporally distal, but spatially proximal. In (456), repeated from (416) above, the conversation takes place in the same location as the breaking event but temporally removed from the breaking event. The distal CLD is felicitous, but the proximal CLD is infelicitous.

(456) *Context: Felipe went to campus for the day. In the morning, I was washing one of his mugs and dropped it. When he gets home in the evening, I'm cooking in the kitchen. When he comes into the kitchen, I tell him:*

č{**kʷa**/#**kʷi**}	yɛp̓ʊxʷən	šɛθ k̓ʷasta	skʷiǰoł.
č={**kʷa**/#**kʷi**}	yəp̓-əxʷ-an	šə=θ=k̓ʷasta	skʷiǰuł
1SG.SBJ={DIST.CLD/PROX.CLD}	break-NCTR-1SG.ERG	DET=2SG.POSS=cup	this.morning

'I broke your cup this morning.' (vf/sf | EP.2022/05/27)

In this case, the CLD situation cannot contain the event and have its temporal trace fit within the temporal trace of the discourse situation, since the event and the discourse situation are at different times, as illustrated in Figure 7.14. For the same reason, the CLD situation cannot fit within the discourse situation, as illustrated in Figure 7.15.

The proximal CLD is therefore correctly ruled out in this context.

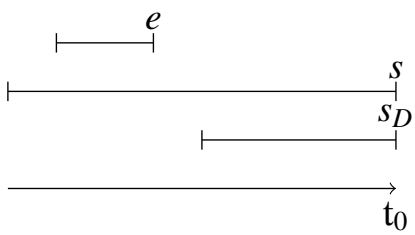


Figure 7.14: Temporal distance

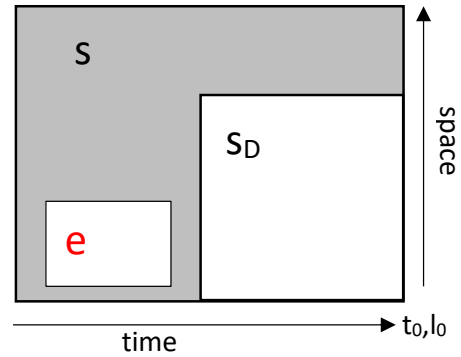


Figure 7.15: Temporal distance, spatial proximity

The relations between times, situations and predicted felicity for the proximal and distal CLD for each pairing of temporal and spatial proximity are summarized in Table 7.7 for perfective events. The proximal form *k*^{w}*i* is always predicted to be infelicitous when the event is temporally distal, but felicitous when the event is temporally proximal, regardless of spatial proximity. The distal form *k*^{w}*a* is predicted to be dispreferred when the event is temporally and spatially proximal, since *k*^{w}*a* is less informative in these cases, but it is still predicted to be compatible with these cases. If the event is spatially or spatially and temporally remote, *k*^{w}*a* is predicted to be fully felicitous.

While the predictions are easier to visualize with perfective events, the predictions for the felicity of *k*^{w}*i* and *k*^{w}*a* are the same with progressive and stative eventualities, as in Table 7.8.

7.8.3.1 Summary

In this section, I proposed proximal and distal contributions for the CLDs relating the discourse situation to the CLD situation, or the temporal trace of the discourse situation to the temporal trace of the CLD situation.[17] I also proposed denotations for perfective, progressive, and stative aspect that involve a reference situation rather than a reference time, relating both the temporal and spatial traces of an eventuality to a reference situation. I then illustrated how these components correctly predict the distribution of the proximal and distal CLDs in combination with prejacent propositions with perfective, progressive, and stative aspects. Having established the temporal and spatial interactions between the CLDs and aspect for the evidence-neutral CLDs, I turn to the evidential component of the direct evidence CLDs and how this interacts with the deictic components just established.

7.8.4 Evidentiality: Encoding direct evidence

In this section, I propose a semantic analysis of the direct evidence requirement imposed by *ti* and *ta*. I propose an analysis where the direct evidence is encoded as a relation between the CLD situation and the *speaker's perceptual trace*. Faller (2004) and subsequently Chung (2007) propose a perceptual trace function that returns the temporal-spatial coordinates of the locations perceived by the speaker at each moment within the speaker's temporal trace (the speaker's lifespan).

[17] Roumyana Pancheva, p.c., 2022, suggests an alternative analysis where the clausal demonstratives separately encode temporal semantics, introducing an extended-now type interval, and a deictic component, situating the event within this extended now. This is an interesting alternative that may prove somewhat simpler in implementation. Fully exploring this alternative and its implications for the evidential semantics encoded by the direct evidence CLDs (discussed below) will have to await future research, however.

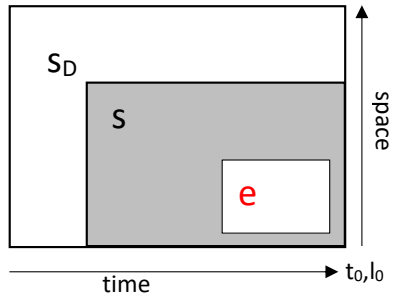
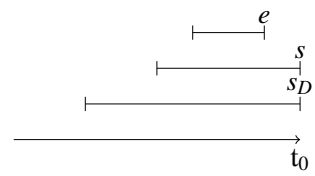
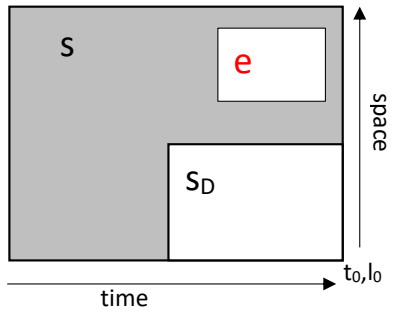
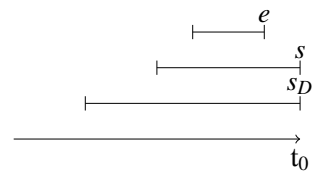
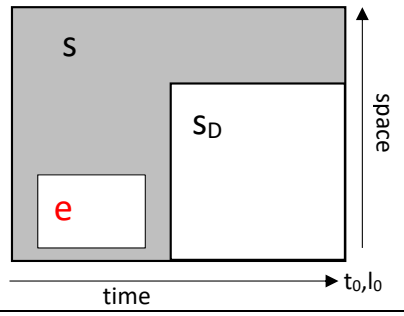
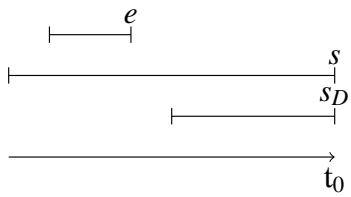
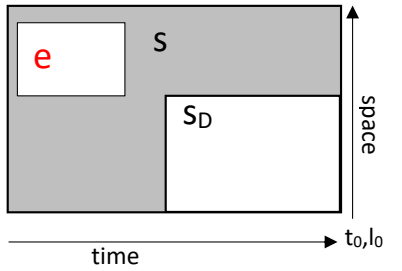
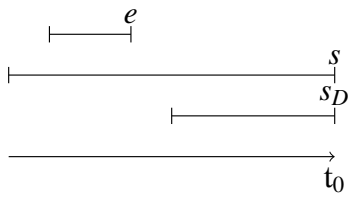
Perfective		Felicity	Deixis with situations	Deixis with times
T.Prox, Sp.Prox	kʷi	✓		
	kʷa	?		
T.Prox, Sp.Dist	kʷi	✓		
	kʷa	✓		
T.Dist, Sp.Prox	kʷi	#		
	kʷa	✓		
T.Dist, S.Dist	kʷi	#		
	kʷa	✓		

Table 7.7: Deixis and predicted felicity for CLDs

(457) P-trace$(sp_c) = \{\langle t, l\rangle \mid t \subseteq \tau(sp_c) \wedge \textsc{perceive}(sp, t, l)\}$
Where $\textsc{perceive}(sp, t, l) = 1$ iff the speaker in the context sp_c perceives location l at time t.
(Chung 2007: 203, based on Faller 2004: 70)

I propose a slight modification to this denotation to introduce situations, which have spatio-temporal locations and so can be used in place of spatio-temporal coordinates for a somewhat simpler exposition more in line with Huijsmans and Reisinger (2021a).

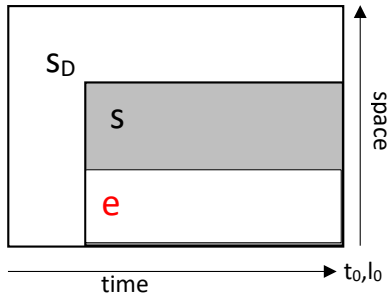
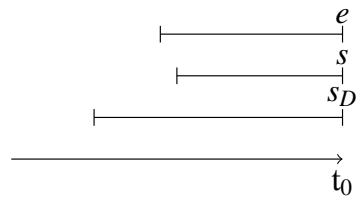
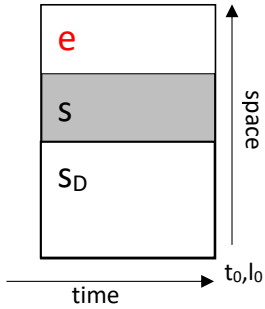
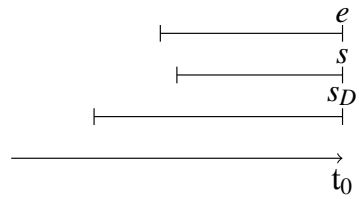
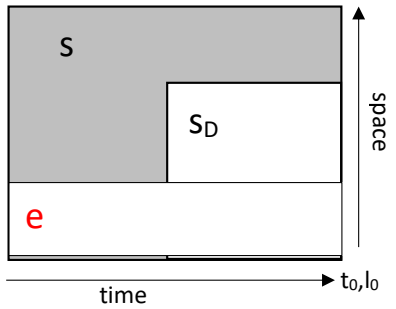
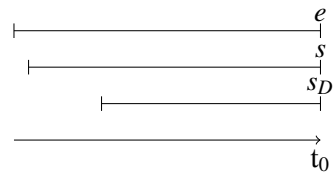
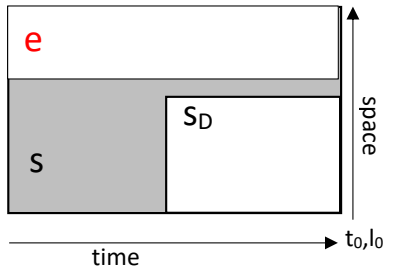
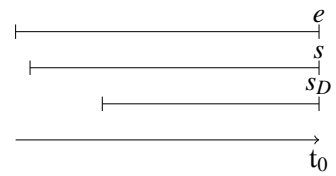
Prog/stative		Felicity	Deixis with situations	Deixis with times
T.Prox, Sp.Prox	$k^w i$	✓		
	$k^w a$	?		
T.Prox, Sp.Dist	$k^w i$	✓		
	$k^w a$	✓		
T.Dist, Sp.Prox	$k^w i$	#		
	$k^w a$	✓		
T.Dist, S.Dist	$k^w i$	#		
	$k^w a$	✓		

Table 7.8: Deixis and predicted felicity for CLDs with statives and progressives

(458) P-trace(sp_c) = {s | $t \subseteq \tau(s_c) \wedge$ PERCEIVE(sp_c, s)}
Where PERCEIVE(sp_c, s) = 1 iff the speaker in the context sp_c perceives s.

The PERCEIVE function will only be true of situations that are small enough and close enough to be perceived by the speaker, but not too small to be perceived by the speaker (Faller 2004: 70). It will also not be true of situations in the speaker's immediate vicinity that they do not notice.

As seen in the preceding sections, the CLDs introduce a spatio-temporal span, the CLD situation. For the direct evidence CLDs, the CLD situation is contained within the speaker's perceptual trace. The direct

evidence (DE) component of their contribution is given in (459).

(459) $DE = \lambda p.\lambda w.\exists s[p(s)(w) \wedge s \subseteq P\text{-}trace(sp_c)]$

Putting this together with the deictic components introduced above, *ti* has the denotation in (460). The denotation requires that the speaker's perceptual trace contains s and, as with all CLDs, the reference time is t_0.[18] The proposition is asserted to be true of the CLD situation s in w, where s is spatio-temporally contained within the discourse situation, as in Figure 7.16 or the temporal trace of s is contained within the temporal trace of the discourse situation s_D, as in Figure 7.17. s is always contained with the speaker's perceptual trace and always temporally contained with the temporal trace of the discourse situation, but since deixis can be interpreted purely temporally, it is possible for s to be spatially outside of the discourse situation, so long as it is still within the speaker's perceptual trace and temporally proximal.[19]

(460) $[\![\, ti \,]\!]^{c,g,s_D,t_0} = \lambda p.\lambda t.\lambda w.\exists s : t = t_0 \wedge s \subseteq P\text{-}trace(sp_c).p(s)(w) \wedge PROX(s, s_D, t_0)$
Where $PROX(s, s_D, t_0) = 1$ iff $[s \subseteq s_D \vee \tau(s) \subseteq \tau(s_D)] \wedge t_0$ is the final subinterval of $\tau(s)$

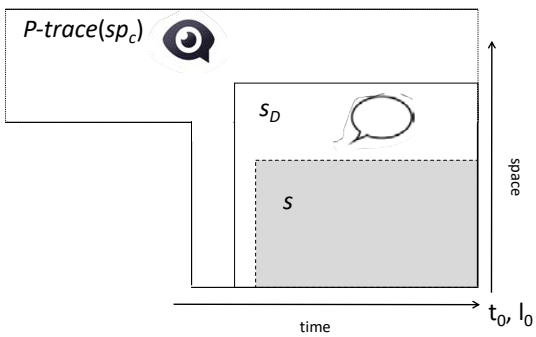


Figure 7.16: Spatio-temporal proximal relations; s = CLD situation, s_D = discourse situation, $P\text{-}trace(sp_c)$ = the speaker's perceptual trace

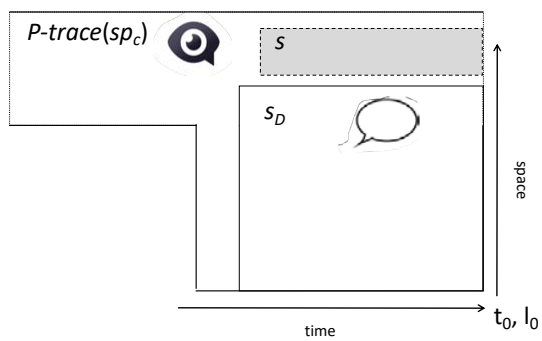


Figure 7.17: Temporal proximal relations; s = CLD situation, s_D = discourse situation, $P\text{-}trace(sp_c)$ = the speaker's perceptual trace

The denotation for *ta* in (461) similarly requires that the speaker's perceptual trace contains s and the reference time is t_0. If these requirements are met, the proposition is asserted to be true of s in w, where the discourse situation s_D is contained in the CLD situation s or the temporal trace of the discourse situation is contained within the temporal trace of the CLD situation. Once again, s is always contained within the speaker's perceptual trace and the temporal trace of s will always contain the temporal trace of s_D. If distance is determined based on time and space, the CLD situation will contain the discourse situation, as in Figure 7.18, while if distance is determined based on time, the CLD situation need not spatially contain the discourse situation, as in Figure 7.19.

[18] While the evidential requirement and the restriction on the reference time are modelled as presuppositions, these should not be taken to be restrictions on the common ground. Like other Salish languages (e.g., Matthewson 2005b, 2008), ʔayʔaǰuθəm seems to lack presuppositions that place restrictions on the common ground.

[19] The spatial coordinates of the speaker's perceptual trace in Figures 7.16 and 7.17 prior to when the CLD situation begins are not important. While I represent the speaker's perceptual trace as initially spatially removed from the utterance location l_0, the speaker could already perceive the utterance location prior to the start of the CLD situation. This is also true for subsequent figures.

(461) $[\![\ ta\ ]\!]^{c,g,s_D,t_0} = \lambda p.\lambda t.\lambda w.\exists s : t = t_0 \wedge s \subseteq P\text{-}trace(sp_c).p(s)(w) \wedge DIST(s, s_D, t_0)$
Where $DIST(s, s_D, t_0)$ = 1 iff $s_D \subseteq s \vee \tau(s_D) \subseteq \tau(s)] \wedge t_0$ is the final subinterval of $\tau(s)$

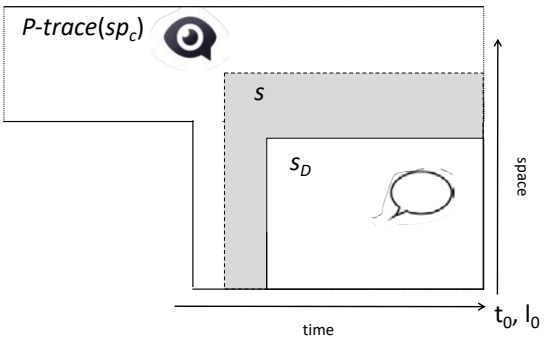


Figure 7.18: Spatio-temporal distal relations; s = CLD situation, s_D = discourse situation, *P-trace*(sp_c) = the speaker's perceptual trace, e = prejacent eventuality

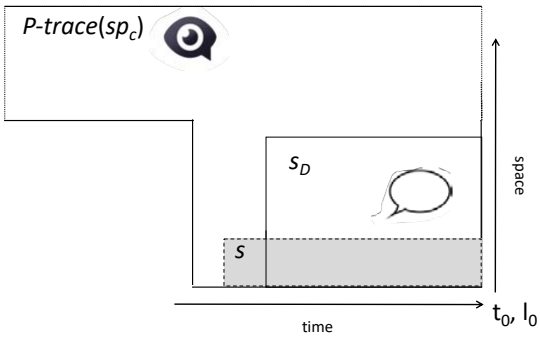


Figure 7.19: Temporal distal relations; s = CLD situation, s_D = discourse situation, *P-trace*(sp_c) = the speaker's perceptual trace, e = prejacent eventuality

Depending on whether the prejacent p contains perfective, progressive, or stative aspect, the direct evidence requirement will apply to the whole event or just a subpart. I turn next to illustrating the direct evidence CLDs' interaction with aspect, beginning with the proximal direct evidence CLD and then moving to the distal direct evidence CLD.

7.8.4.1 Proximal direct evidence CLD and aspect

Taking an example like (462), repeated from (429b) above, the spatio-temporal relations are as in Figure 7.21. *ti* requires that the CLD situation s is contained within the salient discourse situation (the situation of the speaker and the driver sitting at an intersection waiting for the light) and extends up to the utterance time t_0. The CLD situation must be contained within the speaker's perceptual trace. Since the event is perfective, its temporal and spatial traces are within s and the whole event needs to be within the perceptual trace of the speaker. This means that the speaker must have direct evidence for the event and to continue to perceive the situation containing the event up to the utterance time.

(462) *Context: The traffic light just changed color, but the driver hasn't noticed. The passenger says:*

θo ga.	**ti**	ʔaǰɩm.
θu=ga.	**ti**	ʔaǰ-əm
go=DPRT	DE.PROX.CLD	change-MD

'Go! It changed.' (Huijsmans and Reisinger 2022a)

The denotation for (462) is given in (463).

(463) $[\![\ ti\ ]\!]^{c,g,s_D,t_0}\ ([\![\ ʔaǰɩm\ ]\!]^{c,g,s_D,t_0}\ ([\![\ pro_i\ ]\!]^{c,g,s_D,t_0})) = \lambda t.\lambda w.\exists s : t = t_0 \wedge s \subseteq P\text{-}trace(sp_c).$
$\exists e[change(e)(pro_i)(w) \wedge \tau(e) \subseteq \tau(s) \wedge \sigma(e) \subseteq \sigma(s) \wedge PROX(s, s_D, t_0)]$

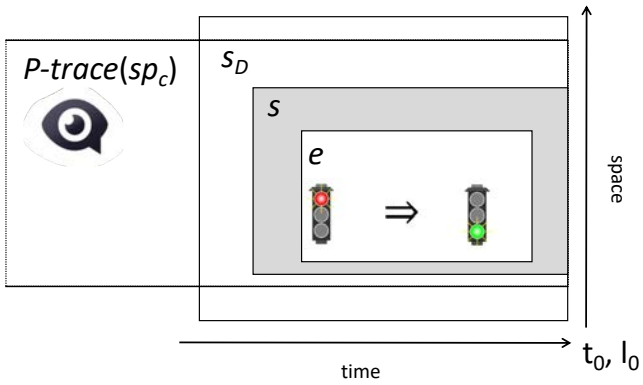


Figure 7.20: DE, proximity, and perfective aspect in (462); s = CLD situation, s_D = discourse situation, *P-trace*(sp_c) = the speaker's perceptual trace, e = prejacent eventuality

This is a good moment to address why a direct evidence CLD is not used for an example like (464) (repeated from (406) above), which also involves a perfective predicate and direct evidence.

(464) *Context: I'm outside and see snow. Then I come inside, where I can no longer see the snow, and tell someone.*

{#ti / #ta / **kʷi** / **kʷa**}	λ̓aʔayɪn	ʔaxʷ.
#ti / #ta / {**kʷi** / {**kʷa**}	λ̓aʔayin	ʔaxʷ
{DE.PROX.CLD / DE.DIST.CLD / PROX.CLD / DIST.CLD}	start	snow

'It has started to snow.' (Huijsmans and Reisinger 2022a)

In (464), there is no aspect of the eventuality which is visible to the speaker up to the utterance time; at the time of speaking, the speaker has moved away from the location of seeing the snow and no longer sees the snow. The situation containing the starting to snow event is therefore not contained within the speaker's perceptual trace at the utterance time. Since the speaker's perceptual trace does not continue to contain the CLD situation up to the utterance time, the direct evidence CLDs is infelicitous.

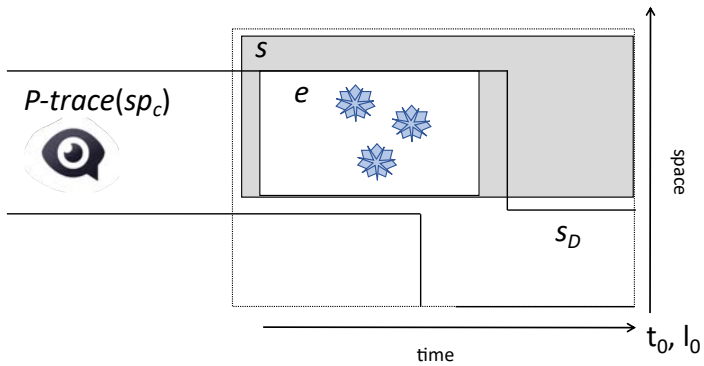


Figure 7.21: Previous DE in (464); s = CLD situation, s_D = discourse situation, *P-trace*(sp_c) = the speaker's perceptual trace, e = prejacent eventuality

This contrasts with the case of (462) above, where the post-state of the eventuality – the green light – continues to be visible up to the utterance time. The speaker's perceptual trace continues to contain direct

evidence for the eventuality throughout the CLD situation *s*.

I turn now to the combination of the proximal CLD *ti* with a progressive predicate, as in (465) (repeated from (425) above).

(465) *Context: I'm out early in the morning and see someone barbecuing all her fish.*

ti	ṫɛṫɛn?əm.	hɛhɛw c̓ɛ	qəǰi	kʷi	?i	λ̓a?ayɛ?noɬ.
ti	ṫi∼ṫin-?əm.	hihiw=c̓a	qəǰi	kʷəǰ	?iy	λ̓a?ayin-uɬ.
DE.PROX.CLD	PROG∼bbq.fish-ACT.INTR	really=INFER	still	early	CONJ	start-PST

'She's already barbecuing her fish. She must have started really early.'

(Huijsmans and Reisinger 2022a)

The spatio-temporal relations for (465) are illustrated in Figure 7.22. The event is ongoing at the CLD situation *s* and overlaps the CLD situation spatially throughout *e*'s duration. The speaker's perceptual trace contains *s*. Since *e* temporally and spatially overlaps *s* throughout the duration of *s*, this means that the speaker has direct evidence for the event throughout *s* (but not necessarily throughout the event's duration).

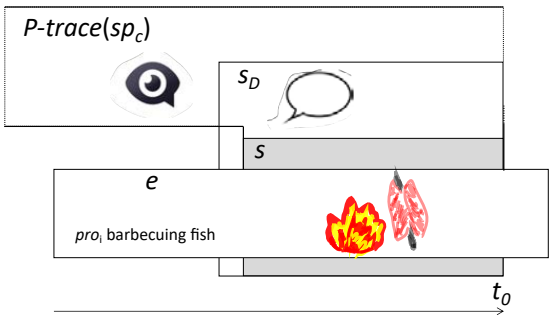


Figure 7.22: DE, proximity, and progressive aspect in (465); s = CLD situation, s_D = discourse situation, $P\text{-}trace(sp_c)$ = the speaker's perceptual trace, e = prejacent eventuality

This gives the correct evidential requirement for an example like (465), where the speaker has not witnessed the entire event but comes across someone already in the process of barbecuing the fish.

The denotation for (465) is given in (466).

(466) $[\![ti]\!]^{c,g,s_D,t_0}([\![\text{ PROG }]\!]^{c,g,s_D,t_0}([\![\text{ ṫin?əm }]\!]^{c,g,s_D,t_0}([\![\, pro_i \,]\!]^{c,g,s_D,t_0}))) = \lambda t \lambda w.\exists s : t = t_0 \wedge s \subseteq P\text{-}trace(s_c).$
$\exists e[bbq.fish(g(i))(e)(w) \wedge \tau(s) \subseteq \tau(e) \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e)(t)] \wedge s \subseteq s_D \wedge PROX(s, s_D, t_0)]$

7.8.4.2 Distal direct evidence CLD and aspect

I now examine the contribution of the distal direct evidence CLD. In (467) the distal direct evidence CLD occurs with a prejacent proposition with a perfective predicate. For (467), we get the spatio-temporal relations illustrated in Figure 7.23. Here, the discourse situation s_D is contained within the larger CLD situation *s* that is itself contained within the speaker's perceptual trace. This captures the fact that the speaker perceived the

event and continues to perceive the situation containing the basket-finishing event since the finished basket is present at the time of speaking. The basket-finishing eventuality, however, does not occur within the discourse situation (which takes place in the afternoon), but earlier, in the morning.

(467) *Context: In the afternoon, you present a basket you made this morning to someone.*

č{**ta** / #**ti**}	hoǰux^{w}ən	t^{θ} pıču	sk^{w}iǰoł.
č={**ta** / #**ti**}	huǰ-əx^{w}-an	t^{θ}=pəču	sk^{w}iǰuł
1SG.SBJ={DE.DIST.CLD / DE.PROX.CLD}	finish-CTR-1SG.ERG	1SG.POSS=basket	this.morning

'I finished my basket this morning.' (Huijsmans and Reisinger 2022a)

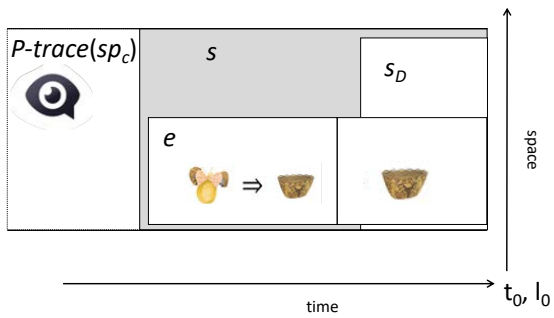


Figure 7.23: DE, distance, and perfective aspect in (467); s = CLD situation, s_D = discourse situation, *P-trace*(sp_c) = the speaker's perceptual trace, e = prejacent eventuality

The denotation for (467) is given in (468).

(468) $[\![ta]\!]^{c,g,s_D,t_0}$ (($[\![hoǰəx^{w}]\!]^{c,g,s_D,t_0}$ ($[\![$t^{θ} pəču $]\!]^{c,g,s_D,t_0}$))($[\![pro_i]\!]^{c,g,s_D,t_0}$)) ($[\![sk^{w}iǰuł]\!]^{c,g,s_D,t_0}$)
$= \lambda t.\lambda w.\exists s : t = t_0 \wedge s \subseteq P\text{-}trace(sp_c).\exists e[finish(my.basket)(I)(e)(w) \wedge e \subseteq s \wedge$
$\tau(e) \subseteq this.morning \wedge DIST(s, s_D, t_0)]$

Finally, I turn to the distal direct evidence CLD in combination with a prejacent with a stative predicate (469).

(469) *Context: I saw that my relatives who live nearby had wood for a big bonfire out but it had gotten soaked with the rain. I thought it would take them ages to get it going when they tried to light it. My relative phones and tells me he's going to get it started up if I want to come enjoy it. I tell him I'll come, but I figure it will be cold to stand around while waiting for him to get it going, so I don't go over right away. Very shortly, though, I can see smoke rising from his backyard, although I'm too far away to see the fire. I think to myself:*

ta	ṗaq̇ɛm.	č̌ɛ k^{w}i	λ̓a?ayın	q̇ətx^{w}a?am.
ta	ṗəq̇-í-m	č̌a=k^{w}i	λ̓a?ayin	q̇ətx^{w}-a?am
DE.DIST.CLD	smoke-STAT-MD	INFER-PROX.CLD	start	burn-ACT.INTR

'It's already smoking. He must have already got it burning.' (sf | EP.2021/05/07)

For (469), the relations between situations are as in (470), where pro_i is the bonfire. The CLD situation s is contained within the speaker's perceptual trace. The temporal trace of the CLD situation s is contained within the runtime of the eventuality e of smoke rising, and the spatial trace of the CLD situation overlaps the eventuality e throughout the runtime of the situation s, which lasts up to the utterance time t_0. The speaker's perceptual trace therefore overlaps the smoke-rising eventuality but does not fully encompass it. Since the smoking event is somewhat spatially removed from the discourse situation, the CLD situation is larger than the discourse situation in order to encompass the event and the discourse situation.

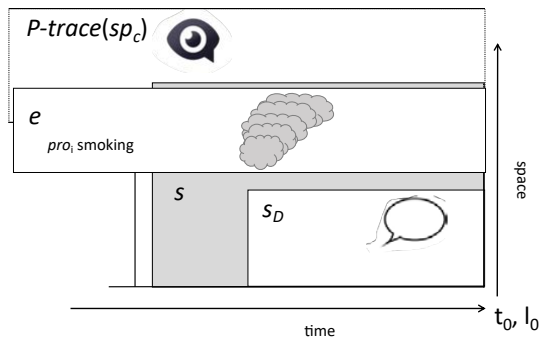


Figure 7.24: DE, distance, and stative aspect in (467); s = CLD situation, s_D = discourse situation, *P-trace*(sp_c) = the speaker's perceptual trace, e = prejacent eventuality

The 'already' in the translation arises because the speaker is not just making a claim about the state holding at the utterance time but is claiming the state to have been holding throughout a span up to the utterance time.

Formally, (469) is represented as in (470). For this predicate *ṗaq̇ím* 'smoking', I have not been able to elicit an eventive counterpart; this means that it is unlikely to be a resultative stative, since resultative statives are derived from eventive predicates. I therefore represent the relationship between the reference situation and the temporal and spatial traces of the event in terms of imperfective aspect for simplicity. Future work is needed to fully explore the lexical semantics involved here and how it relates to viewpoint aspect.

(470) $[\![ta]\!]^{c,g,s_D,t_0} ([\![ṗəq̇im]\!]^{c,g,s_D,t_0} ([\![pro_i]\!]^{c,g,s_D,t_0})) = \lambda t.\lambda w \exists s : t = t_0 \wedge s \subseteq P\text{-}trace(sp_c).$
$\exists e[smoke(g(i))(e)(w) \wedge \tau(s) \subseteq \tau(e) \wedge \forall t[t \subseteq \tau(s) \rightarrow \varsigma(s)(t) \circ \varsigma(e)(t)] \wedge DIST(s, s_D, t_0)]$

7.8.4.3 Summary

In this section, I examined the CLDs *ti* and *ta* which encode direct evidence as well as spatio-temporal deixis. I proposed that these require the CLD situation to fall within the speaker's perceptual trace. I then showed how this captures the direct evidence requirements imposed with both perfective predicates and progressive and stative predicates. With perfective predicates, the whole event must be within the CLD situation and therefore perceived by the speaker. With progressive and stative predicates, only a portion of the event will overlap the CLD situation, so the speaker is only required to have DE for that portion of the event.

7.8.5 Competition between forms

Following Huijsmans and Reisinger (2021a), I have analyzed the evidence-neutral clausal demonstratives as simply lacking an evidential requirement. This allows them to be used with direct evidence that does not continue up to the utterance time, as seen in (471) (repeated from (405)), or with indirect evidence, as seen in (472) (as well as (429a) above).

(471) *Context: I'm outside and see snow. Then I come inside, where I can no longer see the snow, and tell someone.*

{#ti / #ta / **kʷi** / **kʷa**} ƛ̓a?ayɩn ?axʷ.
#ti / #ta / {**kʷi** / {**kʷa**}=ƛ̓a?ayin ?axʷ
{DE.PROX.CLD / DE.DIST.CLD / PROX.CLD / DIST.CLD}=start snow
'It has started to snow.' (Huijsmans and Reisinger 2022a)

(472) *Context: I see Freddie's car in his driveway, and I know he'd been out earlier.*

č̓ɛ {#ta / **kʷa**} qʷol̓ hɛwt.
č̓a={#ta / **kʷa**}=qʷəl̓ hiwt
INFER={DE.DIST.CLD / DIST.CLD}=come get.home
'He must have gotten home.' (sf | EP.2022/07/01)

Since *kʷi* and *kʷa* are evidence-neutral, they are also predicted to be good where the speaker has direct evidence, and therefore they are predicted to overlap in distribution with the direct evidence CLDs. This prediction is not borne out, as seen in Section 7.5. I propose that this is due to competition between forms. Inspecting the denotations below, it is apparent that the direct evidence CLDs encode more information than the evidence neutral forms.

(473) $[\![ti]\!]^{c,g,s_D,t_0} = \lambda t.\lambda w. : t = t_0 \wedge s \subseteq \textit{P-trace}(sp_c).\exists s[p(s)(w) \wedge \textit{PROX}(s, s_D, t_0)]$

(474) $[\![ta]\!]^{c,g,s_D,t_0} = \lambda t.\lambda w.\exists s : t = t_0 \wedge s \subseteq \textit{P-trace}(sp_c).\exists s[p(s)(w) \wedge \textit{DIST}(s, s_D, t_0)]$

(475) $[\![k^w i]\!]^{c,g,s_D,t_0} = \lambda t.\lambda w : t = t_0.\exists s[p(s)(w) \wedge \textit{PROX}(s, s_D, t_0)]$

(476) $[\![k^w a]\!]^{c,g,s_D,t_0} = \lambda t.\lambda w : t = t_0.\exists s[p(s)(w) \wedge \textit{DIST}(s, s_D, t_0)]$

Since the direct evidence CLDs carry an evidential presupposition that the evidence neutral ones do not, Maximize Presupposition (Heim 1991) plays a role. Maximize Presupposition is a principle stating that a speaker should presuppose as much as possible consistent with the context. Whenever direct evidence is available within the CLD situation, then, Maximize Presupposition ensures that a direct evidence CLD will be used.

7.9 Direct evidence CLDs are not epistemic modals

The denotations provided for the direct evidence CLDs above, (473) and (474), encode evidentiality without involving epistemic modality. This predicts them to behave differently from inferential *c̓ɛ* /c̓a/ and reportative *k̓ʷa*, which were analyzed as epistemic modals in Chapter 6. In this section, I show that the direct evidence CLDs do pattern differently than the inferential and reportative, as predicted.

In order to show that the direct evidence CLDs should not be analyzed as modals, I conduct tests identical or similar to those used in the preceding chapter, examining: 1) whether the evidentials can semantically embed, 2) whether the evidentials have an effect on the entailments of the prejacent, and 3) whether the evidentials involve a modal claim. I show that the direct evidence CLDs do not behave as modal evidentials with respect to any of these tests. They convey a not-at-issue evidential contribution, modeled as a presupposition, but do not encode a modal claim. The same question regarding epistemic modality does not arise with the evidence-neutral clausal demonstratives, since they do not encode an evidential component.

7.9.1 No semantic embedding

Since typical modals contribute an at-issue claim, they can take scope under other at-issue operators, as shown for the inferential and reportative in Section 6.6.3. Not-at-issue content, in contrast, cannot take scope under at-issue operators. The contribution of the direct evidence CLDs *ti* and *ta* cannot be targeted by other at-issue operators. Here, I examine two embedding environments: under attitude predicates and within relative clauses.

In order for *ti* and *ta* to be used, the speaker must have direct evidence for the prejacent (477a), even when they are embedded under a matrix attitude verb. The direct evidentials are not felicitous where the matrix subject has direct evidence but the speaker does not, as shown in (477b).

(477) a. *Context: I was talking to Betty next to a fish that was barbecuing around the fire. She told me the fish* (*which we could both see*) *was done. Daniel came up. Betty was just getting busy with the fish again, so I filled Daniel in:*

tatawθiyəm Betty [s**ti** c̓ɛχ təms i̓ɛn].
ta∼taw-θiy-əm Betty [s=**ti** c̓əx̌ tə=ms=i̓in].
PROG∼tell-1SG.OBJ-PASS Betty [NMLZ=DE.CLD cook DET=1PL.POSS=bbq'd.fish]
'Betty was telling me our barbecued fish is cooked.'
[Matrix subject has DE; speaker has DE.]

b. *Context: Betty told Daniel and me she'd have us over for cake when it was ready. Later, she phoned me to tell me:* ti c̓ɛχ tə kiks. (*'The cake is cooked.'*). *I told Daniel that Betty phoned:*

#tawθəs [s**ti** c̓ɛχ kʷ kiks].
#taw-θ-as [s=**ti** c̓əx̌ kʷ=kiks].
tell-1SG.OBJ-3ERG [NMLZ=DE.CLD cook DET=cake]
'She told me the cake is cooked.'
[Matrix subject has DE; speaker has indirect evidence.] (Huijsmans and Reisinger 2022a: 635)

The direct evidentials seem to be marginally possible in relative clauses, but only when there is no evidence

mismatch between the main clause and relative clause (478a).[20] In (478b), the speaker has reported evidence for the event described by the matrix clause and direct evidence for the event described by the relative clause, but use of the direct evidential in the embedded clause is infelicitous. This indicates that the direct evidentials cannot take scope within relative clauses.

(478) a. *Context: Some of our seeds have started to sprout. I tell my partner:*

tayqnačt ga [tə (**ti**) qʷoḷ ƛ̓om̓] ʔə tə k̓ʷɛhɛt tih nəpamɛn.
tayqnač-t=ga [tə=(**ti**) qʷəḷ ƛ̓um̓] ʔə=tə=k̓ʷih-ít tih nəpamin.
move-CTR=DPRT [DET=DE come enough] OBL=DET=increase-STAT big container
'Transfer the ones that are ready into the bigger container.'

b. *Context: Felipe tells me he's planning to transfer our seeds that have already sprouted into a bigger container. Later my roommate and I are admiring the seedlings, and I tell her:*

tayqnačtəm k̓ʷa səm [ʔə] Felipe [tə (***ti**) qʷoḷ ƛ̓om̓] ʔə tə k̓ʷɛhɛt tih
tayqnač-t-əm=k̓ʷa=səm [ʔə=]Felipe [tə=(***ti**) qʷəḷ ƛ̓um̓] ʔə=tə=k̓ʷih-ít tih
move-CTR-PASS=RPT=FUT [OBL=]Felipe [DET=DE come enough] OBL=DET=increase-STAT big
nəpamɛn.
nəpamin.
container
'Felipe is going to transfer the ones that are ready into the bigger container.'

(Huijsmans and Reisinger 2022a: 635–636)

7.9.2 No effect on entailments of prejacent

If the direct evidence CLDs behaved as modals, we would expect them to shift the entailments of the prejacent, along with the prejacent itself, into possible worlds. The inferential and reportative both affect the at-issue content in this way, as shown in Section 6.6.4.1. In contrast, if the direct evidence CLDs contribute only not-at-issue information about evidence source, they should not have an effect on the entailments of the prejacent.

When the prejacent is preceded by *ti* or *ta*, the entailments of the prejacent are unaffected. This can be seen by comparing (479), which does not contain a direct evidential in the initial sentence, and (480), which does. In (479), given the context, the initial sentence entails the second. This allows the second to be asserted without an indirect evidential despite not being directly witnessed. The presence of the direct evidential in the initial sentence of (480) does not alter this pattern of entailment: the second sentence can still be asserted without an indirect evidential.

(479) *Context: Freddie had been away in New Westminster. This morning I saw him in his driveway. Then I say:*

ʔamut Freddie. kʷa qʷoḷ χəpi tawa kʷins pala.
ʔamut Freddie. kʷa qʷəḷ x̌əpəy tawa kʷins pala.
be.home Freddie CLD come return from New Westminster
'Freddie is home. He has returned from New Westminster.' (Huijsmans 2022: 371)

[20] As noted in Huijsmans and Reisinger (2022a), the embedding of *ti* and *ta* in relative clauses seems to be marginal since other cases we suggested parallel to (478a) were rejected, although (478a) itself was accepted on multiple occasions.

(480) *Context: Freddie had been away in New Westminster and I know he'd been away because I was taking care of his house. I thought he was supposed to be away until tomorrow, but when we were walking by, I saw him in his driveway and said to you:*

oh **ti** niš ʔamot Freddie. kʷa qʷoḷ χəpi tawa kʷins pala.
oh **ti** niš ʔamut Freddie. kʷa qʷəḷ x̌əpəy tawa kʷins pala.
oh DE.CLD be.here at.home Freddie CLD come return from New Westminster
'Oh, Freddie is already home. He's come back from New Westminster.'

(Huijsmans and Reisinger 2022a: 639)

This contrasts with the pattern found if the inferential or reportative occurs in the initial utterance, as seen in Section 6.6.4.1. The case with the inferential is repeated here in (481) (from (335)) for comparison. When the initial utterance contains *c̓ɛ* /c̓a/, the subsequent utterance asserting that Freddie has come home from New Westminster must have *c̓ɛ* /c̓a/ as well.

(481) *Context: Freddie has been away in New Westminster. This morning I saw his car in the driveway. Then I say:*

ʔamot **c̓ɛ** Freddie. #(**c̓ɛ**) kʷa qʷoḷ χəpi tawa kʷins pala.
ʔamut=**c̓a** Freddie #(**c̓a**)=kʷa qʷəḷ x̌əpəy tawa kʷins pala
be.home=INFER Freddie INFER=CLD come return from kʷins pala
'Freddie must be home. He #(must have) returned from New Westminster.' (Huijsmans 2022: 371)

7.9.3 No modal claim

If *ti* and *ta* were modal direct evidentials, we would expect the speaker's direct evidence to determine the propositions in the modal base and the modal claim to be that the prejacent is true in all possible worlds which are ranked best by the ordering source (as discussed in Cable (2008), who proposes a test parallel to the one used here). We would therefore predict *ti* and *ta* to be compatible with a situation where the speaker's direct evidence entailed the prejacent, but the prejacent itself was not directly witnessed. This is not the case: the direct evidentials *ti* and *ta* are not compatible with such a situation, as shown in (482); instead, the inferential must be used.

(482) *Context: There's a big tree in your backyard. Last night when you looked in your yard before you went to bed, it was still standing. Then there was a big windstorm in the night. This morning, when you look into your yard, you see that it has cracked and fallen over.*

{c̓ɛ / #**ti** / #**ta**} ǰɛq̓ tə ǰɛʔǰɛ snatoł.
{c̓a / #**ti** / #**ta**} ǰaq̓ tə=ǰaʔǰa snatuł.
{INFER / DE.PROX / DE.DIST} fall DET=tree last.night
'The tree must have fallen last night.' (Huijsmans and Reisinger 2022a: 640)

7.9.4 Summary

To summarize, the direct evidentials *ti* and *ta* do not behave as modals with respect to a series of tests: they do not take scope under at-issue operators, they do not affect the entailments of the prejacent, and they are not compatible with the contexts where they might be expected if contributing a modal claim based on direct evidence. In contrast, the indirect evidentials *c̓ɛ* /c̓a/ and *k̓ʷa* were shown in the preceding chapter to behave as epistemic modals with respect to a similar set of tests: they can take scope under at-issue operators, they have an effect on the entailments of the prejacent, and they contribute a modal claim that is challengeable. The results of these tests for the modal and non-modal evidentials are summarized in Table 7.9, from Huijsmans and Reisinger (2022a: 642).

	Embeddable	Effect on entailments	Modal claim
ti, *ta*	no	no	no
c̓a, *k̓ʷa*	yes	yes	yes

Table 7.9: Summary of tests for modality

I therefore propose that the direct evidence CLDs only contribute a not-at-issue evidential presupposition, namely that the CLD situation is contained in the speaker's perceptual trace. This presuppositional content projects and remains speaker-oriented even where it appears in syntactically embedded environments. It also has no effect on the entailments of the prejacent, as expected if no modal claim is involved.

7.10 Conclusion

In this chapter, I have argued that the CLDs in ʔayʔaǰuθəm introduce a perfect time span-like interval with a spatial as well as temporal dimension, which I have called the CLD situation. Unlike the perfect in English, however, the CLDs are fixed to the utterance time – the reference time cannot be future or past. The interval always begins at a past point proximal or distal to the utterance time. In order to also take into account the spatial aspect of the deixis, I proposed that deictic distance is encoded through a relation between the CLD situation and the discourse situation. I then proposed versions of perfective, progressive, and stative aspect that could relate the event to both the temporal and spatial dimensions of the CLD situation. Perfective predicates place the eventuality within the CLD situation, whereas progressive and stative predicates have the eventuality ongoing throughout the CLD situation and spatially overlapping the CLD situation. The direct evidence CLDs additionally encode that the CLD situation is contained in the speaker's perceptual trace. When the prejacent predicate is perfective, the direct evidence CLDs entail that the entire event is perceived by the speaker. When the prejacent eventuality is progressive or stative, the direct evidence CLDs entail that the part of the eventuality overlapping the CLD situation is perceived by the speaker. Finally, I argued that *ti* and *ta* are non-modal evidentials, based on a similar set of tests as those used to argue for the modality of the inferential *c̓ɛ* /c̓a/ and reportative *k̓ʷa* in the preceding chapter.

Chapter 8

The future clitic *səm*

8.1 Introduction

In this chapter I examine the semantic contribution of the future clitic (*s*)*əm* 'will' in ʔayʔaǰuθəm.[1] The canonical use of this morpheme is to express claims about eventualities in the future of the reference time, hence its label (as found in e.g., J. Davis 1971, Harris 1977, Blake 2000, Watanabe 2003). It is canonically used for predictions (483a–b), plans (483c), and imperatives where the event is to take place at a future time (483d).

(483) a. **Predictions**

Context: You know the tide will be way out tonight. Right now it's still quite high.

hɛhɛw **səm**	qaqamot	snat
hihiw=**səm**	qaqa-mut	snat
really=FUT	low.tide-INT	tonight

'It'll be really low tide tonight.' (vf | EP.2020/06/30)

b.

hapatštəm	ʔi	maʔax^{w} **səm**	k^{w} łaχ.
hap-at=št=əm	ʔiy	məʔ-ax^{w}=**səm**	k^{w}=łəx̌
curse-CTR=1PL.SBJ=FUT	CONJ	get-NCTR=FUT	DET=bad

'We'll curse them and they'll get bad luck.' (vf | EP.2019/06/29)

c. **Plans**

Context: We'll complete our work on a story next week.

čɛʔɛtšt**əm**	hoǰít	k^{w}ʊms	q^{w}ol **səm**	q̇at̓^{θ}aw	qəǰi
ča ʔat=št=**əm**	huǰ-ít	k^{w}=əms	q^{w}əl̓=**səm**	q̇at̓^{θ}-aw	qəǰi
then=1PL.SBJ=FUT	finish-STAT	DET=1PL.POSS	come=FUT	get.together-PL	again

'We'll finish it when we get together again.' (vf | EP.2020/07/21)

[1] Different forms of the future clitic are discussed in Section 3.3.3.

d. **Imperatives**

Context: In a traditional story, one character is giving instructions to his brother.

'q̓agatɛχčxʷ**ʊm**,' natk̓ʷa

q̓əgatiǎ=čxʷ=**əm** nat=k̓ʷa

drum=2SG=FUT say=RPT

'You will drum,' he said. (vf | MH.2018/06/12)

The future clitic is also used, however, to make epistemic modal claims about present and past eventualities. In (484), the speaker makes an inference that the fish is cooked; the getting-cooked event described by *c̓ɛχ* /čəǎ/ precedes the utterance time. I will refer to these claims as 'non-future inferences', meaning inferences about non-future eventualities.

(484) a. *Context: You know the fish you have in the oven must be cooked because of how much time has passed.*

səmkʷi=c̓ɛχ.

səm=**kʷi**=c̓əǎ

FUT=CLD=get.cooked

'It'll be cooked by now.' (sf | EP.2021/01/29)

b. *Context: We can't see the beach right now, but I know it will be really high tide. When Felipe suggests going to walk on the beach, I tell Felipe:*

səmkʷi=ƛɛq̓ʷmot

səm=**kʷi**=ƛ<i>q̓ʷ-mut

FUT=CLD=tide.come.in<STAT>-INT

'The tide will be really high right now.' (sf | EP.2022/02/04)

In these uses, *səm* is usually accompanied by one of the evidence-neutral clausal demonstratives (CLDs), *kʷi* or *kʷa*, as in (484) (see Chapter 7). The CLDs introduce a perfect time span-like interval with the utterance time as its final subinterval. They ensure that (at least the start of) the eventuality described by the prejacent is located prior to the utterance time.

Non-future inferences with *səm* in ʔayʔaǰuθəm show striking similarity to non-future epistemic uses of the English future *will* (see e.g., Winans 2016), as is apparent by examining the translations of the examples in (484) above. Moreover, the use of a future morpheme in inferences about past and present eventualities also features in a range of other languages, including Greek and Italian (Giannakidou and Mari 2018), Hindi (Kush 2011), Andean Spanish and Afghan Persian (Aikhenvald 2004). The fact that the ʔayʔaǰuθəm future morpheme has non-future epistemic uses is therefore unlikely to be accidental.

I pursue a unified analysis for the two uses of the future. I develop an account where the future uniformly contributes a strong modal claim and places restrictions on the timing of evidence for the modal claim (building on ideas in Smirnova 2011, 2013; Koev 2017, and especially Hirayama and Matthewson 2022). I propose that *səm* presupposes that the modal base supporting the strong modal claim is established prior to the earliest moment at which the prejacent proposition becomes true: that is, all the propositions in the modal base – the premises on which on the modal claim rests – must be true before the time at which the prejacent starts being true.

This restriction crucially predicts that *səm*'s distribution will differ from that of inferential *c̓ɛ* /c̓a/, argued to be a strong epistemic modal in Chapter 6. The contrast in the distribution of *səm* and *c̓ɛ* /c̓a/ is illustrated in (485). In (485a), the inference is based on the smell of cooked fish, which coincides with the fish being cooked; here, the inferential *c̓ɛ* /c̓a/ is felicitous, but *səm* is infelicitous. In contrast, in (485b) the inference is based on prior knowledge of how long it takes for fish to cook; here *səm* is felicitous, but inferential *c̓ɛ* /c̓a/ is not. In order to capture the infelicity of *c̓ɛ* /c̓a/ in the latter case, I argue that *c̓ɛ* /c̓a/ places a temporal restriction on the timing of the evidence for the modal claim, requiring at least one of the propositions on which the modal claim rests to become true at or after the earliest moment at which the prejacent is true.

(485) a. *Context: I'm cooking a fish, and I'm guessing by the smell that it is cooked. I remark to you:*
{#**səm** / **c̓ɛ**} kʷi c̓ɛχ.
{#**səm** / **c̓a**}=kʷi=c̓əx̌
{FUT / INFER}=CLD=get.cooked
'It must be cooked.' (vf/sf | EP.2021/06/19)

b. *Context: We're outside but I have a fish cooking in the oven. I check my watch and realize that it should be cooked. I say to you:*
{**səm** / #**c̓ɛ**} kʷi c̓ɛχ.
{**səm** / #**c̓a**}=kʷi=c̓əx̌
{FUT / INFER}=CLD=get.cooked
'It will be cooked.' (vf/sf | EP.2022/04/02)

8.2 Outline of the chapter

In Section 8.3, I discuss the syntax of the future clitic and its position in the clitic string. In Section 8.4, I then examine its temporal contribution and provide evidence that *səm* is a strong modal which can take either an epistemic or circumstantial modal base. In Section 8.5, I compare the distributions of *səm* and *c̓ɛ* /c̓a/ when used for inferences about past or present eventualities, showing that they occur in different contexts; I also examine where they co-occur for claims about future eventualities, with the future providing future temporal orientation for a claim with *c̓ɛ* /c̓a/. In Section 8.6, I propose a formal analysis of *səm* in terms of timing of evidence relative to the prejacent and discuss the aspectual properties of the prejacent for the different uses of *səm*. In 8.7, I update the analysis of *c̓ɛ* /c̓a/ proposed in Chapter 6 to also include restrictions on timing of evidence. In Section 8.8, I extend the analysis of *səm* to English *will*. In Section 8.9, I compare my analysis of *c̓ɛ* /c̓a/ with English *must*, which does not carry the same temporal restrictions. Finally, in Section 8.10, I compare my approach with other analyses of non-future inferences involving future morphemes cross-linguistically.

8.3 Syntax

The future clitic *səm* follows the inferential and reportative, as in (486) (repeated from (284) above) and precedes the CLDs (487a) and scalar exclusive (487b); when the future combines with the scalar exclusive, the scalar exclusive is contracted to *t*.

(486) a. *Context: It's very cloudy out.*

č̓ɩɬa **č̓ɛ səm**.

č̓əɬ=a=**č̓a**=**səm**

rain=Q=INFER=FUT

'I wonder if it will rain.' (vf | JF.2018/0831)

b. *Context: I missed the news, but I know that you listened to the news.*

č̓ɩɬa **k̓ʷa səm** snat?

č̓əɬ=a=**k̓ʷa**=**səm** snat

rain=Q=RPT=FUT tonight

'Is it going to rain tonight (according to the report)?' (vf | PD.2018/11/08)

(487) a. *Context: We can't see the beach right now, but I know it will be really high tide. When Felipe suggests going to walk on the beach, I tell Felipe:*

ƛɛq̓ʷmot **səmkʷi**

ƛ<i>q̓ʷ-mut=**səm**=**kʷi**

tide.come.in<STAT>-INT

'The tide will be really high right now.' (vf | EP.2022/02/04)

b. *Context: Someone asks me if I want a ride.*

hotᶿ**əmt** ʔɛmašma.

hu=tᶿ=**əm**+**ʔut** ʔimaš-ma

go=1SG.SBJ+EXCL walk-go.by

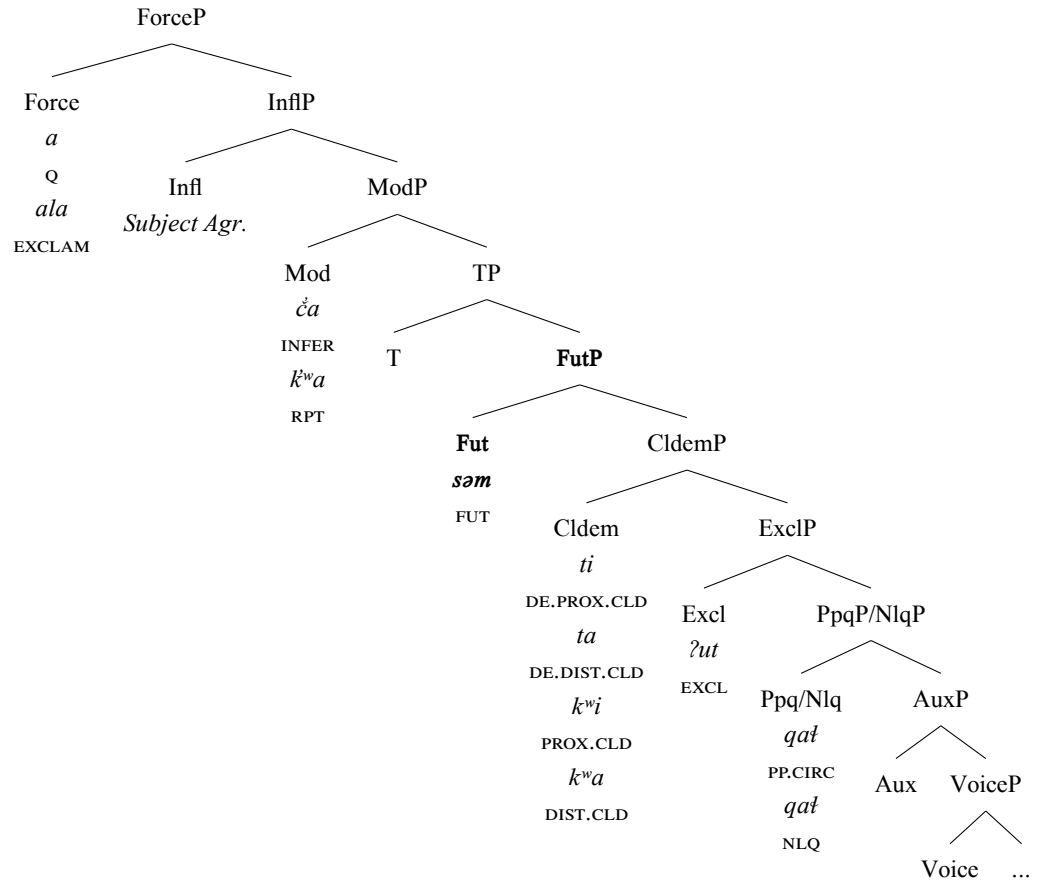
'I'll just walk.' (vf | EP.2020/08/11)

Under the assumption that this order matches the syntactic height of the future, this places the future below the inferential and reportative, and above the CLDs and scalar exclusive.

This matches the height at which the future clitic composes semantically. In this chapter I show that it takes scope above the CLDs, which contribute to the aspectual properties of the prejacent (Section 8.6.1), and below the inferential (Section 8.7). It also composes below tense, which provides the reference time for the modal claim (Section 8.6).

Based on evidence from word order and semantic composition, I therefore represent the syntactic position of the future as in (488).

(488)



A final note about word order concerns the frequent occurrence of the future plus CLD combination as a proclitic string. The CLDs can procliticize to their host, as seen in Section 2.6.2. When they procliticize, other 2PCs that co-occur with them also procliticize, resulting in a proclitic string. While both proclitic and enclitic orders are possible for the future plus CLD combination (compare (489) with (487a) above), the proclitic order is especially frequent.

(489) *Context: We can't see the beach right now, but I know it will be really high tide. When Felipe suggests going to walk on the beach, I tell Felipe:*

səmkʷi ƛɛq̓ʷmot

səm=kʷi ƛ<i>q̓ʷ-mut

FUT=CLD tide.come.in<STAT>-INT

'The tide will be really high right now.' (sf | EP.2022/02/04)

8.4 The semantic contribution of *səm*

In this section, I lay out basic facts about the future clitic *səm* that need to be captured by any analysis. I begin with its temporal contribution and how it fits into the temporal system of the language (Section 8.4.1) and then discuss its modal flavour and force (Section 8.4.2).

8.4.1 Temporal contribution

As laid out in Section 1.11.1, ʔayʔaǰuθəm has a null non-future tense (following Matthewson 2006 for St'át'imcets), while the future is obligatorily overtly marked. The earlier examples (40) and (41) are repeated here below. (490a) and (491bi) without (*s*)*əm* cannot receive a future interpretation, but (490b) and (491bii) with (*s*)*əm* can.[2]

(490) *Context: I'm making a plan for dinner since someone gave me a fish.*

a. #c̓̌ɛχatč tə ǰɛnxʷ snanat.
c̓̌əx̌-at=č tə=ǰanxʷ snanat
cook-CTR=1SG.SBJ DET=fish evening
'I'll cook the fish tonight.'

b. c̓̌ɛχattᶿ**əm** tə ǰɛnxʷ snanat.
c̓̌əx̌-at=tᶿ=**əm** tə=ǰanxʷ snanat
cook-CTR=1SG.SBJ=FUT DET=fish evening
'I'll cook the fish tonight.' (Huijsmans and Mellesmoen 2021b: 106)

(491) *Context: We are at an event together and you ask me what I'll do when I go home:*

a. tamsəm kʷʊθ yɛθot tiṅ kʷʊtayɪtən?
tam=səm kʷ=əθ=ya-θut tiṅ kʷətayitən
what=FUT DET=2SG.POSS=do-CTR.REFL DEM afternoon
'What are you going to do this afternoon?'

To which I reply:

bi.#šuʔotč tətᶿ kʷaʔamnač.
šəẇ-ut=č tə=tᶿ=kʷaʔamnač
sort-CTR=1SG.SBJ DET=1SG.POSS=root
'I'm gonna sort my roots.'

bii. šuʔottᶿ**əm** tətᶿ kʷaʔamnač.
šəẇ-ut=tᶿ=**əm** tə=tᶿ=kʷaʔamnač
sort-CTR=1SG.SBJ=FUT DET=1SG.POSS=root
'I'm gonna sort my roots.' (Huijsmans and Mellesmoen 2021b: 106)

Following Matthewson (2006), I proposed that the ʔayʔaǰuθəm null non-future tense has the semantic contribution in (492) (repeated from (39) in Section 1.11): the temporal pronoun bears an index i which is interpreted by the contextually provided assignment function g. The definedness condition prevents the time $g(i)$ from following the utterance time t_0.

[2]The infelicitous examples in (40a) and (41bi) could be said as the agent is initiating the action described by the prejacent but cannot be used when the event is displaced into the future. See Section 8.4.1.1. For past interpretation, these would usually occur with the past tense suffix unless a past reference time had already been established. See Chapter 1, footnote 21.

(492) $[\![\text{NON-FUT}_i]\!]^{g,c} = g(i)$; defined only if no part of $g(i)$ is after t_0 (Matthewson 2006)

Since unmarked clauses will therefore always be interpreted with a non-future reference time, the future *səm* is required to create a proposition about a future eventuality.

8.4.1.1 Future reference without an overt future marker

There are a few principled exceptions to the requirement that propositions about the future are marked with *səm*, however. These include the antecedent of conditionals and clauses with the motion auxiliary *ho* /hu/ 'go', the exclamative auxiliary *ǰɛqa?* /ǰaqa?/, and the modal verb *havtə* 'have to'.[3] Except for the antecedents of conditionals, these cases all involve a lexical item that gives rise to the future orientation, consistent with the claim that future readings must be overtly marked while non-future is null.

(493) a. **Antecedent of conditional**

Context: Gloria asks me to pass a message on to Daniel. I tell her:

tawtčɛn səm **ga k̓ʷʊnʊxʷən**.
taw-t=čən=səm **ga k̓ʷən-əxʷ=an**
tell-CTR=1SG.SBJ=FUT if see-NCTR=1SG.SBJV
'I'll tell him if I see him.' (vf | EP.2018/09/11)

b. **Auxiliary *ho* /hu/**

Context: I'm talking with my brother about Christmas. He knows I'm going to Chile for Christmas but he starts talking about the things we'll do when I'm visiting him and my parents in Victoria – my usual Christmas plans. I tell him:

kʷʊnačxʷ niyʊxʷ? **hoč** ?əkʷ *Chile*.
kʷən=a=čxʷ niy-əxʷ **hu**=č ?ə=kʷ=*Chile*
AUX=Q=2SG.SBJ forget-NCTR go=1SG.SBJ OBL=DET=*Chile*
'Did you forget? I'm going to Chile.' (vf | EP.2022/01/28)

c. **Auxiliary *ǰɛqa?***

Context: There is meat on the counter.

ǰɛqa? łaχaw ga nɛ?əs ṫołć́t.
ǰaqa? łaǩaw ga ni?=as ṫuł-ít
EXCLAM spoil if be.there=3SBJV put.on-STAT
'It might spoil if it stays there.' (vf | EP.20190218)

d. ***havtə***

Context: We're travelling tomorrow and we might be able to sail if there is wind, but if there is no wind we'll have to row.

?ot xʷa? pu?ɛməs **havtə** kʷʊms ga?awṫ
?ut xʷa? pu?-i-m=as **havtə** kʷ=əms ga?awṫ
if NEG wind-STAT-MD=3SBJV have.to DET=1PL.POSS row
'If there's no wind, we'll have to row.' (vf | PD.2018/01/03)

[3] While borrowed from English, the latter has been incorporated into the grammar of the language, subcategorizing for a nominalized subordinate clause; see Watanabe (2003: 533).

Future orientation is common cross-linguistically in the antecedent of conditionals, with motion auxiliaries like *ho* /*hu*/ 'go',[4] and with circumstantial modals like *havtə* 'have to'. *ǰɛqaʔ* /ǰɛqaʔ/ is a special case, being an exclamation operator that contributes expressive meaning and is used to create optatives and adversatives (see Reisinger and Huijsmans 2020 for a full discussion in the spirit of Grosz 2011); *ǰɛqaʔ* /ǰaqaʔ/ is not always associated with future events, but future interpretations arise contextually, depending on the proposition and the emotion the speaker conveys towards it.

There are also future-like readings with the control transitivizer -(*V*)*t*. The control transitivizer encodes initiation of an event and as such can be used at the point when the subject of the clause is initiating an event and the event is not complete (see Huijsmans and Mellesmoen 2021b). However, it cannot be used when the initiation of the event is also in the future relative to the utterance time. This can be seen by comparing (494) and (495), where the control transitive forms can be used as the agent initiates the action, with (490) and (491) above, where these same forms cannot be used when the initiation of the action is displaced into the future relative to the utterance time.

(494) a. *Context: My friend sees me starting to move about in my kitchen and asks:* tatamčxʷ *'What are you doing?' I tell her that I'm going to cook the fish that's thawing in the sink.*

ḉɛχ**at**č tə ǰɛnxʷ snanat.
ḉəx̌-**at**=č tə=ǰanxʷ s=nanat
cook-CTR=1SG.SBJ DET=fish NMLZ=evening
'I'll cook the fish tonight.' (Huijsmans and Mellesmoen 2021b: 106)

(495) *Context: You see me sitting down at a table that has a pile of roots on it and ask:*

a. tatamčxʷ?
ta∼tam=čxʷ
PROG∼what=2SG.SBJ
'What are you doing?'

I reply:

b. šuʔ**ot**č tətᶿ kʷaʔamnač.
šəẇ-**ut**=č tə=tᶿ=kʷaʔamnač
sort-CTR=1SG.SBJ DET=1SG.POSS=root
'I'm gonna sort my roots.' (Huijsmans and Mellesmoen 2021b: 107)

8.4.1.2 *səm* in matrix and embedded clauses

When *səm* occurs in a matrix clause, the reference time for the proposition with *səm* must generally be the UT. The future cannot be used with a past reference time out of the blue, as shown in (496). The addition of the past tense suffix only leads to ungrammaticality.[5]

[4]Davis and Matthewson (2022) show that certain motion verbs in St'át'imcets also contribute prospective aspect.

[5]The felicitous versions of these examples have the past perspective modal *qał* instead; in Chapter 9, I argue that *qał* is a strong circumstantial modal with past temporal perspective and so acts as the counterpart of the future in these cases.

(496) **Matrix**

a. *Context: I planned to make a cake this afternoon and bring it to my friend's this evening, but in the morning I look in the fridge and I don't have eggs. In the evening, I tell my friend:*

#hiʔəm(*oɬ)t$^{\theta}$**əm**	[ʔə]kʷ kiks	tiṅ	kʷʊtayɪtən	ʔi	xʷukʷtak̓ʷa
həǰ-ʔəm(*-uɬ)=t$^{\theta}$=**əm**	[ʔə=]kʷ=kiks	tiṅ	kʷətayitən	ʔiy	xʷukʷt=ala=k̓ʷa
make-ACT.INTR(-PST)=1SG.SBJ=FUT	[OBL=]DET=cake	DEM	afternoon	CONJ	not.exist=EXCLAM=RPT

kʷʊms χʷaχʷɪt!
kʷ=əms=x̌ʷax̌ʷit
DET=1PL.POSS=egg

'I was going to make a cake this afternoon, but we didn't have eggs.' (sf | BW.2022/07/13)

Consultant's comment: It doesn't quite make sense.

b. *Context: When I had spoken to Daniel yesterday morning, his plan was to spend the afternoon making a cake.*

#hiʔəm(*oɬ) k̓ʷa **səm**	Daniel	[ʔə]kʷ kiks	sǰɛsoɬ.	namsaguga	kʷʊnəs
həǰ-ʔəm(*-uɬ)=k̓ʷa=**səm**	Daniel	[ʔə=]kʷ=kiks	sǰasuɬ	nəṁsaʔguga	kʷən=as
make-ACT.INTR(-PST)=RPT=FUT	Daniel	[OBL=]DET=cake	yesterday	wonder	AUX=3SBJV

ʔi kiks.
ʔəǰ kiks
good cake

'Daniel was going to make a cake yesterday. I wonder if it turned out well.' (sf | EP.2022/07/08)

(i) a. *Context: I planned to make a cake this afternoon and bring it to my friend's this evening, but in the morning I look in the fridge and I don't have eggs. In the evening, I tell my friend:*

qəɬč	hiʔaʔmoɬ	[ʔə]kʷ kiks	tiṅ	kʷʊtayɪtən	ʔi	xʷukʷtak̓ʷa	kʷʊms χʷaχʷɪt!
qaɬ=č	həǰ-ʔəm-uɬ	[ʔə=]kʷ=kiks	tiṅ	kʷətayitən	ʔiy	xʷukʷt=ala=k̓ʷa	kʷ=əms=x̌ʷax̌ʷit
PP.CIRC=1SG.SBJ	make-ACT.INTR-PST	[OBL]DET=cake	DEM	afternoon	CONJ	not.exist=EXCLAM=RPT	DET=1PL.POSS=egg

'I was going to make a cake this afternoon, but we didn't have eggs. (sf | BW.2022/07/13)

b. *Context: When I had spoken to Daniel yesterday morning, his plan was to spend the afternoon making a cake.*

qəɬ k̓ʷa	hiʔaʔmoɬ	Daniel	[ʔə]kʷ kiks	sǰɛsoɬ.	namsaguga	kʷʊnəs	ʔi	kiks.
qaɬ=k̓ʷa	həǰ-ʔaʔm-uɬ	Daniel	[ʔə=]kʷ=kiks	sǰasuɬ	nəṁsaʔguga	kʷən=as	ʔəǰ	kiks
PP.CIRC=RPT	make-ACT.INTR-PST	Daniel	[OBL=]DET=cake	yesterday	wonder	AUX=3SBJV	good	cake

'Daniel was going to make a cake yesterday. I wonder if it turned out well.' (sf | EP.2022/07/08)

c. *Context: I was watching a soccer game. My favourite team was winning but then three of the players got injured. After, I say to you:*

qəɬ	ƛ̓ʊxʷʔaʔmɛw	qaɬəs	xʷaʔ	ʔɛɬegawəs	šɛ čɛɬayɛ.
qəɬ	ƛ̓əxʷ-ʔəm-iw	qaɬ=as	xʷaʔ	ʔiɬ<ig>aw=as	šə=čalaya
PP.CIRC	win-ACT.INTR-PL	PP.CIRC	NEG	get.injured<PL>=3SBJV	DET=three.ppl

'They would have won but three people got injured.' (sf | EP.2022/07/08)

c. *Context: I was watching a soccer game. My favourite team was winning but then three of the players got injured. After, I say to you:*

#ƛ̓ʊxʷʔəm(*oɬ) **səm** qaɬəs xʷaʔ ʔɛɬegawəs šɛ čɛɬayɛ.
ƛ̓əxʷ-ʔəm(*-uɬ)=**səm** qaɬ=as xʷaʔ ʔiɬ<ig>aw=as šə=čalaya
win-ACT.INTR-(*-PST)=FUT PP.CIRC NEG get.injured<PL>=3SBJV DET=three.ppl
'They would have won but three people got injured.' (sf | EP.2022/07/08)

In narrative contexts, however, matrix clause uses of *səm* can involve a past reference time. In these cases, the past reference time is established previously in the narrative and encoded in the null non-future tense. The null non-future tense provides the reference time for the modal claim with *səm*.

(497) **Narrative**

Context: From the story of Mink and Wolf.

payɛ ʔot ṫᶿɛṫᶿɛyʔəm tam kʷ yɛtɛt ʔi manom **səm**.
paya ʔ=ʔut ṫᶿi∼ṫiy-ʔəm tam kʷ ya-t=it ʔi mə ʔ-nu-m=**səm**
always=EXCL PROG∼search-ACT.INTR thing DET=do-CTR=3PL.POSS CONJ get-NCTR-PASS=FUT
'They were always searching for something to do so he **would** be caught.' (vf | EP.2019/09/10)

In embedded clauses, a proposition with *səm* can take a past reference time, receiving the past reference time from the matrix predicate, as in (498).

(498) **Embedded**

a. *Context: We had a meeting this morning, and Freddie had told me he would come, but never showed up. Later I tell you, 'Freddie was going to come but he never came.'*

hoθotoɬ Freddie sqʷols **səm** *meeting* ʔi kʷa xʷaʔ qoḷəs. kʷʊnas
huθut-uɬ Freddie s=qʷəḷ=s=**səm** *meeting* ʔiy kʷa xʷaʔ qʷəḷ=as kʷən=as
say-PST Freddie NMLZ=come=3POSS=FUT meeting CONJ CLD NEG come=3SBJV COMP=3SBJV
čɛməm? χaχyɛmot hɛhɛw.
čaṁ-əm ǎǎya-mut hihiw
how-MD strange-INT really
'Freddie said he would come to the meeting but he never arrived. What could have happened? It's really strange.' (vf | EP.2021/01/29)

b. *Context: Last year, I took pity on a stray cat that was meowing at my door and put out some milk. The next day she was back, and every day from then on. Looking back to that first day, I tell you:*

nopʊxʷoɬč taʔats **səm** qʷol χaχpi – ʔi ʔaχtey ʔit!
nup-əxʷ-uɬ=č taʔat=s=**səm** qʷəḷ ǎə∼ǎpəy – ʔiy ʔəǎtəy=ʔəyt
realize-NCTR-PST=1SG.SBJ HAB=3POSS=FUT come PROG∼return CONJ do.like=DPRT
'I realized she would keep coming back – and she did!' (sf | BW.2022/02/16)

c. *Context: Every year my friend invites my brother and I to a Christmas party. Last year, we talked to a really nice guy at the party who had a trip planned to Machu Picchu for the spring. I wonder if he'll come again this year and if we can ask him about his trip.*

yɛχatačxʷ	tə tumɩš	q̓ʷaq̓ʷθostumołoɬ	θos **səm**	ʔəkʷ *Machu*
yaǎ-at=a=čxʷ	tə=tumiš	q̓ʷaq̓ʷθus-t-umuɬ-uɬ	θu=s **səm**	ʔə=kʷ=*Machu*
remember-CTR=Q=2SG.SBJ	DET=man	tell.story-CTR-1PL.OBJ-PST	go=3POSS=FUT	OBL=DET=Machu

Picchu?
Picchu
Picchu

'Do you remember the man who was telling us he would go to Machu Picchu?' (sf | BW.2022/02/16)

This pattern is consistent with a cross-linguistic restriction on future-in-the-past readings where a past reference time has not been established: it seems cross-linguistically common for languages with a null non-future tense not to allow future in the past without embedding or a preceding discourse setting a past topic time (Matthewson 2006, Toorsarvandani 2021). The reference time seems to be the utterance time by default when a future morpheme is used.

8.4.1.3 Summary

ʔayʔaǰuθəm has a null non-future tense, while the future clitic *səm* is obligatory for claims about the future (though there are some principled exceptions). The reference time for claims with *səm* is usually the UT, but *səm* can take scope within embedded clauses in order to express future in the past. The reference time for utterances with *səm* can also be past where a past reference time is previously established in narrative contexts.

Both its ability to shift the evaluation time of the prejacent and to take scope in embedded clauses suggest that *səm* contributes at-issue content. The nature of this content is the subject of the following section.

8.4.2 Modal contribution

In all its readings, *səm* contributes a strong modal claim. For canonical claims about the future, this is shown in (499). The future is only felicitous in contexts where the speaker is willing to make a strong claim about the future eventuality. If the speaker is unsure or entertaining other possibilities, the future cannot be used.[6]

(499) a. *Context: I've decided to go to town this afternoon, so I'm letting you know.*

hotᶿ**əm**	kʷ tawən	tiṅ	kʷʊtayɩtən.
hu=tᶿ=**əm**	[ʔə=]kʷ=tawən	[ʔə=]tiṅ	kʷətayitən
go=1SG.SBJ=FUT	[OBL=]DET=town	[OBL=]DEM	afternoon

'I'm going to town this afternoon.' (vf | EP.2021/09/04)

[6]This is different from the future *kelh* in St'át'imcets which has variable force and so would be felicitous in such contexts (Rullmann et al. 2008).

b. *Context: I'm debating whether to go to tisk̓ʷʊt* (*Powell River*) *this afternoon, but haven't decided yet. I let you know I'm thinking of it.*

#hotᶿ**əm** kʷ tisk̓ʷʊt st̓ᶿok̓ʷ.
hu=tᶿ=**əm** [ʔə=]kʷ=tisk̓ʷət st̓ᶿuk̓ʷ
go=1SG.SBJ=FUT [OBL=]DET=tisk̓ʷət today
'I might go to tisk̓ʷʊt today.'
Comment: [If you use *tᶿəm*] then you're more definite. (sf | EP.2021/09/04)

c. (*499b*) *was corrected to the following with the desiderative suffix:*

θoθoh**am**č [ʔə] tiṅ kʷʊtayɪtən.
θu∼θu-h-**am**=č [OBL=]tiṅ kʷətayitən
PROG∼go-EPEN-DESID=1SG.SBJ [OBL]=DEM afternoon
'I want to go this afternoon.' (sf | EP.2021/09/04)

Coordinating two incompatible claims with the future leads to a contradiction. This is expected for a strong modal where each conjunct is claimed to be necessarily true. If the modal claim were only about possibility, (500) should be fine, as in the English version with the weak modal *might*, since the truth of each conjunct is compatible with the truth of the other.

(500) *Context: Looking at my schedule, I have a few hours free this afternoon. I'm undecided about what I'm going to do with them. I might head to town, or I might use that time to make cookies. I don't have time for both.*

#hotᶿ**əm** ʔəkʷ tawən ʔi hiyʔəmtᶿ**əm** [ʔə]kʷ cookies.
hu=tᶿ=**əm** ʔə=kʷ=tawən ʔiy həǰ-ʔəm=tᶿ=**əm** [ʔə=]kʷ=cookies
go=1SG.SBJ=FUT OBL=DET=town CONJ make-ACT.INTR=1SG.SBJ=FUT DET=cookies
Attempted meaning: 'I might go to town and I might make cookies.' (sf | EP.2022/01/21)

The modal strength of *səm* is consistent across its uses for claims about the future and for non-future inferences. For the non-future inferential uses, its strength is illustrated in (501) and (502). The future *səm* is only felicitous where the evidence is sufficiently conclusive that the speaker can commit to a strong modal claim.

(501) ✓ *Context 1: I know what ferry Daniel was going to catch, so I can predict he is in tisk̓ʷʊt* (*Powell River*) *now. I tell you: He'll be in tisk̓ʷʊt now.*
✗ *Context 2: I know approximately what time Daniel left, but he was running late, so I don't know if he caught the ferry. I tell you: He might be in tisk̓ʷʊt now.*

səmkʷi θo təs ʔəkʷ tisk̓ʷʊt.
səm=kʷi θu təs ʔə=kʷ=tisk̓ʷət
FUT=CLD go arrive OBL=DET=tisk̓ʷət
'He will have arrived in tisk̓ʷʊt.' (sf | BW.2020/09/17)
Comment: *səmkʷi* indicates that you have an idea that he made it.

(502) ✓ *Context 1: Gloria looks at the clock and realizes that it's already 1 am. She had been planning to text Marianne about something, but she knows Marianne won't be up.*
✗ *Context 2: Gloria looks at the clock and realizes that it's already 1 am. She had been planning to text Daniel about something. Daniel has rather unpredictable sleeping habits. She thinks he could be sleeping but isn't sure.*

səmkʷi ƛ̓ičt̓.
səm=kʷi ƛ̓<i>č̓t
FUT=CLD fall.sleep<STAT>
'S/he'll be asleep.' (sf | EP.2020/09/18)

There seems to be variability in *səm*'s modal flavour – that is, variability in the type of modal base supporting the modal claim (see Chapter 5 for background discussion concerning modal flavour). When *səm* is used for inferences about past and present eventualities it seems to be epistemic; in the examples above, the non-future uses all involve reasoning from a body of evidence. On the other hand, when *səm* is used for claims about the future, it seems to at least sometimes involve a circumstantial modal base. In (503), the speaker is making an offer, which involves a claim about ability (or perhaps desire or intention)[7] which relies on a circumstantial modal base; this is a particularly clear case, since no inference should be involved in sharing one's own intentions.

(503) *Context: We're planning a birthday party and different people are offering to do different things.*

čɩni **səm** [ʔə] θo maʔəm ʔəkʷ kiks, hoy hotᶿəm t̓əq̓ʔəmθɛ
čəni=**səm** [ʔə=]θu məʔ-ʔəm ʔə=kʷ=kiks huy hu=tᶿəm t̓əq̓-ʔəm-θi
1SG.IND.PRO=FUT [CLF.PRT=]go get=ACT.INTR OBL=DET=cake and go=1SG+FUT deliver-INDIR-CTR;2SG.OBJ
təθ ʔayɛʔ.
tə=θ=ʔaya ʔ
DET=2SG.POSS=house
'It will be me that picks up a cake, and I'll bring it to your house.' (vf | EP.2019/12/01)

This finding is rather surprising since modals described for other Salish languages have fixed modal flavour (Matthewson et al. 2007; Rullmann et al. 2008; Menzies 2012; Oliver 2021).

8.5 Inferences with *səm* 'will' and *č̓ɛ* 'must'

In this section, I examine the use of *səm* for inferences about past and present eventualities. I show that *səm* is specifically used for inferences based on a body of evidence in place *prior* to the eventuality described by the prejacent (prejacent eventuality = PE). Where *səm* is infelicitous, the inferential *č̓ɛ* /č̓a/ is used instead. Inferences marked by the inferential *č̓ɛ* /č̓a/ are based on a body of information that includes evidence available *no earlier than* the eventuality described by the prejacent. The direction of the analyis is inspired by Hirayama and Matthewson (2022) (as are many of the examples), who analyze certain epistemic modals as placing restrictions on the time at which the evidence for the modal claim is acquired (see also Smirnova 2011, 2013; Koev 2017 who discuss evidentials involving restrictions on the timing of evidence acquisition). My analysis

[7] Offers involve a bouletic ordering source according to Copley (2002).

differs in having *səm* and c̓ɛ /c̓a/ encode restrictions on the time at which the evidential propositions themselves become true relative to the prejacent (regardless of when the evidence propositions are learnt).

Given the complementarity of *c̓ɛ* /c̓a/ and *səm* when used for inferences about past and present eventualities, it is useful to illustrate the restrictions on *səm* by contrasting it with *c̓ɛ* /c̓a/. The contrast also sheds light on aspects of the inferential that have not yet been explored. I therefore present data for both morphemes in this section.

The contrast in the requirements on the timing of evidence for *c̓ɛ* /c̓a/ and *səm* is shown in (504) vs. (505). In (504), the inference is based on previous knowledge about how long roots take to get soft when soaking. *səm* is felicitous, but *c̓ɛ* /c̓a/ is not. In this case, the propositions on which the modal claim rests, the propositions in the modal base (504c), are all true prior to the earliest moment at which the prejacent is true. The timing of the evidence – including the time involved for prior events of soaking roots and the time at which the roots began soaking – relative to the prejacent eventuality (PE) – the roots being ready – is shown in (504d).

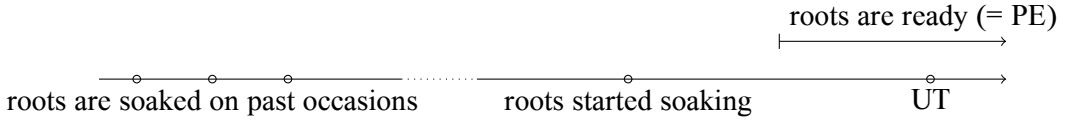
(504) *Context: Gloria and I are over at Betty's place. She puts roots to soak so we can try weaving. After a little while, she figures they must be ready. She says:*

a. **səm**kʷi hoǰít šɛ kʷaʔamnač.
səm=kʷi huǰ-ít šə=kʷaʔamnač
FUT=CLD get.ready-STAT DET=root
'The roots will/must be ready.' (sf | BW.2020/12/01)

b. #**c̓ɛ** hoǰít šɛ kʷaʔamnač.
c̓a huǰ-ít šə=kʷaʔamnač
INFER get.ready-STAT DET=root
'The roots will/must be ready.' (sf | BW.2020/12/01)

c. Modal Base = {roots take x amount of time soaking to get soft, the roots started soaking at x, ...}

d.



In contrast, when the inference relies on a modal base that includes evidence that is available at or following the earliest moment at which the prejacent is true, *səm* is infelicitous and *c̓ɛ* /c̓a/ is felicitous. In (505), the car cannot be parked in the driveway until the car has arrived home. Assuming the owner of the car is the driver, as the speaker does, this means that the prejacent being true coincides with the crucial evidence for the truth of the prejacent in the modal base (505c). Since the inference relies on a proposition – the car is in the driveway – that is true at and following the earliest moment the prejacent is true (505d), the future *səm* cannot be used and the inferential *c̓ɛ* /c̓a/ is used instead.

(505) *Context: I see someone's car in his driveway.*

a. #**səm**kʷi θo hɛwt.
səm=kʷi θu hiwt
FUT=CLD go get.home
'He must have gotten home.' (sf | MH.2018/11/18)

b. **ć̌ɛ** kʷi θo hɛwt.
ć̌a=kʷi θu hiwt
INFER=CLD go get.home
'He must have gotten home.' (vf | MH.2018/11/18)

c. Modal Base = {x's car is in the driveway, x was gone earlier...}

d. his$_i$ car is in the driveway

he$_i$ arrives home (=PE) UT

We find a similar contrast in (506), where the growth of the trees is the evidence for being planted a long time ago. Since the trees are only big at a point when the prejacent proposition 'they were planted a long time ago' is true (they have to have been growing a long time to be big) the future *səm* is infelicitous and once again the inferential is used instead. The modal base propositions are summarized in (506c), while the temporal relationship between the crucial evidence – the size of the trees – and the prejacent – the trees having been planted a long time ago – is shown in (506d).

(506) *Context: We find an abandoned orchard in the woods, with beautiful big trees, but it is overgrown and there is no trace of a house left.*

a. #hɛhɛw **səmkʷi** χʷoχʷmotoɬ kʷs pən?ajitoɬ.
hihiw=**səm**=**kʷi** x̌ʷux̌ʷ-mut-uɬ kʷ=s=pən-?aj-it-uɬ
really=FUT=CLD long.time-INT-PST DET=NMLZ=get.planted-TR-SBRD.PASS-PST
'These must have been planted a long time ago.' (sf | EP.2021/02/13)

b. hɛhɛw **ć̌ɛ** χʷoχʷmotoɬ kʷs pən?ajitoɬ.
hihiw=**ć̌a** x̌ʷux̌ʷ-mut-uɬ kʷ=s=pən-?aj-it-uɬ
really=INFER long.time-INT-PST DET=NMLZ=get.planted-TR-SBRD.PASS-PST
'These must have been planted a long time ago.' (sf | EP.2021/02/13)

c. Modal Base = {these trees are very large, trees take many years to grow large, these trees are domestic varieties... }

d. trees were planted a long time ago
trees are big

trees are planted UT

This claim that the difference between *səm* and *ć̌ɛ* /ć̌a/ is due to different requirements on the timing between the evidence and the prejacent eventuality bears similarity to analyses that propose differences be-

tween evidentials based on the relationship between the time the speaker acquires the evidence (the evidence acquisition time = EAT) and the time at which the prejacent eventuality occurs (ET), a notion originally introduced in Smirnova (2011, 2013) (see also Koev (2017) for similar ideas described in terms of a learning event). Hirayama and Matthewson (2022) specifically propose that evidentials can lexically specify the relation between the ET and the EAT, instead of this relation being encoded by other components of the grammar, namely tense and aspect.

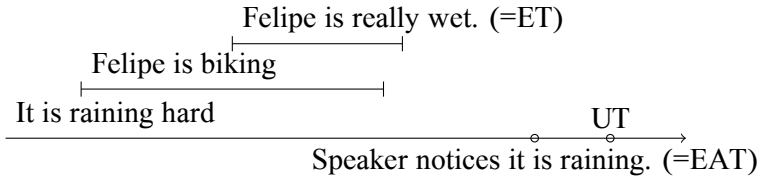
An analysis in terms of EAT cannot capture the distinction between the future and inferential in ʔayʔaǰuθəm, however. If the timing of the EAT relative to the ET was the critical factor, we would expect the future *səm* to be felicitous whenever the EAT is prior to the ET and the inferential *c̓ɛ* /c̓a/ to be felicitous whenever the EAT is after the ET. This is not the case. In (507) below, for instance, the crucial evidence – that it has been raining – is acquired after the prejacent eventuality, as illustrated in (507d). However, it is *səm* that is felicitous and not *c̓ɛ* /c̓a/.

(507) *Felipe always bikes home at 5. I haven't been paying attention to the weather, but at 6 I look out the window and see that it is pouring and has been for some time. I figure Felipe will be home by now, but must have been soaked on his way. I say:*

a. χʷɛt **səmkʷa** ƛəm̓mot Felipe. saymot kʷ c̓ɩł ʔi xʷukʷt c̓ɩłukʷts.
ǩʷit **səm=kʷa** ƛ̓əm̓-mut Felipe saymut kʷ=c̓əł ʔiy xʷukʷt c̓əłukʷt-s
really FUT=CLD get.wet-INT Felipe intense DET=rain CONJ not.exist rain.jacket-3POSS
'Felipe will have gotten really soaked. It's pouring and he didn't have a rain jacket.
(vf | EP.2021/03/05)

b. #χʷɛt **c̓ɛ** ƛəm̓mot Felipe.
ǩʷit=**c̓a** ƛəm̓-mut Felipe
really=INFER get.wet-INT Felipe
'Felipe must have gotten really wet.' (sf | EP.2021/03/05)

c. Modal Base = {it is raining hard, it has been raining hard for a while, Felipe rode his bike today, Felipe leaves at 5...}

d.


Consistent with the characterization given above, however, the body of evidence supporting the strong modal claim (summarized in (507c)) is in place prior to the eventuality described by the prejacent: it must be raining and Felipe must be biking before Felipe can get soaked. If the timing of the evidence itself is the relevant factor, rather than the time at which the speaker acquired it, we correctly predict *səm* and not *c̓ɛ* /c̓a/ to be felicitous.

In (508), we find a similar case: the speaker learns the crucial evidence after the ET, but the propositions in the modal base are true prior to the ET. Once again, *səm*, and not *c̓ɛ* /c̓a/, is felicitous. Here, the modal base includes propositions describing eventualities such as it being cold last night and my friend being out

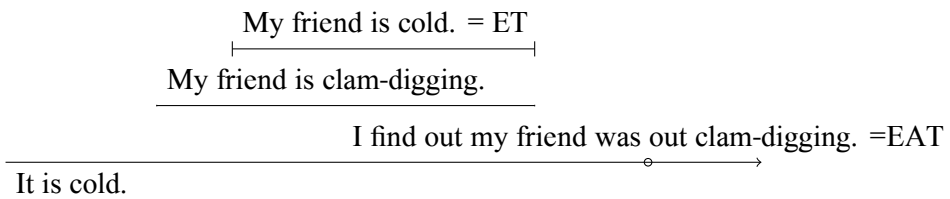
clam digging, etc., which are in place prior to the prejacent eventuality that results from these eventualities: my friend being very cold.

(508) a. *Context: It's winter. Last night, it was very cold, with strong winds and some snow. Today, I find out that my friend had been clam-digging last night.*

hɛhɛw {**səmkʷa**/#**c̓ɛ**} c̓ɩmc̓ɛʔmamot.
hihiw {**səm**=**kʷa**/#**c̓a**} c̓əm̓∼c̓əm-əm-mut
really {FUT=CLD/INFER} CHAR∼cold-MD-INT
'She will have been really cold!' (vf/sf | EP.2021/05/21)

b. Modal Base = {it was cold last night, my friend was clam-digging last night, clam-digging is done on the beach where it is windy, ... }

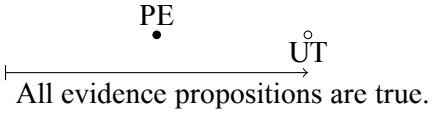
c.



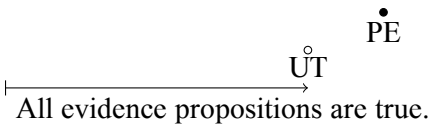
I therefore conclude that though the restriction on the felicitous use of *səm* has to do with the timing of evidence, it is not a relation between the speaker's acquisition of the evidence and the prejacent event that is encoded, but rather a relation between the earliest time at which all the propositions in the modal base are true and the earliest time at which the prejacent is true.

To summarize, then, *səm* is used when all the information necessary for the strong modal claim is true prior to the prejacent becoming true. This allows *səm* to be used both for claims about the future, based on evidence or circumstances that are true at or preceding the UT, and for inferences about past or present eventualities based on evidence in place preceding the prejacent eventuality (PE), as schematized in (509).[8] The timing of the PE relative to the utterance time UT is determined by the aspectual profile of the prejacent, as will be discussed in Section 8.6.

(509) a. **Non-future reading**



b. **Future reading**

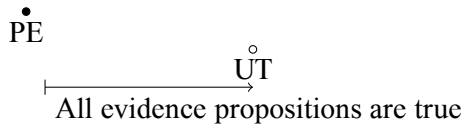


For the inferential *c̓ɛ* /c̓a/, the opposite temporal relations hold. At least one of the evidence propositions on which the modal claim is based does not become true until a point coinciding with or following the prejacent

[8]The diagrams in (509) and (510) picture the prejacent event as punctual for simplicity.

eventuality. The UT cannot precede the time at which the evidence propositions are true, since one cannot make a claim based on evidence that does not exist yet; inferential *c̓ɛ /c̓a* is therefore not compatible with future readings (unless it co-occurs with the future, as discussed in Section 8.7).

(510) **Temporal relations for *c̓ɛ* /c̓a/**



Before moving on to provide a formal analysis for *səm* (and updating the denotation for *c̓ɛ* /c̓a/), I address a potential alternate approach to these facts involving causation.

8.5.1 Setting aside causation

A competing explanation for this type of contrast (as discussed in Hirayama and Matthewson 2022) has to do with causation. C. Davis and Hara (2014) propose an analysis of *yooda*, a Japanese evidential, which involves a causal relation between the evidence proposition (the salient proposition serving as evidence) and the prejacent eventuality (PE). In particular, they propose that *yooda* requires that the PE *causes* the eventuality described by the evidence proposition (evidence eventuality = EvE). This captures reasoning from results (e.g. EvE = a lamp is broken) back to cause (e.g. PE = someone broke the lamp). Since the inferential *c̓ɛ* /c̓a/ standardly appears in such contexts, such an account might appear to be an alternative way to capture its distribution. Furthermore, we could look to the opposite restriction – that the EvE causes the PE – to account for the distribution of *səm*.

In order for this approach to work, we would have to have a fairly broad notion of causation, since *c̓ɛ* /c̓a/ is felicitous in examples where the causal relation between the PE and EvE is not very direct. For instance, in (511) Felipe's being home would have to cause me to hear him singing, while in (512), Elise being home would have to cause her cooking to smell good (based on Hirayama and Matthewson 2022: 179, examples (7) and (8)).

(511) *Context: Just as I get home from campus, my mum calls. I start talking to her, and she asks me if my husband is home. I haven't seen him yet, but I can hear him singing in the shower.*

A. ʔamota šɛθ gaqaθʔ
ʔamut=a šə=θ=gəqaθ
be.home=Q DET=2SG.POSS=husband
'Is your husband home?'

B. niš **c̓ɛ** ʔamot. c̓iyítč kʷ wuwaʔwʊm. nɛʔ c̓ɛ
niš=**c̓a** ʔamut c̓iy-ít=č kʷ=wu∼waʔw-əm niʔ=c̓a
be.here=INFER be.home hear-CTR\STAT=1SG.SBJ DET=PROG∼sing-MD be.there=INFER
θaθapiš.
θa∼θap-iš
PROG∼bathe-INTR
'He must be home. I hear him singing. He must be in the shower.' (vf | EP.2022/04/02)

(512) *Context: I get home and am wondering if anyone else is here. Then I smell something cooking in the kitchen, and it smells like one of my roommate's specialities. I think to myself:*

niš **c̓̌ɛ**	ʔamot	Elise.	hɛhɛw	ʔaǰɛqəp	kʷ kʷukʷs.
niš=**c̓̌a**	ʔamut	Elise	hihiw	ʔəǰ-aqap	kʷ=kʷukʷ-s
be.here=INFER	be.home	Elise	really	good-smell	DET=cooking-3POSS

'Elise must be home. Her cooking smells really good.' (sf | EP.2022/04/02)

In the first case, my husband's being home does not cause his singing, and does not cause me to hear it either (since I could be elsewhere), but it does allow me, once I arrive home, to hear it. In the second case, there are even more steps missing in the causal sequence, since Elise being home does not cause her cooking to smell good or even cause her to cook. It does allow her to cook, however, and, once I arrive home, for me to smell her cooking.

If we allow these looser construals of causation in order to predict that *c̓̌ɛ* /c̓̌a/ is felicitous above, we might then expect *c̓̌ɛ* /c̓̌a/ to be felicitous in (513) below as well. In (513), the PE (= Elsie starting to barbecue fish) is the 'cause' of the EvE (= the fire going and the tools for barbecuing fish being out). Nevertheless, *c̓̌ɛ* /c̓̌a/ is not felicitous here.

(513) *Context: I drive by Elsie's place and see that she has her* c̓̌ɩtostən *and* k̓ʷuta *out and a fire going. A little later, I run into Gloria and tell her.*[9]

a.

qʷaga,	hošt	ǰɛqanot	Elsie.	**səmkʷi**	λ̓a̓ʔayɩn	t̓ɛnʔəm
qʷəl̓+ga	hu=št	ǰaqanu-t	Elsie	**səm=kʷi**	λ̓a̓ʔayin	t̓in-ʔəm
come=DPRT	go=1PL.SBJ	watch-CTR	Elsie	FUT=CLD	start	bbq.fish-ACT.INTR

'Come, let's go watch Elsie. She'll be starting to barbecue fish.' (vf | EP.2021/03/05)

b.

#qʷaga,	hošt	ǰɛqanot	Elsie.	**c̓̌ɛ**	λ̓a̓ʔayɩn	t̓ɛnʔəm
qʷəl̓+ga	hu=št	ǰaqanu-t	Elsie	**c̓̌a**	λ̓a̓ʔayin	t̓in-ʔəm
come=DPRT	go=1PL.SBJ	watch-CTR	Elsie	INFER	start	bbq.fish-ACT.INTR

'Come, let's go watch Elsie$_i$. She$_i$ must be starting to barbecue fish.' (sf | EP.2021/03/05)

c.

c̓̌ɩtostən and *k̓ʷuta* are out. UT

She$_i$ starts barbecuing fish.

In these examples, the evidence propositions are true prior to the eventuality described by the prejacent, as illustrated in (513c); the account proposed above in terms of the timing of the evidence relative to the prejacent correctly predicts *səm* to be felicitous and *c̓̌ɛ* /c̓̌a/ to be infelicitous.

A second problem for a causal analysis involves cases where the prejacent of the inferential *c̓̌ɛ* /c̓̌a/ involves the future *səm*. Here, the causal relation between the EvE and the PE seems to go in the opposite direction to what would be predicted by an analysis in terms of causation. In (514), for example, the EvE – the clouds coming – is most naturally construed as the cause of the PE – the future rain, not the other way around.

[9] *c̓̌ɩtostən* are small sticks of cedar for holding salmon open while it is barbecuing by an open fire, while *k̓ʷuta* are the stakes for holding salmon up to barbecue by an open fire.

(514) a. **čɩł čɛ̌ səm**. ti qʷoḷ ṯᶿəmṯᶿəmqʷoyəm.
čəł=**čɛ̌a**=**səm** ti qʷəḷ ṯᶿəmṯᶿəmqʷuyəm.
rain=INFER=FUT DE.CLD come cloudy-MD
'It must be going to rain. It's getting cloudy.' (sf | EP.2020/10/02)

b.

It will rain. It rains. = PE

Conditions are right for rain.

Clouds form. = EvE

These cases can be accommodated under an account where the timing of the evidence is the crucial factor: namely that *čɛ̌* /čɛ̌a/ requires the evidence it relies on to be in place at or following the earliest moment that the prejacent becomes true. Here, this means that the claim that it will rain in the future is true at least as early as the clouds form and approach the vicinity. The circumstances leading to rain (e.g. wind direction, humidity, etc.) coincide with or precede the approaching clouds, fulfilling this requirement, as illustrated in (514b). As a result, *čɛ̌* /čɛ̌a/ is felicitous.

For *səm*, the causation account outlined above also does not fare well. *səm* is not restricted to contexts where the EvE causes the PE, but can be used both when the EvE causes the PE and when the PE causes the EvE. For instance, in (515), the PE – Betty weaving – is the cause of the EvE – the roots soaking – and *səm* is used.[10] In (516), *səm* is found where the EvE – poisoning the food – causes the PE – the hero dying. An account in terms of causation therefore does not appear to be able to predict the distribution of *səm*.

(515) a. *Context: I dropped by Betty's place briefly and saw that she had roots soaking and weaving tools out. A little later, you ask me if I know what Betty's up to. I know the roots would be ready by now, so I tell you:*

səmkʷi χʷoχʷoṗɛʔɛč. xʷəsɛwsxʷəs šɛ kʷaʔamnač.
səm=kʷi x̌ʷu∼x̌ʷuṗiʔič xʷəs<i>g-sxʷ-as šə=kʷaʔamnač
FUT=CLD PROG∼weave soak<STAT>-CAUS-3ERG DET=root
'She'll be weaving. She had roots soaking.' (vf | EP.2021/02/05)

b.

Betty is weaving. (=PE)

Roots are soaking. (=EvE) UT

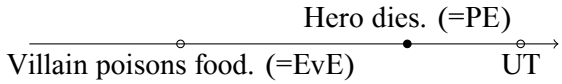
(516) a. *The villain puts poison in the hero's food that he has prepped for dinner and then leaves. An hour or so after dinnertime, the villain tells his sidekick:*

səmkʷi mʊkʷʊxʷəs šɛ paysən ʔɛɬtən. **səm**kʷi qey.
səm=kʷi məkʷ-əxʷ-as šə=paysən ʔiɬtən. **səm**=kʷi qəy
FUT=CLD eat-NCTR-3ERG DET=poison food FUT=CLD die
'He'll have eaten the poisoned food by now. He'll be dead.' (vf | EP.2021/02/05)

[10] Examples (515) and (516) are inspired by Hirayama and Matthewson (2022).

b. #**c̓ɛ**kʷi mʊkʷʊxʷəs šɛ paysən ʔɛɬtən. **c̓ɛ**kʷi qɛy.
c̓a=kʷi məkʷ-əxʷ-as šə=paysən ʔiɬtən. **c̓a**=kʷi qəy
INFER=CLD eat-NCTR-3ERG DET=poison food INFER=CLD die
'He'll have eaten the poisoned food by now. He'll be dead.' (sf | EP.2021/06/19)

c.



In both these cases, the evidence is true prior to the prejacent becoming true, as illustrated in (515b) and (516c); *səm* is therefore correctly predicted to be felicitous by the account proposed here, where the restriction on its distribution concerns the timing of the evidence.

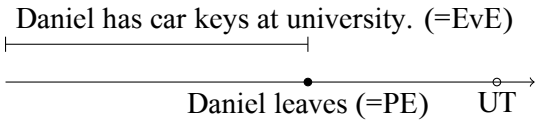
Finally, there are cases where there is no direct causal relation between the EvE and the PE, and therefore an account that depends on causation would predict both the future and the inferential should be ruled out, contrary to fact. For instance, in (517), Daniel's having keys doesn't cause him to leave earlier than usual, but the evidence – his having car keys – starts at a time which precedes the time at which the prejacent is true.

(517) *Context: I saw Daniel had car keys with him today, so I guessed he'd borrowed his roommate's car. We split up to go to different classes, Gloria and I to one, Daniel to another. Later, Gloria asked if we should head back to the department to meet up with Daniel so we can all bus home together. I figured he would have left straight from class since he had the car and it costs money to park. I say:*

a. **səm**kʷi θo
səm=kʷi θu
FUT=CLD go
'He'll have already gone.' (vf | EP.2021/03/05)

b. #**c̓ɛ** kʷi θo
c̓a=kʷi θu
FUT=CLD go
'He'll have already gone.' (sf | EP.2021/03/05)

c.



Once again, an account in terms of the timing of the evidence relative to the prejacent makes the correct predictions.

8.6 Analysis of *səm*

I propose a lexical entry for *səm* where *səm* contributes a strong modal claim which is not specified for conversational background: it can be epistemic or circumstantial. This modal contribution is combined with prospective aspect (following Rullmann and Matthewson 2018), which provides its future temporal orienta-

tion.[11] Finally, the future also carries a presupposition such that the earliest moment at which each of the propositions in the modal base becomes true precedes the earliest moment at which the prejacent is true.[12] This captures the restrictions on the use of *səm* for epistemic modal claims.

The denotation for the future is given in (518). When *səm* is used for epistemic modal claims, the modal base is a function f that returns the propositions that serve as the evidence in w at the evaluation time t for the modal claim. When *səm* is used for circumstantial modal claims, the modal base is a function f that returns a set of propositions expressing relevant circumstances in the world w at t. *səm* also encodes prospective aspect, which places the time t' at which the prejacent is claimed to be true at or after the evaluation time for the modal claim t. The denotation provides a strong modal claim such that in all best worlds compatible with all the propositions in the modal base at t (i.e., in all worlds that are in the intersection of all the propositions returned by the modal base and are ranked as 'best' by the ordering source h), the prejacent is true at t', an interval starting no earlier than t. The modal is defined only if the earliest moment at which each of the propositions in the modal base becomes true precedes the earliest moment at which the prejacent is true.

(518) $[\![səm]\!]^{g,f,h} = \lambda t.\lambda w.\lambda p. : \forall q[q \in f(w) \rightarrow \text{EARLIEST}_w(q) < \text{EARLIEST}_w(p)] \,.\, \forall w'[w' \in max_{h(w)}(\cap f(w,t)) \rightarrow \exists t'[t \leq t' \wedge p(t')(w')]]$

where

a. $\text{EARLIEST}_w(\text{p})$ = the unique m such that $[\![\text{p}]\!]^g(\{\text{m}\})(\text{w'}) \wedge \forall\, \text{t}[[\![\text{p}]\!](\text{t})(\text{w'}) \rightarrow \text{m} \leq \text{t}]$ for some w' maximally similar to w.

(from Hirayama and Matthewson 2022, building on Beaver and Condoravdi 2003)

b. $\text{m} \leq \text{t}$ iff $\forall \text{m'}[\text{m'} \in \text{t} \rightarrow \text{m} \leq \text{m'}]$

The temporal contribution of *səm* allows it to be used for claims about eventualities in the future of the reference time, but also eventualities overlapping the reference time. The addition of the CLDs allows for claims about eventualities preceding the reference time, as discussed in Section 8.6.1 below. When the prejacent eventuality precedes or overlaps the reference time, the result is a non-future inference. When the prejacent eventuality follows the reference time, the result is a claim about the future.

The examples in (519) and (520) illustrate this contrast. The prejacent for both examples is *ƛ̓ic̓t maʔnas* 'her baby is sleeping' and the evaluation time for the modal claim is the UT, as is typical for unembedded uses of *səm*. The modal base for both claims involves the baby's routine. Since in each case, the baby's routine is in place before the specific sleeping eventuality that the prejacent claim is about, the use of *səm* is felicitous. For the claim about the present (519), the prejacent is claimed to be true of a time t' overlapping the UT t, while for the claim about the future (520), the prejacent is claimed to be true of a time t' following the UT t.

[11] Since the temporal relation is associated with both epistemic and circumstantial claims with the future, it must be lexically specified and cannot be derived from Condoravdi's (2002) Diversity Condition.

[12] While I use the term presupposition here to describe the precondition on the timing of the evidence, this should not be taken to be a restriction on the common ground. Like other Salish languages (e.g., Matthewson 2005b, 2008), ʔayʔaǰuθəm seems to lack presuppositions that place restrictions on addressee knowledge. See Section 10.6.1.1 and Reisinger et al. (2021) on ʔayʔaǰuθəm determiners, which do not encode definiteness, for instance.

(519) a. *Context: I know my friend's baby's naptime. I take a look at the clock and decide not to call because the baby will be asleep and she'll wake up if her mum tries to talk on the phone.*

ƛ̓ičč̓t **səm**	maʔnas
ƛ̓<i>č̓t=**səm**	maʔna-s
fall.asleep<STAT>=FUT	child-3POSS

'Her baby will be asleep.' (sf | EP.2021/03/19)

b.

(520) a. *Context: Over breakfast on a Saturday Felipe suggests going to drop in our cousin in the afternoon, but I know the time he's thinking after lunch is when her baby will be napping.*

ƛ̓ičč̓t **səm**	maʔnas
ƛ̓<i>č̓t=**səm**	maʔna-s
fall.asleep<STAT>=FUT	child-3POSS

'Her baby will be asleep.' (sf | EP.2021/03/19)

b.

Aspect plays a crucial role in determining the location of the prejacent eventuality relative to the prejacent reference time t'. The following sections discuss the relationship between *səm* and the aspectual properties of the prejacent in detail. I focus especially on the contribution of the CLDs that occur in the prejacent proposition.

8.6.1 Clausal demonstratives and aspect

I now look in more detail at how the clausal demonstratives (CLDs) interact with *səm* to give rise to non-future inferences and why the overt CLDs are often, but not always, obligatory for non-future inferences with *səm*. CLDs were discussed in detail in Chapter 7, where I showed that they introduce a spatio-temporal interval that I analyzed as a situation – the CLD situation – stretching up to the UT. I also showed that the aspectual properties of the prejacent of a CLD determine whether the prejacent event fits within this spatio-temporal interval or overlaps it. When *səm* combines with a prejacent proposition containing a CLD, the prejacent eventuality will therefore either fit within or overlap an interval beginning prior to the UT and stretching up to it. This correctly predicts only non-future inferences to be available when the prejacent of *səm* contains a CLD.

In Chapter 7, I showed that the deictic component of the CLDs can be interpreted purely temporally or spatio-temporally, but not purely spatially. For simplicity in this chapter, I will treat the CLDs as contributing only temporal deixis and use denotations stated in terms of times. The spatial component does not figure in

the account of the future I am developing here, and stating the denotations in terms of times allows for a simpler exposition, though nothing would go wrong if the situational versions were used instead.

The denotations I use for the proximal and distal CLDs *kʷi* and *kʷa* in this chapter are given in (521) and (522) below. Both presuppose that the reference time t is the utterance time t_0. They introduce a temporal interval t' that has t_0 as its final subinterval and the prejacent proposition p is asserted to be true at t' in w. The proximal CLD also encodes that t' is contained within the temporal trace of the contextually given discourse situation $\tau(s_D)$. The distal CLD encodes that t' contains the temporal trace of the contextually given discourse situation $\tau(s_D)$.

(521) $[\![\, k^w i \,]\!]^{g,s_D,t_0} = \lambda p.\lambda t.\lambda w : t = t_0.\exists t'[p(t')(w) \wedge PROX(t', s_D, t_0)]$
Where $PROX(t', s_D, t_0) = 1$ iff $t' \subseteq \tau(s_D) \wedge t_0$ is the final subinterval of t'

(522) $[\![\, k^w a \,]\!]^{g,s_D,t_0} = \lambda p.\lambda t.\lambda w : t = t_0.\exists t'[p(t')(w) \wedge DIST(t', s_D, t_0)]$
Where $DIST(t', s_D, t_0) = 1$ iff $\tau(s_D) \subseteq t \wedge t_0$ is the final subinterval of t'

While I include denotations for both the proximal and distal CLD here, proximity contrasts will not figure in the discussion that follows. The important aspect of the denotations for what follows is the introduction of a temporal interval t' that begins prior to the UT and stretches up to it.

Both the evidence-neutral CLDs *kʷi* and *kʷa* combine with *səm* for non-future inferences, as in most of the examples above and also (523a)–(523c) below. The direct evidence CLDs *ti* and *ta* cannot, since they require the speaker to have direct evidence for the truth of the prejacent, which is incompatible with both future uses and non-future inferences with *səm*.[13] The incompatibility of *səm* and *ti* and *ta* is illustrated by (523d)–(523f).

(523) a. *Context: You haven't gone to check but you're guessing based on the weather and time of year.*

səmkʷi čɩčχ kʷ čɩtʊxʷən.
səm=kʷi čə∼čx̌ kʷ=čətəxʷən
FUT=CLD PROG∼get.ripe DET=blackberries
'The blackberries will be getting ripe now.' (vf | EP.2021/08/27)

b. *Context: I know Daniel was over on the island for the morning yesterday. In the evening yesterday, I heard on the radio that the ferries had been cancelled, so I know Daniel would have gotten stuck on the island. The next morning I hear the ferries are running again, so I know that Daniel will be heading back to the mainland on the morning ferry. I tell Gloria:*

səmkʷagi čɛt qʷoqʷol.
səm=kʷa=gi ča?at qʷə∼qʷəl̓
FUT=CLD=DPRT now PROG∼come
'I guess he's on his way now.' (vf | EP.2021/03/05)

[13] As discussed in Chapter 7, I assume direct evidence to be evidence for the truth of the prejacent that does not require any inference. Generally, direct evidence for an event is seeing the event itself.

c. *Context: I know the schedule of the tides.*

səmkʷa ƛɛq̓ʷmot qayɛ sčɛʔɛt.
səm=kʷa ƛiq̓ʷ-mut qay̓a sča̓ʔat
FUT=CLD high.tide-INT water now
'It will be high tide right now.' (sf | BW.2022/02/21)

d. *Researcher's question: Can I ever use* səmta*, like...?:*

***səmta** ƛɛq̓ʷmot qayɛ sčɛʔɛt.
səm=ta ƛiq̓ʷ-mut qay̓a sča̓ʔat
FUT=DE.CLD high.tide-INT water now
'It will be high tide right now.'
Comment: I can't think of where I would use *ta*. (sf | BW.2022/02/21)

e. *Context: Based on the timing of their travels, I'm assuming my cousins will be in town now, staying with their parents. I see a car I think is theirs.*

***səmta** qʷol̓ təs.
səm=ta qʷəl̓ təs
FUT=DE.CLD come arrive
'I guess they've arrived.'
Researcher's (follow up) question: Is there any context where this sentence would work? Consultant's answer: It sounds kind of awkward with *ta*. (sf | EP.2022/02/24, BW.2022/02/21)

f. ***səmti** č̓ɛχ.
səm=ti č̓əx̌
FUT=DE.CLD get.ripe
'They [berries] will be ripe by now.' (sf | EP.2020/06/23)

8.6.2 Distribution of clausal demonstratives in non-future inferences

CLDs are obligatory for non-future inferential uses of *səm* when the prejacent event is perfective (524):

(524) a. *Context: You know the fish you have in the oven must be cooked because of how much time has passed.*

č̓ɛχ **səm#(kʷi)**.
č̓əx̌=**səm**=#(**kʷi**)
get.cooked=FUT=PROX.CLD
'It'll have got cooked by now. (sf | EP.2022/08/20)

b. *Context: I know what ferry Daniel was going to catch, so I can predict he is in tisk̓ʷʊt* (*Powell River*) *now.*

θo **səm#(kʷi)** təs ʔəkʷ tisk̓ʷʊt.
θu=**səm**=#(**kʷi**) təs ʔə=kʷ=tisk̓ʷət
go=FUT=PROX.CLD arrive OBL=DET=tisk̓ʷət
'He'll have arrived in tiskʷat by now.' (sf | EP.2022/08/20)

The CLDs are not obligatory in non-future inferences with *səm* if the prejacent predicate is stative (525) ((525a) is repeated from (519a) above).[14]

(525) a. *Context: I know my friend's baby's naptime. I take a look at the clock and decide not to call because the baby will be asleep and she'll wake up if her mum tries to talk on the phone.*

ƛ̓ičt **səm** ma?nas
ƛ̓<i>č̓t=**səm** ma?na-s
fall.asleep<STAT>=FUT child-3POSS
'Her baby will be asleep.' (sf | EP.2021/03/19)

b. *Context: My brother works from home on Mondays and stays home all day. It's Monday, so I know he's home today.*

nɛ? **səm** ?amot. ṗaṗɛ́m nɛ? ?amot.
ni?=**səm** ?amut ṗaṗ-í-m ni? ?amut
be.there=FUT be.home work-STAT-MD ni? ?amut
'He'll be home. He's working at home.' (sf | EP.2021/03/19)

Progressives do not pattern with statives here, which is somewhat suprising since progressives and statives pattern together in terms of their interpretation with CLDs when the future is not involved (see Section 7.7). With progressives, the CLDs are preferred in non-future inferences.

(526) *My parents always eat exactly at 5 pm. At 5, Felipe suggests calling them. I tell him:*

?ɛ?ɛɬtən **səm#(kʷi)**
?i∼?iɬtən=**səm**=#(**kʷi**)
PROG∼eat=FUT=PROX.CLD
'They'll be eating.' (sf | EP.2022/08/20)
Consultant's comment: You have to put the *kʷi* in there.

The contrast between the progressives and the statives in inferences about eventualities ongoing at the UT seems likely to be connected to aspects of the progressive such as how it interacts with the stages of the event, which I have not explored yet.[15] Because fully exploring the semantics of the progressive is beyond the scope of this dissertation, I set this puzzle aside for future research and focus on perfectives and statives in what follows.

[14]The future occurs enclitic in these examples, reflecting the absence of a CLD. Recall from Section 2.6.2 that proclitic strings always involve a CLD.

[15]States have the subinterval property: they are true at every instant of the larger interval through which they hold, while progressives are more complex, particularly progressives of change-of-state predicates. Unlike a stative, the progressive of a change-of-state predicate holding at an interval t does not entail that an eventuality matching the description of the predicate actually occurs. As Dowty (1986) points out, the English progressive in *John was drawing a circle* does not entail that the drawing-a-circle event was actually completed. He proposes an inertia worlds semantics for the progressive to deal with these facts: *John was drawing a circle* is true at an interval t if the drawing-a-circle event culminates in t', where $t \subset t'$, in all inertia worlds with respect to the actual world at t. Progressives of activities have a less fine-grained version of the subinterval property: an activity will be true of every subinterval so long as it is not too small to capture the activity (e.g., the progressive predicate *walking* will be true of many subintervals of the overall temporal trace of the walking event, but will not be true of an interval during which only part of a step takes place). While the progressive in ?ay?aǰuθəm seems similar to the English progressive in these respects, its semantics have not been fully explored, and in particular more work is needed on how it combines with predicates of different lexical aspects.

8.6.3 CLDs and the Bennett and Partee Effect

In Section 1.11.2, I showed that ʔayʔaǰuθəm exhibits the Bennett and Partee Effect, barring perfective predicates from being interpreted as ongoing at the UT. Instead, eventive predicates must be progressive when the reference time is the UT. This is illustrated in (527a-b), repeated from (46b) and (49b) above.

(527) *Context: Pointing out a guy pushing out a boat, when walking on the beach with a child.*

a. k̓ʷʊt gi tita. #**ǰuθotəs** tə nuxʷɛɬs.
k̓ʷə[n]-t=gi təỷta #**ǰuθ-ut-as** tə=nəxʷiɬ-s
see-CTR=PRT DEM push-CTR-3ERG DET=canoe-3POSS
'Look at that guy. He's pushing his boat.' (sf | JF.2019)

b. k̓ʷʊt gi tita. **ǰu**ǰuθotəs tə nuxʷis.
k̓ʷə[n]-t=gi tita. **ǰu**~ǰuθutas tə=nəxʷiɬ-s.
see-CTR=PRT DEM PROG~push-CTR-3ERG DET=canoe-3POSS
'Look at that guy. He's pushing his boat.' (sf | JF.2019)

Stative predicates can be interpreted as ongoing at the UT, as in (528) (repeated from (45)).

(528) a. gəq̇**ét** šukʷayɛ. təqɛpatčxʷ.
gəq̇-**ít** šukʷa-aya. təq-ipa[n]-at=čxʷ
open-STAT sugar-container close-lid-CTR=2SG.OBJ
'The sugar container is open. Put a lid on it.' (vf | JF.2018/11/01)

b. təq**ét** məmk̓iyustən sčɛʔɛt.
təq-**ít** məmk̓ayustən s=čaʔat
close-STAT window NMLZ=now
'The window is closed now.' (vf | JF.2018/05/25)

The reference time for unembedded *səm* is typically the UT, and the prospective aspect *səm* places the prejacent event at or following the UT. Since a perfective event in the prejacent of *səm* cannot be ongoing at the UT (due to the Bennett and Partee Effect), it can only be interpreted in the future. The addition of a CLD in the prejacent of *səm* introduces a perfect time span-like interval stretching back from the UT. A perfective prejacent event can occur within this interval, as in (529) (repeated from (524) above).

(529) a. *Context: You know the fish you have in the oven must be cooked because of how much time has passed.*
c̓ɛχ **səm**#(**kʷi**).
c̓əx̌=**səm**=#(**kʷi**)
get.cooked=FUT=PROX.CLD
'It'll have got cooked by now. (sf | EP.2022/08/20)

b. *Context: I know what ferry Daniel was going to catch, so I can predict he is in tisk̓ʷʊt* (*Powell River*) *now.*

θo **səm#(kʷi)** təs ʔəkʷ tisk̓ʷʊt.
θu=**səm**=#(**kʷi**) təs ʔə=kʷ=tisk̓ʷət
go=FUT=PROX.CLD arrive OBL=DET=tisk̓ʷət
'He'll have arrived in tisk̓ʷət by now.' (sf | EP.2022/08/20)

For this reason, CLDs are obligatory for non-future inferences involving perfective predicates.

In contrast, a stative predicate can be interpreted as ongoing at the UT, and this is also the case when it combines with *səm*. A stative predicate combined with *səm* can be interpreted as ongoing at the UT or following the UT, as in (530) (repeated from (525) above).

(530) a. *Context: I know my friend's baby's naptime. I take a look at the clock and decide not to call because the baby will be asleep and she'll wake up if her mum tries to talk on the phone.*

ƛ̓ičt̓ **səm** maʔnas
ƛ̓<i>č̓t=**səm** maʔna-s
fall.asleep<STAT>=FUT child-3POSS
'Her baby will be asleep.' (sf | EP.2021/03/19)

b. *Context: My brother works from home on Mondays and stays home all day. It's Monday, so I know he's home today.*

nɛʔ **səm** ʔamot. ṗaṗɛ́m nɛʔ ʔamot.
niʔ=**səm** ʔamut ṗaṗ-í-m niʔ ʔamut
be.there=FUT be.home work-STAT-MD niʔ ʔamut
'He'll be home. He's working at home.' (sf | EP.2021/03/19)

A CLD is therefore not required for a non-future inference with a stative predicate but does disambiguate the interpretation (with a CLD plus the future, the utterance will always be a non-future inference).

In the next section, I illustrate formally how these components interact to give rise to non-future inferences with perfective predicates, and contrast this with the interpretation of the future with stative predicates.

8.6.4 Formal analysis of *səm* with the clausal demonstratives

In order to illustrate how non-future inferences are derived with perfective predicates, I use a concrete example: (531), repeated from (484) above.

(531) *Context: You know the fish you have in the oven must be cooked because of how much time has passed.*

səmkʷi č̓ɛχ.
səm=kʷi č̓əx̌
FUT=CLD get.cooked
'It'll be cooked by now.' (sf | EP.2021/01/29)

I lay out the components of the prejacent of the CLD *kʷi* in (531) in (532). The verb *c̓εχ* /*c̓əx̌*/ 'get cooked' takes a single (null) entity argument pro_i, which is a free variable associated with a discourse referent by the assignment function g (532a), an event argument e, and a world argument w (532b). Perfective aspect adds that the temporal trace of the getting-cooked event takes place within the reference time t (532c). When these compose, the resulting denotation (532d) requires a time t and world w argument and states that there is an event of the entity $g(i)$ getting cooked in w and the temporal trace (runtime) of this event $\tau(e)$ is contained within the reference time t.

(532) a. $[\![pro_i]\!]^{t_0,g,f,h} = g(i)$

b. $[\![\ c̓əx̌\ ]\!]^{t_0,g,f,h} = \lambda x.\lambda e.\lambda w.[get.cooked(x)(e)(w)]$

c. $[\![\varnothing_{PFV}]\!]^{t_0,g,f,h} = \lambda P.\lambda t.\lambda w.\exists e[P(e)(w) \wedge \tau(e) \subseteq t]$

d. $[\![\ \varnothing_{PFV}\ ]\!]^{t_0,g,f,h}\ ([\![\ c̓əx̌\ ]\!]^{t_0,g,f,h}\ (\ [\![\ pro_i\ ]\!]^{t_0,g,f,h})) = \lambda t.\lambda w.\exists e[\textit{get-cooked}(g(i))(e)(w) \wedge \tau(e) \subseteq t]$

The CLD adds a presupposition such that t, the reference time for the prejacent, equals t_0 and introduces an interval t' with t_0 as its final subinterval. With the CLD, the prejacent is a claim that there is an event of pro_i getting cooked which culminates within the interval t'. The resulting denotation is in (533).

(533) $[\![\ k^wi\ ]\!]^{t_0,s_D,g,f,h}\ ([\![\ \varnothing_{PFV}\ ]\!]^{t_0,s_D,g,f,h}\ ([\![\ c̓əx̌\ ]\!]^{t_0,s_D,g,f,h}\ (\ [\![\ \text{pro}_i\ ]\!]^{t_0,s_D,g,f,h}))) = \lambda t.\lambda w : t = t_0.\exists t'[PROX(t')(s_D)(t_0) \wedge$

$\exists e[\textit{get-cooked}(g(i))(e)(w) \wedge \tau(e) \subseteq t']]$
Where $PROX(t')(s_D)(t_0) = 1$ iff $t' \subseteq \tau(s_D) \wedge t_0$ is the final subinterval of t'

The final denotation for (531) combines the prejacent in (533) above with the future, as in (534) below. The default evaluation time t for the modal claim introduced by *səm* is the present t_0, which together with the prospective aspect contributed by*səm* means that the time at which the prejacent is claimed to be true t' (the prejacent reference time) is at or following the UT. The CLD introduces a presupposition such that the reference time of the prejacent t' is the UT t_0, so the evaluation time for the modal claim t and the reference time for the prejacent t' are equated and both are t_0, while the interval introduced by the CLD t'' has t_0 as its final subinterval.[16] The result is a claim that the prejacent eventuality occurs within t'' in all best worlds where all the modal base propositions are true. (The future's presupposition concerning the timing of the evidence is omitted for simplicity.)

(534) $[\![\ səm\ ]\!]^{t_0,s_D,g,f,h}\ ([\![\ k^wi\ ]\!]^{t_0,s_D,g,f,h}\ ([\![\ \varnothing_{PFV}\ ]\!]^{t_0,s_D,g,f,h}\ ([\![\ c̓əx̌\ ]\!]^{t_0,s_D,g,f,h}\ (\ [\![\ \text{pro}_i\ ]\!]^{t_0,s_D,g,f,h})))) =$
$\lambda t.\lambda w.\forall w'[w' \in max_{h(w)}(\cap f(w,t)) \rightarrow \exists t'[t \leq t' \wedge \exists t''[PROX(t'')(s_D)(t_0) \wedge \exists e[\textit{get-cooked}(e)(w')$
$\wedge\ \tau(e) \subseteq t'']]]$; defined iff $t' = t_0$

The result is an inference about a nonfuture eventuality.

I turn now to formalizing non-future inferences with stative predicates. Again, this is best demonstrated with a concrete example, such as (535), repeated from (484a) above.

[16]The proximity relation contributed by the CLD in (534) could equivalently be written $PROX(t'')(s_D)(t')$, where the CLD contributes a presupposition that t' is t_0 as above. This notation makes the role of t' clearer, while the notation employed in the text above makes it clearer that t'' always has t_0 as its final subinterval.

(535) *Context: I know my friend's baby's naptime. I take a look at the clock and decide not to call because the baby will be asleep and she'll wake up if her mum tries to talk on the phone.*

səmkʷi	λ̓ič̓t	[šɛ] maʔnas
səm=kʷi	λ̓<i>č̓t	[šə=]maʔna-s
FUT=CLD	fall.asleep<STAT>	[DET=]child-3POSS

'Her baby will be asleep.' (sf | EP.2020/12/18)

As discussed in the previous chapter, the stative form *λ̓ič̓t* is a resultative stative describing the target state of a falling asleep event. The denotation for the base verb is given in (536a). The stative existentially closes the change-of-state event e and is combined with imperfective viewpoint aspect so that the temporal trace of the target state $\tau(e')$ contains the reference time interval t (536b). The denotation of the prejacent of the CLD is given in (536c): the target state e' of the baby sleeping in w occurs during an interval that contains the reference time t.

(536) a. $[\![\text{λ̓əč̓t}]\!]^{t_0,s_D,g,f,h} = \lambda x.\lambda e.\lambda e'.\lambda w.fall.asleep(x)(e)(e')(w)$

b. $[\![<i>_{STAT}]\!]^{t_0,s_D,g,f,h} = \lambda P.\lambda t.\lambda w.\exists e'\exists e[P(e)(e')(w) \wedge \tau(e') \subseteq t$

c. $[\![<i>_{STAT}]\!]^{t_0,s_D,g,f,h} ([\![\text{λ̓əč̓t}]\!]^{t_0,s_D,g,f,h} ([\![ma\text{ʔ}nas]\!]^{t_0,s_D,g,f,h})) = \lambda t.\lambda w.\exists e'\exists e[sleep(her\text{-}baby)(e)(e')(w) \wedge t \subseteq \tau(e')]$

The addition of a CLD means that the sleeping target state eventuality holds throughout an interval t' beginning before the UT and continuing up to it.

(537) $[\![k^w i]\!]^{t_0,s_D,g,f,h}([\![<i>_{STAT}]\!]^{t_0,s_D,g,f,h} ([\![\text{λ̓əč̓t}]\!]^{t_0,s_D,g,f,h} ([\![ma\text{ʔ}nas]\!]^{t_0,s_D,g,f,h}))) =$
$\lambda t\lambda w : t = t_0.\exists t'\exists e'\exists e[fall.asleep(her\text{-}baby)(e)(e')(w) \wedge t' \subseteq \tau(e') \wedge PROX(t')(s_D)(t_0)]$

The future is then added to derive an inference. The eventuality of sleeping is claimed to hold throughout an interval beginning recently in the past and continuing up to the present time in all the best worlds where all the modal base propositions are true. As before, the default evaluation time for the modal claim is the UT, while the CLDs also presuppose that the reference time for the prejacent t' is t_0 and introduce an interval t'' with t_0 as its final subinterval. The temporal trace of the target state of sleeping $\tau(e')$ contains t''.

(538) $[\![s\text{ə}m]\!]^{t_0,s_D,g,f,h} ([\![k^w i]\!]^{t_0,s_D,g,f,h}([\![<i>_{STAT}]\!]^{g,s_D,t_0} ([\![\text{λ̓əč̓t}]\!]^{g,s_D,t_0} ([\![ma\text{ʔ}nas]\!]^{t_0,s_D,g,f,h})))) =$
$\lambda t\lambda w.\forall w'[w' \in max_{h(w)}(\cap f(w,t)) \rightarrow \exists t'[t \leq t' \wedge \exists t''[PROX(t'')(s_D)(t_0) \wedge \exists e'\exists e[fall.asleep(her\text{-}baby)(e)(e')(w') \wedge t'' \subseteq \tau(e')]]]$; defined iff $t' = t_0$

The result is an inference about a non-future eventuality, beginning prior to the UT and continuing up to it.

Unlike with perfective eventive predicates, however, CLDs are not necessary for non-future inferences with stative eventualities. States have the subinterval property: they are true of every instant of the interval in which they hold. In spite of the instantaneous nature of the UT, then, a state can be true of the UT, so long as the temporal trace of the state overlaps the UT. This is formalized for (539) (repeated from (519a)/(520a)) in (540). The inference will be true of an evaluation time t so long as there is a target state sleeping event e' such that the temporal trace of the target sleeping state contains the interval t' which overlaps and/or follows the evaluation time t (in all the best possible worlds determined by the modal base and ordering source).

(539) ✓ *Context: I know my friend's baby's naptime. I take a look at the clock and decide not to call because the baby will be asleep and she'll wake up if her mum tries to talk on the phone.*
✓ *Context: Over breakfast on a Saturday Felipe suggests going to drop in our cousin in the afternoon, but I know the time he's thinking after lunch is when her baby will be napping.*

ƛ̓ičt **səm**	maʔnas
ƛ̓<i>čt=**səm**	maʔna-s
fall.asleep<STAT>=FUT	child-3POSS

'Her baby will be asleep.' (sf | EP.2021/03/19)

(540) $[\![\, səm \,]\!]^{t_0,s_D,g,f,h}\ ([\![\, <i>_{STAT} \,]\!]^{t_0,s_D,g,f,h}\ ([\![\, ƛ̓əčt \,]\!]^{t_0,s_D,g,f,h}\ (\ [\![\, maʔnas \,]\!]^{t_0,s_D,g,f,h}))) =$
$\lambda t.\lambda w.\forall w'[w' \in max_{h(w)}(\cap f(w,t)) \rightarrow \exists t'[t \leq t' \wedge \exists e'\exists e[sleep(her\text{-}baby)(e)(e')(w') \wedge t' \subseteq \tau(e')]$

This correctly predicts the combination of the future with a stative to be either a claim about a future time or a non-future inference. The CLDs play an important role disambiguating in favour of a non-future inference, so they are often preferred for non-future inferences with stative predicates, even though they are not requierd.

8.6.5 Null clausal demonstratives

Before moving on from the discussion of the interaction between *səm*, CLDs and aspect, there is one more issue to address. There are certain cases where the future appears pre-predicatively for non-future inferences without an overt CLD, as in (541).

(541) ✓ *Context 1: I know my friend's baby's naptime. I take a look at the clock and decide not to call because the baby will be asleep and she'll wake up if her mum tries to talk on the phone.*
✗ *Context: Over breakfast on a Saturday Felipe suggests going to drop in our cousin in the afternoon, but I know the time he's thinking after lunch is when her baby will be napping.*

səm	ƛ̓ičt	maʔnas
səm	ƛ̓<i>čt	maʔna-s
FUT	fall.asleep<STAT>	child-3POSS

'Her baby will be asleep.' (sf | EP.2020/12/18)

The utterance with the initial *səm* above can only be interpreted as a non-future inference, as shown by its incompatibility with Context 2. When *səm* is used as a canonical future, it must occur as an enclitic, as in (542) (repeated from (520) above).[17]

(542) *Context: Over breakfast on a Saturday Felipe suggests going to drop in our cousin in the afternoon, but I know the time he's thinking after lunch is when her baby will be napping.*

ƛ̓ičt **səm**	maʔnas
ƛ̓<i>čt=**səm**	maʔna-s
fall.asleep<STAT>=FUT	child-3POSS

'Her baby will be asleep.' (sf | EP.2021/03/19)

[17] As shown in (539), (542) is ambiguous between a claim about the future and a non-future inference.

In Section 2.6.2, I showed that pre-predicative clitic strings always involve a CLD, even where this element is null. I therefore assume that cases like (541) involve a null CLD. There is one caveat, however: there are aspectual restrictions determining when the future can occur pre-predicatively without the overt presence of a CLD and these differ from where an overt CLD is required. The future can only occur on its own for non-future inferences when the prejacent eventuality is stative, as in (541) above, but not where the prejacent eventuality is eventive, as in (543).

(543) *Context: We're sitting outside weaving. Based on how much time has passed, I figure the bread in the oven will be ready (it's a recipe I know well). I tell you:*

***səm**	ʔ̓čɛχ	tᶿ saplɛn.
səm	ʔ̓čəx̌	tᶿ=saplin
FUT	get.cooked	1SG.POSS=bread

'My bread will be cooked.' (More literally: My bread will have gotten cooked.) (sf | EP.2022/02/02)

(543) should involve a null CLD since *səm* is occurring as a proclitic. (543) would be fine with an overt CLD (see (484)), however. I therefore propose that the semantic contribution of the null CLD that co-occurs with a pre-predicative future is not identical to the semantic contribution of an overt CLD. I propose that the null CLD that occurs with the proclitic future contributes a presupposition that the reference time equals the utterance time; it does not introduce a temporal interval preceding the UT.[18]

I formalize this as in (544).

(544) $[\![\varnothing_{\text{CLD}}]\!]^{t_0,s_D,g,f,h} = \lambda p.\lambda t.\lambda w : t = t_0.p(t)(w)$

The presence of this null CLD triggers a proclitic string allowing the future to occur pre-predicatively in (541). Because it fixes the reference time for the prejacent eventuality to the UT, the interpretation can only be one of non-future inference.

(545) $[\![\varnothing_{\text{CLD}}]\!]^{t_0,s_D,g,f,h}([\![\ \textit{səm}\ ]\!]^{t_0,s_D,g,f,h}\ ([\![\ <i>_{STAT}\ ]\!]^{t_0,s_D,g,f,h}\ ([\![\ \textit{ʔ̓əčt}\ ]\!]^{t_0,s_D,g,f,h}\ (\ [\![\ \textit{maʔnas}\ ]\!]^{t_0,s_D,g,f,h}))))$ = $\lambda t.\lambda w.\forall w'[w' \in max_{h(w)}(\cap f(w,t)) \rightarrow \exists t'[t \leq t' \wedge \exists e'\exists e[sleep(her\text{-}baby)(e)(e')(w') \wedge t' \subseteq \tau(e')]$; defined iff $t' = t_0$

Since the null CLD fixes the prejacent reference time t' to the UT but does not introduce a time span, the null CLD does not license a prejacent with a perfective event. Due to the Bennett and Partee Effect, the perfective event cannot fit within the prejacent reference time, the UT.

8.6.6 Against a past reference time

Having shown how the denotation I have given for the future clitic *səm* derives the correct result in combination with CLDs and prejacent propositions involving both perfective and stative predicates, I argue against a potential alternative implementation involving a past reference time for the modal claim.

[18]The denotation proposed here for the null CLD that occurs with a proclitic future cannot necessarily be adopted for other cases of null CLDs. In particular, in Section 2.6.2, I showed cases where a null CLD occurred with perfective predicates and the event preceded the UT, as expected if the denotation of the null CLD was equivalent to an overt CLD.

Since ʔayʔaǰuθəm has a null non-future tense, a potential alternative analysis might have treated the reference time as simply past in cases where the future gives rise to inferences about past or present eventualities. Under this approach, the modal claim would be made from a past temporal perspective and the prejacent claimed to be true of a time t' after the past reference time t ($t < t'$) (see e.g. Condoravdi 2002; Rullmann and Matthewson 2018).

As I showed in Section 8.4.1.2, however, *səm* usually cannot take a past reference time in matrix clauses. Moreover, if the reference time were past for non-future inferences, the modal base would be calculated in the past. This would predict that *səm* in combination with the CLDs could be used for modal claims from a past point in time which are no longer current because the outcome in the real world is known to differ (e.g. *They would have won, but the referee wasn't fair.*). The future plus CLD combination does not allow for non-future inferences that are no longer current, however:

(546) *Context: You had been watching a soccer game. Your favourite team could have won except some of the players got injured. After, you say:*

a. čɩgɩtəm ƛ̓ʊxʷʔaʔmoł ʔi ʔɛłegəw čɛłayɛ.
čəgətəm ƛ̓əxʷ-ʔəm-uł ʔiy ʔiłig-əw čałaya
almost won-ACT.INTR-PST CONJ get.injured-PL three.ppl
'They almost won but three people got injured.' (vf | EP.2020/09/18)

b. #**səm(kʷa)** ƛ̓ʊxʷʔaʔmoł ʔi ʔɛłegəw šɛ čɛłayɛ.
səm(=kʷa) ƛ̓əxʷ-ʔəm-uł ʔiy ʔiłig-əw šə=čałaya
FUT(=CLD) won-ACT.INTR-PST CONJ get.injured-PL DET=three.ppl
'They would have won but three people got injured.' (vf | EP.2020/09/18)

(547) *Context: My friends left in plenty of time for the ferry, but their car broke down on the way. They missed the ferry.*

#**səmkʷa** maʔaxʷas šɛ *ferry* hoy ʔot łaχłaχaw šɛ ʔatnopɛlɛt.
səm=kʷa məʔ-əxʷ-as šə=*ferry* huy=ʔut łəx̌łəx̌aw šə=ʔatnupil-it
FUT=CLD get-NCTR-3ERG DET=ferry finish=EXCL breakdown DET=car-3PL.POSS
'They would have caught the ferry but their car broke down.' (sf | BW.2020/09/24)

This contrasts with cases where the future occurs in an embedded clause and can be used for claims about eventualities expected at a past time but now known not to have occurred as in (548) (repeated from (498a)).

(548) *Context: We had a meeting this morning, and Freddie had told me he would come, but never showed up. Later I tell you, 'Freddie was going to come but he never came.'*

hoθotoɫ	Freddie	sqʷols **səm**	*meeting*	ʔi	kʷa	xʷaʔ	qoḷəs.	kʷʊnas
huθut-uɫ	Freddie	s=qʷəḷ=s=**səm**	*meeting*	ʔiy	kʷa	xʷaʔ	qʷəḷ=as	kʷən=as
say-PST	Freddie	NMLZ=come=3POSS=FUT	meeting	CONJ	CLD	NEG	come=3SBJV	COMP=3SBJV

čɛməm?	χaχyɛmot	hɛhɛw.
čaṁ-əm	x̌ax̌ya-mut	hihiw
how-MD	strange-INT	really

'Freddie said he would come to the meeting but he never arrived. What could have happened? It's really strange.' (vf | EP.2021/01/29)

If it were possible for non-future inferences with *səm* plus the CLDs to have a past reference time, we might also expect the past tense suffix to be able to optionally appear in non-future inferences. This is not the case, however. This combination is never volunteered: it is rejected consistently by one of the consultants I have worked with closely on this, while another disprefers this combination but does not reject it categorically. This is shown in (549)–(551); the corresponding utterances without the past suffix *-oɫ* /*-uɫ*/ are fine.

(549) *Context: Marianne wears bike shoes on days when she rides home from the university. If she doesn't bike, she sometimes meets up with Gloria and Daniel so they can bus home together. Today she was wearing biking shoes. At the end of the day, Daniel and Gloria are discussing whether to wait for Marianne so they can take the bus together. Then Gloria remembers that Marianne was wearing biking shoes and knows that she won't have waited for them since she wasn't taking the bus. Gloria reminds Daniel:*

a. ***səmkʷi** ho *bik*ɛwoɫ**oɫ**.
səm=kʷi hu *bik*-awuɫ-**uɫ**
FUT=CLD go bike-aboard-PST
'She'll have gone by bike.' (sf | EP.2021/02/05)

b. **səmkʷi** ho *bik*ɛwoɫ.
səm=kʷi hu *bik*-awuɫ
FUT=CLD go bike-aboard
'She'll have gone by bike.' (sf | EP.2021/02/13)

(550) a. *Context: You're telling me about an old shelter that used to be up one of the inlets. You haven't been there for a long time, but you figure it would have fallen down by now. The last time you saw it, it really wasn't well maintained and looked unsafe.*

χʷoχʷoɬ ʔəɬ xʷaʔan qəɬ k̓ʷʊnʊxʷən šɛ ƛ̓əmstən ʔəms taʔat
x̌ʷux̌ʷuɬ ʔəɬ=xʷaʔ=an=qəɬ k̓ʷən-əxʷ=an šə=ƛ̓əmstən ʔəms=taʔat
long.time COMP=NEG=1SG.SBJV=IRR see-NCTR=1SG.SBJV DET=shelter 1PL.POSS=HAB

nɛʔoɬ. χʷot ʔot ƛ̓aʔayʊn p̓ot̓θom. **səmkʷa** git ǰɛχɛmot.
niʔ-uɬ x̌ʷit=ʔut ƛ̓aʔayin p̓ut̓θ-um **səm=kʷa**=ga+ʔit ǰix̌-im-mut
be.there-PST really=EXCL start lean-MD FUT=CLD=DPRT=DPRT fall.apart-MD-INT

'It's been a long time since I saw the shelter where we used to stay. It was really starting to lean over. It will have fallen down by now.' (vf | EP.2022/02/04)

b. *Same context as above.*

***səmkʷa** git ǰɛχɛmot**oɬ**.
səm=kʷa=ga+ʔit ǰix̌-im-mut-**uɬ**
FUT=CLD=DPRT=DPRT fall.apart-MD-INT-PST

(551) *Context: I know what ferry Daniel was going to catch so I can predict he is in tisk̓ʷʊt (Powell River) now.*

a. **səmkʷi** θo təs ʔəkʷ tisk̓ʷʊt.
səm=kʷi θu təs ʔə=kʷ=tisk̓ʷət
FUT=CLD go arrive OBL=DET=tisk̓ʷət
'He'll have arrived in tiskʷʊt by now.' (sf | EP.2022/02/04)

b. ***səmkʷi** θo tə**soɬ** ʔəkʷ tisk̓ʷʊt.
səm=kʷi θu tə**s-uɬ** ʔə=kʷ=tisk̓ʷət
FUT=CLD go arrive-PST OBL=DET=tisk̓ʷət
'He'll have arrived in tiskʷʊt by now.' (sf | EP.2022/02/04)

c. ***səmkʷa** θo tə**soɬ** ʔəkʷ tisk̓ʷʊt.
səm=kʷa θu tə**s-uɬ** ʔə=kʷ=tisk̓ʷət
FUT=CLD go arrive-PST OBL=DET=tisk̓ʷət
'He'll have arrived in tiskʷʊt by now.' (sf | EP.2022/02/04)

I therefore conclude that the reference time for modal claims with *səmkʷi/kʷa* is not past. Both the ban on future-in-the-past interpretations out of the blue and the presence of the CLDs, which I indepdently have shown to set the utterance time as the temporal deictic anchor (see Section 7.7.2), prevent the reference time for the modal claim from shifting from the present.

8.7 Inferential *c̓ɛ* /c̓a/

Now that I have established how the timing of the evidence relative to the prejacent is encoded for the future morpheme *səm* (as well as how the aspect of the prejacent contributes to the interpretation of utterances with

səm), it is time to return to *c̓ɛ* /c̓a/ and why *səm* and *c̓ɛ* /c̓a/ cannot be used interchangeably despite both being used for strong epistemic modal claims. Intuitively, *c̓ɛ* /c̓a/ encodes the opposite relation to the future – namely that sufficient evidence to support the strong modal claim is available at or after the earliest moment of the prejacent being true. In (552), the presupposition carried by *c̓ɛ* /c̓a/ requires at least one proposition on which the modal claim is based to become true at or following the earliest moment of the prejacent being true.

(552) a. $[\![\ \text{c̓ɛ}(\phi)\ ]\!]^{t_0,g,f,h}$ is defined only if $\exists q[q \in f(w) \wedge \text{EARLIEST}_w(p) \leq \text{EARLIEST}_w(q)]$

Where $EARLIEST_w(\phi)$ = the unique m such that $[\![\phi]\!]^g(m)(w) \wedge \forall t[[\![\phi]\!](t)(w) \rightarrow m \leq t]$ for some w maximally similar to w.

$m \leq t$ iff $\forall m[m \in t \rightarrow m \leq m]$ (adapted from Hirayama & Matthewson 2021:12)

b. If defined: $[\![\ \text{c̓ɛ}(\phi)]\!]^{t_0,g,f,h} = \lambda w.\forall w'[w' \in max_{h(w)}(\cap f(w,t_0)) \rightarrow \phi(w')]]$

In (552), the perspective of the modal is anchored to the utterance time t_0. This is because while the inferential may occur in a clause with a past tense suffix (553), it always takes present temporal perspective, as shown previously in Chapter 6, Section 6.9. If it were possible for the past tense suffix to shift the temporal perspective of the modal, it should be possible to use the combination of the inferential and past tense suffix to report past inferences that are no longer valid, but this is not the case, as shown in (554) (repeated from (370) above).

(553) *Context: I go over to Betty's house for dinner and as I'm approaching her front door, I see fresh shavings of cedar roots scattered on the grass. I say to Gloria who's with me:*

ʔɛʔɛχaǰɛ**ʔoɬ c̓ɛ**	Betty.	niš	kʷikʷɛt	tə k̓ʷimɛns.
ʔi∼ʔiǰaǰa-ʔ-**uɬ=c̓a**	Betty.	niš	kʷikʷ-ít	tə=k̓ʷimin-s
PROG∼fine.roots-EPEN-PST=INFER	Betty	be.here	scatter-STAT	DET=shavings-3POSS

'Betty must have been fining down roots. The shavings are scattered here.' (sf | EP.2020/10/02)

(554) a. *Context: I thought I heard rain on the roof when I was getting ready to go to work this morning, so I brought an umbrella, but then it wasn't raining. When I got to work, Gloria asked me* 'čɯ̓ θ qʷolsxʷ θ t̓ᶿaytən?' *'Why did you bring your umbrella?'*

#c̓ɩc̓ɬ**oɬ c̓ɛ**	skʷiǰoɬ.
c̓ə∼c̓ɬ-**uɬ=c̓a**	skʷiǰuɬ
IPFV∼rain-PST=INFER	morning

'It might have been raining this morning.' (sf | BW&KG.2018/12/04, EP.2019/12/01)

b.

nɛʔɛtč	ga	c̓ɩc̓ɬəs	skʷiǰoɬ.
niʔ-it=č	ga	c̓ə∼c̓ɬ=as	skʷiǰuɬ
think-CTR=1SG.SBJ	COMP	IPFV∼rain=3SBJV	morning

'I thought it was raining this morning.' (vf | EP.2019/12/01)

I therefore analyze the temporal perspective of *c̊ɛ* /c̊a/ as being anchored to the utterance time, given as a parameter of interpretation (as in Chapter 6, Section 6.9).

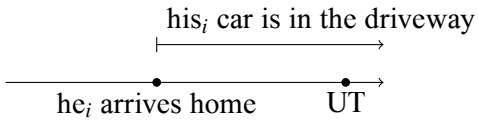
With the added presupposition in (552), the denotation can now predict the temporal properties of *c̊ɛ* /c̊a/. I illustrate this using some of the examples seen previously. In (555) (repeated from (505) above), *c̊ɛ* /c̊a/ is used because the modal base is calculated based on a body of evidence available at the utterance time – the car being in the driveway being a crucial component of this evidence. The car could not be in the driveway any sooner than the prejacent is true (if the owner of the car did indeed drive the car into the driveway, as assumed).

(555) *Context: I see someone's car in his driveway.*

a. #**səm**kʷi θo hɛwt.
səm=kʷi θu hiwt
FUT=CLD go get.home
'He must have gotten home.' (sf | MH.2018/11/18)

b. **c̊ɛ** kʷi θo hɛwt.
c̊a=kʷi θu hiwt
INFER=CLD go get.home
'He must have gotten home.' (vf | MH.2018/11/18)

c. Modal Base = {x's car is in the driveway, x usually drives when he leaves home, ...}

d. 

Since the earliest moment of the prejacent being true coincides with the earliest moment the car is in the driveway, the inferential is felicitous.

The denotation for (555b) is given in (556). The presupposition carried by *c̊ɛ* /c̊a/ requires the earliest moment at which the prejacent is true to be preceding or simultaneous with the earliest moment at which one of the modal base propositions is true: in this case, the car being in the driveway. As before, *c̊ɛ* /c̊a/ contributes a strong modal claim such that the prejacent is true in all the best worlds compatible with all the propositions in the modal base f at the UT t_0.

(556) a. $[\![\mathring{c}a]\!]^{t_0,s_D,g,f,h}([\![k^w i]\!]^{t_0,s_D,g,f,h}([\![\varnothing_{PFV}]\!]^{t_0,s_D,g,f,h}([\![\theta u\ hiwt]\!]^{t_0,s_D,g,f,h}([\![pro_i]\!]^{t_0,s_D,g,f,h}))))$ is defined only if
$EARLIEST_w([arrive.home(g(i))]) \leq EARLIEST_w([in.driveway(his_i.car)])$

b. If defined: $[\![\mathring{c}a]\!]^{t_0,s_D,g,f,h}([\![k^w i]\!]^{t_0,s_D,g,f,h}([\![\theta u\ hiwt]\!]^{t_0,s_D,g,f,h})) = \lambda w.\forall w'[w' \in max_{h(w)}(\cap f(t_0)(w)) \rightarrow \exists t'\exists e[PROX(t', s_D, t_0) \wedge arrive.home(e)(w') \wedge \tau(e) \subseteq t']]$

The future *səm* is not felicitous because it requires the modal claim to be based on evidence that is in place *before* the earliest moment of the prejacent being true, but the car is not in the driveway until its driver arrives home.

In the next example, *səm* is felicitous but the inferential *c̊ɛ* /c̊a/ is not. Here, the presupposition carried by the inferential is not satisfied. The modal claims of the sentences in (557) do not depend on any evidence that

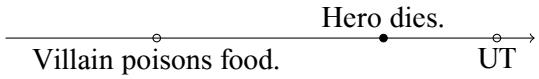
becomes true at or after the earliest time at which the prejacent is true. This is especially clear for the second sentence (about the hero's presumed death), since the poisoning would precede the effect of the poison, but it is also true for the inference about the hero having eaten, since this is based on when the villain assumes dinnertime is, not on any evidence that follows the poisoning of the food.

(557) *The villain puts poison in the hero's food that he has prepped for dinner and then leaves. An hour or so after dinnertime, the villain tells his sidekick:*

a. **səm**kʷi mʊkʷʊxʷəs šɛ paysən ʔɛɬtən. **səm**kʷi qey.
səm=kʷi məkʷ-əxʷ-as šə=paysən ʔiɬtən. **səm**=kʷi qəy
FUT=CLD eat-NCTR-3ERG DET=poison food FUT=CLD die
'He'll have eaten the poisoned food by now. He'll be dead.' (vf | EP.2021/02/05)

b. #**čɛ**kʷi mʊkʷʊxʷəs šɛ paysən ʔɛɬtən. **čɛ**kʷi qey.
ča=kʷi məkʷ-əxʷ-as šə=paysən ʔiɬtən. **ča**=kʷi qəy
INFER=CLD eat-NCTR-3ERG DET=poison food INFER=CLD die
'He'll have eaten the poisoned food by now. He'll be dead.' (sf | EP.2021/06/19)

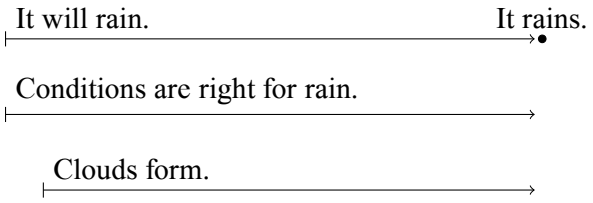
c.



It is possible to combine the inferential and the future. In this case, the claim with future is the prejacent of the inferential, as in (558) (repeated from (514a) above). The presupposition of the future is satisfied here because the evidence for rain – the dark clouds – are in place prior to the rain itself. I propose that the presupposition of the inferential is also satisfied, because the earliest time that the prejacent is true – the prejacent being a claim about future rain – precedes/coincides with the visible evidence that it will rain such as dark clouds in the sky (following Hirayama and Matthewson 2022: 183–184, who propose a similar account of the future in the prejacent of evidentials).

(558) a. čɩɬ **čɛ** **səm**. ti qʷoḷ ṯʰəmṯʰəmqʷoyəm.
čəɬ=**ča**=**səm** ti qʷəḷ ṯʰəmṯʰəmqʷuy-əm
rain=INFER=FUT CLD come cloudy-MD
'It must be going to rain. It's getting cloudy.' (sf | EP.2020/10/02)

b.



The resulting denotation carries two presuppositions on the timing of the evidence, one for each of the modal claims: 1) the clouds form prior to the future rain occurring (the presupposition of the future), 2) the clouds form at or following the point at which the future claim is true (the presupposition of the inferential).

The at-issue component is a claim that in all worlds compatible with the speaker's knowledge at t_0, it will rain at a time t' no earlier than t_0.[19]

(559) a. $[\![\text{č̣ε}]\!]^{t_0,s_D,g,f,h,f',h'}([\![\textit{səm}]\!]^{t_0,s_D,g,f,h,f',h'}([\![\text{č̣ɩɬ}]\!]^{t_0,s_D,g,f,h,f',h'}))$ is defined only if
$EARLIEST_w(\lambda t.\exists t'[\text{rain}(t') \wedge t < t']) \leq EARLIEST_w([\text{be(dark.clouds)}]))$,[20]
and $EARLIEST_w([\text{be(dark.clouds)}] < EARLIEST([\text{rain}])$

b. If defined: $[\![\text{č̣ε}]\!]^{t_0,s_D,g,f,h,f',h'}([\![\textit{səm}]\!]^{t_0,s_D,g,f,h,f',h'}([\![\text{č̣ɩɬ}]\!]^{t_0,s_D,g,f,h,f',h'})) =$
$\lambda w.\forall w'[w' \in max_{h(w)}(\cap f(w,t_0)) \rightarrow \forall w''[w'' \in max_{h(w')}(\cap f'(w',t_0)) \rightarrow \exists t''\exists e[t_0 \leq t'' \wedge rain(e)(w'') \wedge \tau(e) \subseteq t'']]]$

In this section, I proposed an updated denotation for the inferential *č̣ε* /č̣a/, adding a presupposition requiring at least one of the evidence propositions to be true at or following the earliest moment of the prejacent being true. I showed that this correctly predicts how the distribution of *č̣ε* /č̣a/ differs from the future *səm*, and also allows for the cases where they can co-occur. Now that I have proposed an analysis for the future and the inferential that captures their distribution, I turn to their English counterparts *will* and *must* to examine the parallels and differences in their behaviour.

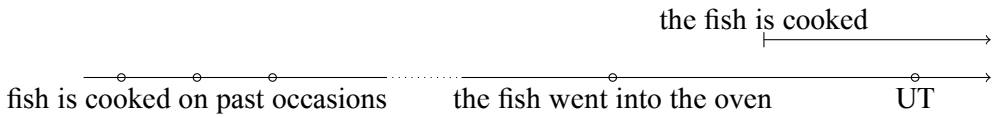
8.8 English *will*

As mentioned in the introduction to this chapter, English *will* is like ʔayʔaǰuθəm *səm* in that it can be used both for claims about the future and inferences about non-future eventualities. In this section, I argue that *will* exhibits the same restrictions on the timing of the evidence relative to the prejacent as *səm*: for felicitous use of *will*, the propositions in the modal base must all become true at a point preceding the earliest moment at which the prejacent is true. This has already been implicitly suggested in the translations of the ʔayʔaǰuθəm examples, but I will repeat the relevant cases here.

English *will* is felicitous in (560), (561) and (562) where the evidence propositions are true prior to the prejacent being true.

(560) a. *Context: I'm cooking a fish, but I've stepped outside for bit to work in my garden. I know it should be cooked now by how much time has passed.*
It **will** be cooked now.
Prejacent = it (the fish) is cooked now.
Modal Base = { it takes x long to cook a fish, the fish went in the oven at x time, ...}

b.



(561) a. *Context: Felipe always bikes home at 5. I haven't been paying attention to the weather, but at 6 I look out the window and see that it is pouring and has been for some time. I figure Felipe*

[19] The future could also potentially have a circumstantial modal base here in which case the claim is based on current circumstances.

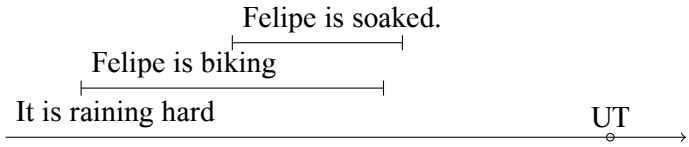
[20] I abstract away from the modal contribution of the future in the presupposition and represent only the temporal contribution for simplicity.

will be home by now, but must have been soaked on his way. I say:

He **will** have gotten soaked!

Modal Base = {it is raining hard, it has been raining hard for a while, Felipe biked today, Felipe leaves at 5...}

b.

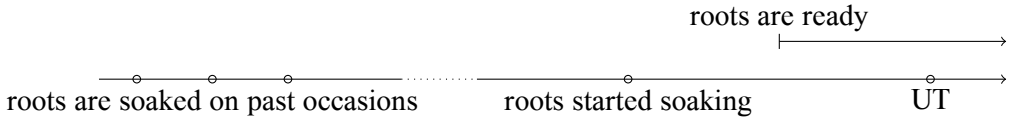


(562) a. *Context: Gloria and I are over at Betty's place. Betty puts roots to soak so we can try weaving. After a little while, she figures they must be ready. She says:*

The roots **will** be ready.

Modal Base = {roots take x amount of time soaking to get soft, the roots started soaking at x, ...}

b.



English *will* is not felicitous in (563) and (564), where at least one of the propositions in the modal base is true at or following the earliest moment that the prejacent of the future is true (the fish getting cooked must precede or coincide with its smelling cooked, the car arriving in the driveway coincides with the owner of the car being home).

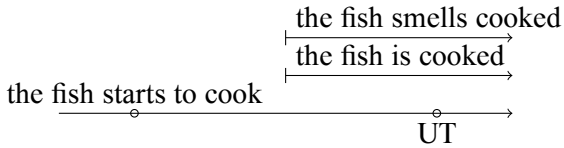
(563) a. *Context: I'm cooking a fish and I'm guessing by the smell that it is cooked. I remark to you:*

#It **will** be cooked now.

Prejacent = it (the fish) is cooked now.

Modal base = {the fish smells cooked, the fish has been in the oven for a while, ...}

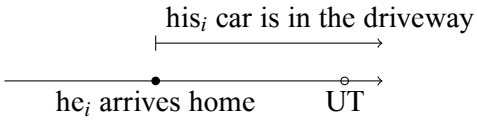
b.



(564) *Context: I see someone's car in his driveway.*

He **will** have gotten home.

Modal Base = {x's car is in the driveway, x usually drives when he leaves home, x was gone earlier...}



Since English *will* shares the same restriction on timing of evidence with *səm*, it is possible to account for the use of *will* for both future claims and non-future inferences using the same denotation as for ʔayʔaǰuθəm *səm*, as in (565).

(565) $[\![will]\!]^{g,f,h} = \lambda t.\lambda w.\lambda p.\exists t' : \forall q[q \in f(w) \rightarrow \text{EARLIEST}_w(q) < \text{EARLIEST}_w(p)] \,.\, \forall w'[w' \in max_{h(w)}(\cap f(w,t')) \rightarrow \exists t''[t \leq t'' \wedge p(t'')(w')]]$

where

a. EARLIEST_w(p) = the unique m such that $[\![p]\!]^g$({m})(w') $\wedge$ $\forall$ t[$[\![p]\!]$(t)(w') $\rightarrow$ m $\leq$ t] for some w' maximally similar to w.
(from Hirayama and Matthewson 2022, building on Beaver and Condoravdi 2003)

b. m $\leq$ t iff $\forall$m'[m' $\in$ t $\rightarrow$ m $\leq$ m']

8.8.1 English *will* and the use of the perfect

In the examples in the preceding section, the prejacent of non-future inferences with *will* either has the perfect auxiliary *have*, as in (561a) or a stative predicate, as in (560) and (562). More generally, the perfect is needed when *will* is used to make a non-future inference involving a perfective predicate. When *will* occurs with states or progressives, the result can be a claim about the future or an inference about a current eventuality. This pattern resembles the ʔayʔaǰuθəm facts where non-future inferences occur when the prejacent either contains a CLD, which has a perfect-like contribution, or involves a stative predicate; the two systems differ with respect to the progressive, however, as discussed below.

Below, I first lay out the interpretation of predicates with perfective, stative, and progressive aspect with a present reference time. I then discuss their interpretation with the future and the role of the perfect in deriving non-future inferences with perfective eventive predicates. Throughout, I note where the English system is parallel to the ʔayʔaǰuθəm system and where the systems differ.

English exhibits the Bennett and Partee Effect with perfective eventive predicates (Bennett and Partee 1978).

(566) a. *Context: I want my niece to watch what our friend Betty is doing in the kitchen to learn from her.*
Look at Betty. She {#cooks/is cooking} fish.

b. *Context: I'm pointing out a guy pushing out a boat, when walking on the beach with a child.*
Look at that guy. He {#pushes/is pushing} his boat.

c. *Context: Talking about my cat, which is in the room.*
Look at Patrick. He {#eats/is eating}.

These, of course, all become felicitous if the eventive predicate is in the progressive. It is also possible to interpret perfective eventives with present tense, but as habituals.

(567) a. Betty has a routine for meals. She cooks fish on Fridays.

b. My neighbour starts every day fishing early. He pushes his boat out at six.

c. My friend's cat likes to eat at the same time every day. He eats at lunchtime.

Following Deo (2009), Cable (2020) and others, I assume that the English habituals involve a covert operator. ʔayʔaǰuθəm has an overt operator *taʔat* for these cases, as shown in Chapter 1, Section 1.11.2. Up to this

point, then, the ʔayʔaǰuθəm and English systems only diverge in terms of whether the habitual operator is overt.

As expected given these facts, in English when a perfective eventive predicate combines with the future, the event generally must occur following the utterance time, giving rise to canonical future readings.

(568) a. Betty will cook tonight.

b. He will push out his boat as soon as we're out of the way.

c. He will eat later when he's hungry.

I analyze the English perfective as a null operator encoding that the eventuality described by the predicate occurs within the reference time interval (569a) (the same denotation as used for the ʔayʔaǰuθəm perfective throughout this dissertation, beginning in Section 1.11.3). An example like (568a), abstracting away from the temporal adverb, will therefore get a denotation like in (569c).

(569) a. $[\![\varnothing_{PFV}]\!]^g = \lambda P.\lambda t.\lambda w.\exists e[P(e)(w) \wedge \tau(e) \subseteq t]$

b. $[\![cook]\!]^g = \lambda x.\lambda e.\lambda w.cook(x)(e)(w)$

c. $[\![will]\!]^g([\![\text{-}\varnothing_{PFV}]\!]^g([\![\ cook\ ]\!]^g([\![Betty]\!]^g))) = \lambda w : \forall q[q \in f(w) \rightarrow \text{EARLIEST}_w(q) < \text{EARLIEST}_w([\![Betty\ cooks\text{-}\varnothing_{PFV}\ tonight]\!])\ .\ \forall w'[w' \in max_{h(w)}(\cap f(t_0, w)) \rightarrow \exists t'[t_0 \leq t' \wedge \exists e[cook(Betty)(e)(w') \wedge \tau(e) \subseteq t']]$

Given a present reference time, morphologically encoded in *will* (as opposed to past *would*), the future encodes that the cooking event occurs at or following the UT. Since the cooking event cannot fit within the UT, it must occur following the UT.

States, on the other hand, are true of any instant within their temporal trace – they have the subinterval property (e.g. Dowty 1986). As a result, they can be claimed to be true of the UT without any additional operators.

(570) a. She knows the answer.

b. She is asleep.

c. He is full.

In consequence, when a prejacent containing a stative predicate combines with *will*, the resulting proposition is ambiguous between a claim about the future and an inference about a present eventuality.

(571) a. She will know the answer {by tonight / now}.

b. She will be asleep {by the time we arrive / now}.

c. He will be full {when he finishes that / already}.

Progressives behave in parallel to states in English:

(572) a. She will be cooking the fish {when we get there / now}.

b. He will be pushing out his boat {at 6 pm tonight / now}.

c. He will be eating {during the show tonight / now}.

In contrast, ʔayʔaǰuθəm progressives require the presence of CLDs for nonfuture inferences, as discussed in Section 8.6.2. This difference between the behaviour of progressives in ʔayʔaǰuθəm, which require CLDs for nonfuture inferences, and English progressives, which do not require the perfect for nonfuture inferences, remains unexplained at this point. Since an explanation of this difference will likely require a detailed investigation of the semantics of the progressive in ʔayʔaǰuθəm, which is beyond the scope of this dissertation, I set this puzzle aside for future research.

For English, the behaviour of the progressive and stative falls out from the denotation I have given for the future plus the aspectual profile of states and progressives. I illustrate this here first for states, using (571b). The denotation for (571b) (minus the temporal adverbs) is given in (573a).

(573) $[\![\textit{She}_i \textit{ will be asleep}]\!]^{t_0,g,f,h} = \lambda w : \forall q[q \in f(w) \rightarrow \text{EARLIEST}_w(q) < \text{EARLIEST}_w([\![\textit{She}_i \textit{ is asleep}]\!])\,.$
$\forall w'[w' \in max_{h(w)}(\cap f(w,t_0)) \rightarrow \exists t'[t_0 \leq t' \wedge \exists e[be.asleep(g(i))(e)(t')(w')]]$

The sleeping eventuality is claimed to be true at t' (in all best possible worlds in which all the modal base propositions are true), which may be the UT or any time following the UT. In order for this claim to be true the sleeping eventuality just needs to be occurring at t', it does not need to fit within it. As a result, the claim can be that the subject is sleeping at the time of utterance or in the future. The resulting proposition can occur with temporal adverbs fixing the time at which the prejacent is claimed to hold either to the present or to the future, disambiguating the intended interpretation.

The case of progressives is very similar: the progressive morpheme encodes that the reference time is contained within the temporal trace of the prejacent eventuality.[21] The denotation for (572a) is then as in (574). The future contributes that the reference time for the prejacent t' is no earlier than the UT, but since the time of the prejacent eventuality contains the prejacent reference time, rather than having to fit within it, there is no problem with the prejacent reference time being the UT.

(574) $[\![\textit{She}_i \textit{ will be cooking the fish}]\!]^{t_0,g,f,h} = \lambda w : \forall q[q \in f(w) \rightarrow \text{EARLIEST}_w(q) < \text{EARLIEST}_w([\![\textit{She}_i \textit{ is cooking the fish}]\!])\,.\ \forall w'[w' \in max_{h(w)}(\cap f(w,t_0)) \rightarrow \exists t'[t_0 \leq t' \wedge \exists e[cook(the.fish)(g(i))(e)(w') \wedge \tau(e) \supseteq t']]$

Of course, the English future can be used for non-future inferences with perfective eventive predicates as well, but then the perfect is used.

(575) a. *Context: I know what time Gloria left campus and how long the bus ride home takes. Looking at the time, I think:* She **will have** arrived by now.

b. *Context: I want to call Daniel, but don't want to disturb his dinner so I wait till a little later in the evening. I think to myself:*
He **will have** eaten dinner by now. I'm going to call him.

[21] Progressives are likely modal (see e.g. Dowty 1979), but I abstract away from a modal representation for simplicity.

I propose that the perfect in English serves a parallel function to the CLDs in ʔayʔaǰuθəm, introducing a time span within which a perfective event 'fits'. For this, I adopt an analysis of the perfect where it contributes a perfect time span:

(576) $[\![\text{ PERFECT }]\!] = \lambda p_{\langle i,st\rangle}.\lambda t \lambda w.\exists t'[PTS(t',t) \wedge p(t')(w)]$
where $PTS(t',t)$ iff t is a final subinterval of t' (adapted from Bhatt and Pancheva 2005)

The prejacent for (575a) prior to saturation of the reference time would then be as in (577):

(577) $[\![\text{ She}_i \text{ has arrived }]\!]^{t_0,g,f,h} = \lambda w.\lambda t.\exists t'[PTS(t',t) \wedge \exists e[arrive(g(i))(e)(w) \wedge \tau(e) \subseteq t']]$

Since t' is an interval larger than the UT, the perfective event can fit within this interval. When this prejacent is combined with the future, the result is either a future perfect or an inference about an event that has already occurred.

(578) $[\![will]\!]^{t_0,g,f,h}([\![have]\!]^{t_0,g,f,h}([\![PFV]\!]^{t_0,g,f,h}([\![arrive]\!]^{t_0,g,f,h}\ ([\![she_i]\!]^{t_0,g,f,h}))))$ =
$\lambda w : \forall q[q \in f(w) \rightarrow \text{EARLIEST}_w(q) < \text{EARLIEST}_w([\![She_i \textit{ has arrived}]\!])\ .\ \forall w'[w' \in max_{h(w)}(\cap f(w,t_0))$
$\rightarrow \exists t'[t_0 \leq t' \wedge \exists t''[PTS(t'',t') \wedge \exists e[arrive(g(i))(e)(w') \wedge \tau(e) \subseteq t'']]]]$

Once again, temporal adverbials can disambiguate the two readings.

Up to this point, the English and ʔayʔaǰuθəm systems have appeared very parallel (except for differences in the behaviour of the progressive, which I set aside for now). There are two ways in which the systems diverge quite significantly, however. The first has been discussed above: the reference time for the CLDs is fixed to the UT, whereas the perfect in English can occur with a past or future reference time for past perfect and future perfect readings. The second difference is connected to the first: *will* in English can take past temporal perspective in matrix clauses, when it occurs in its past form *would* and co-occurs with a perfect auxiliary; see Condoravdi (2002) and Rullmann and Matthewson (2018) for discussion of how this combination of morphemes results in a past perspective.

With past temporal perspective, the modal base is calculated at a past reference time. In matrix clauses, it is typically used when the modal claim is no longer 'current'; the modal claim was felicitous from a past temporal perspective but cannot still be made at the present. Modal claims are usually made using all the information available up to the present, and therefore they are made from a present perspective, as in (579a). In cases like (579b), however, the modal claim is made from a past point in time when the prejacent could still be predicted to be true based on the evidence available (before the players were injured), but current information shows that the prediction did not end up being accurate. The explanation *...but then three players got injured* is semi-obligatory to license the modal with past temporal perspective.

(579) a. *Context: I've been watching a soccer game. My favorite team was doing really well and the outcome was pretty obvious. Just before the end of the game, though, I got an important phone call, so I didn't get to see the end. After getting off the call, I think to myself:*
They **will** have won, but I wonder what happened in the last few minutes of the game.

b. *Context: I had been watching a soccer game. My favourite team was winning but then some of the best players got injured in the last part of the game. After, I say:*
They **would** have won, but then three players got injured.

The following is a similar case, where a strong inference is possible based on all evidence up to the UT in (580B), while if the claim has since turned out not to be true, the inference can be reported from a past temporal perspective (580B').

(580) *Context: Our roommate took a flight to Cranbrook. We're discussing her arrival time.*

A: Has Elise arrived in Cranbrook yet?

B: Yes, she **will** have arrived by now.

B': No, she **would** have arrived by now, but the flight got delayed till this afternoon.

It also seems to be possible to use past plus future to express claims that are 'not current' in the sense that the speaker feels there is recent relevant information that is missing, rather than knowing the prejacent to be false.

(581) B": Yes, she **would have** arrived early this morning, but I haven't heard from her yet.

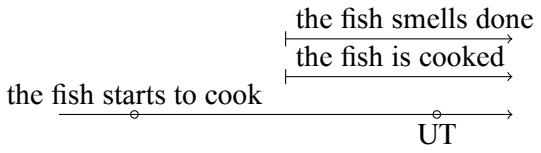
As we saw above, ʔayʔaǰuθəm does not seem to allow past temporal perspective for inferences about non-future eventualities using *səmkʷi/kʷa*. Unlike in English, where it is possible to have past temporal perspective for *would have*, the CLDs in ʔayʔaǰuθəm fix the reference time to the utterance time, and therefore the temporal perspective to the utterance time.

8.9 English *must*

While the inferential *c̓ɛ* /c̓a/ cannot be used interchangeably with the future *səm* in ʔayʔaǰuθəm, the strong epistemic modal *must* can often be used interchangeably with *will* for non-future inferences in English. I showed above that *will* has quite a restricted distribution when used for non-future inferences, parallel to ʔayʔaǰuθəm *səm*; this is illustrated in (582) where *will* cannot be used for an inference about a non-future eventuality when the earliest moment at which the evidence is true – the fish smells cooked – coincides with the earliest moment at which the prejacent is true – the fish is cooked; in contrast *must* is felicitous in this context.

(582) a. *Context: You can smell that the fish you have in the oven is ready and say:*
It {**must**/#**will**} be cooked by now. It smells good!

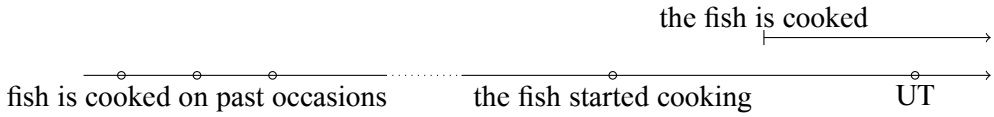
b.



Must is less restricted than *c̓ɛ* /c̓a/, however, and overlaps the distribution of *will*. The overlapping distribution of *must* with *will* is shown in (583)–(584). Here, *must* is used in contexts where *c̓ɛ* /c̓a/ would be infelicitous because all the evidence on which the modal claim is based precedes the earliest moment at which the prejacent is true.

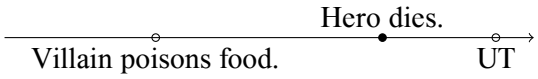
(583) a. *Context: You know the fish you have in the oven must be cooked because of how much time has passed.*
It {**must**/**will**} be cooked by now.

b.



(584) a. *Context: The villain puts poison in the hero's food and then leaves. An hour or so after dinnertime, the villain tells his sidekick:*
He {**must**/**will**} have eaten the poisoned food by now. He {**must**/**will**} be dead.

b.



However, there are cases where there is a clear preference for *will* over *must*.

(585) *Context: I know my friend's baby's naptime. I take a look at the clock and decide not to call because the baby will be asleep and she'll wake up if her mum tries to talk on the phone.*
Her baby {#**must**/**will**} be asleep.

It is beyond the scope of this chapter to fully explore and account for the distribution of English *must*. A possible explanation may be that *must* does not carry a presupposition about the timing of the evidence (see Hirayama and Matthewson 2022), unlike *c̓ɛ* /c̓a/. Where *will* and *must* both act as strong epistemic modals, then, *will* will be more informative due to its temporal presupposition and therefore preferred by Gricean principles (in particular Maximize Presupposition) when its felicity condition is met. Since this is a pragmatic effect, rather than being semantically encoded, we expect some overlap between the forms where the context less clearly privileges one over the other.[22]

8.10 Comparison with other analyses

Before concluding this chapter, I want to touch briefly on a few other recent analyses of non-future inferences using future morphemes. I begin with a comparison of the current analysis to that proposed by Winans (2016), which focuses on English *will* and makes predictions similar to the analysis proposed here. I also compare

[22] Mandelkern 2017, 2019 discusses pragmatic restrictions on the felicitous use of *must* in detail. He argues that *must* is felicitous when there is a salient argument for the prejacent of *must* and this argument is shared by the discourse participants. His account focuses on the competition between assertions of *must*(p) and p, rather than competition between *must*(p) and *will*(p), however. The infelicity of *must* in examples like (585) are not obviously due to the absence of a salient argument for p, since *must* still seems awkward when an argument for p is added:

(i) *Context: I know my friend's baby's naptime. I take a look at the clock and decide not to call because the baby will be asleep and she'll wake up if her mum tries to talk on the phone. I tell my husband:*
Her baby {#**must**/**will**} be asleep. This is the baby's naptime.

For these cases, something more needs to be said, perhaps in terms of pragmatic competition between *must* and *will* as suggested above. This is a matter for future research.

my analysis with several analyses which focus on uses of the future for non-future inferences in Italian and Greek (Giannakidou and Mari 2018; Ippolito and Farkas 2019), and finally with an analysis that proposes that the differences between *will* and *must* arise through differences in modal strength (Mihoc et al. 2019).

Winans (2016) argues that English *will* carries a restriction such that it cannot be used for *abductive reasoning* – that is, reasoning back from the evidence to its explanation. This correctly prevents *will* from being used when the reasoning is from results back to their cause (instead *must* is used). Because the eventuality that counts as an explanation for evidence usually has to precede the evidence, the predictions of Winans' analysis are often difficult to tease apart from the analysis proposed here.

There are certain cases where the analyses seem to make different predictions, however, such as for (586) repeated from (513) above. Here it is possible to reason back from evidence –– the tools for barbecuing fish being out –– to its explanation –– Elsie starting to barbecue fish. Nevertheless, the evidence is in place *preceding* the prejacent eventuality. Both ʔayʔaǰuθəm *səm* and English *will* (see the translation) are felicitous here, despite abductive reasoning being involved, suggesting that an analysis in terms of timing of the evidence fares better than one in terms of reasoning.

(586) *Context: I drive by Elsie's place and see that she has her* c̓ɪtostən *and* k̓ʷuta *out and a fire going. A little later, I run into Gloria and tell her.*

qʷaga,	hošt	ǰɛqanot	Elsie.	**səmkʷi**	λ̓aʔayɪn	ṫɛnʔəm.
qʷəl̓+ga	hu=št	ǰaqanu-t	Elsie	**səm=kʷi**	λ̓aʔayin	ṫin-ʔəm
come=DPRT	go=1PL.SBJ	watch-CTR	Elsie	FUT=CLD	start	bbq.fish-ACT.INTR

'Come, let's go watch Elsie. She'll be starting to barbecue fish. (vf | EP.2021/03/05)

We find a similar case in (587) repeated from (515) above. Here the speaker reasons back from evidence –– roots soaking and weaving tools out –– to explanation –– Betty weaving. Again both ʔayʔaǰuθəm *səm* and English *will* (see the translation) are felicitous since the prejacent eventuality follows the evidence being in place.

(587) *Context: I dropped by Betty's place briefly and saw that she had roots soaking and weaving tools out. A little later, you ask me if I know what Betty's up to. I know the roots would be ready by now, so I tell you:*

səmkʷi	χʷoχʷoṗɛʔɛč.	xʷəsɛwsxʷəs	šɛ kʷaʔamnač.
səm=kʷi	x̌ʷu∼x̌ʷuṗiʔič	xʷəs<i>g-sxʷ-as	šə=kʷaʔamnač
FUT=CLD	PROG∼weave	soak<STAT>-CAUS-3ERG	DET=root

'She'll be weaving. She had roots soaking.' (vf | EP.2021/02/05)

Like (586), this example suggests that an analysis in terms of timing of evidence fares better than one in terms of type of reasoning.

One could counter that abductive reasoning is not involved for the last two examples because the explanation for the evidence is the *preparations* or *plan* for the eventuality described by the prejacent – not the prejacent eventuality itself. In this case, abductive reasoning is arguably not involved (since the reasoning is not from the evidence directly back to the prejacent itself as an explanation). The two accounts would then both predict the future to be felicitous in these cases.

Even if this counter-argument holds, I think there are also conceptual reasons to prefer an account in terms of timing of the evidence. It is well-established that the interpretation of modals involves temporal relations (e.g. Condoravdi 2002; Rullmann and Matthewson 2018) and Hirayama and Matthewson (2022) explicitly argue that some modal evidentials such as *should* encode temporal relationships between the evidence and the prejacent eventuality (though for them, it is the timing of the acquisition of the evidence that is encoded). In contrast, modals do not generally carry specifications about what types of reasoning they are compatible with, and unlike temporal relations, types of reasoning are not part of the ontology used to capture modal and evidential contributions. For these reasons, I believe that it is better to analyze the future as imposing temporal restrictions rather than restrictions on the type of reasoning involved.

Giannakidou and Mari (2018) argue that Greek and Italian future morphemes are epistemic necessity modals that do not encode temporality – rather the tense in the prejacent determines whether they are used to make a prediction about the future or an inference about a non-future eventuality. If adopted for *səm* and *will*, their analysis would predict *səm* and *will* to be felicitous wherever a strong epistemic modal could be used –– they would be predicted to be able to occur in the same environments as *c̓ɛ* /c̓a/ and *must*, contrary to what I have shown in this chapter. Giannakidou and Mari briefly discuss the need for an additional restriction for the analysis of English *will*. They suggest that *will* has a requirement that there is a future time at which the prejacent of *will* is verified: more specifically, the time of the evaluation of the modal claim is forward-shifted to a future time at which the speaker or hearer has evidence to verify the modal claim (see also Mari 2018). For Giannakidou and Mari, *will* is felicitous in (588a) because the speaker will obtain the evidence for whether the fish is cooked at a time following the utterance time; the future is not felicitous in (588b) because the evidence for the modal claim is available at the utterance time.

(588) a. *Context: I'm cooking a fish, but I've stepped outside for bit to work in my garden. I know it should be cooked now by how much time has passed.*
It **will** be cooked now.
Modal Base = { it takes x long to cook a fish, the fish went in the oven at x time, ...}

b. *Context: I'm cooking a fish and I'm guessing by the smell that it is cooked. I remark to you:*
#It **will** be cooked now.
Modal base = {the fish smells cooked, the fish has been in the oven for a while, ...}

It is not clear that the speaker/hearer always has to gain additional evidence at a future time in order to be able to felicitously utter a claim with *will* and *səm*, however. For instance, in (589) (repeated from (517) above), the context does not suggest that the speaker (or hearer) is planning to follow up to check whether Daniel has in fact left.

(589) *Context: I saw Daniel had car keys with him today, so I guess he's borrowed his roommate's car. We split up to go to different classes, Gloria and I to one, Daniel to another. Later, Gloria asks if we should head back to the department to meet up with Daniel so we can all bus home together. I figure he would have left straight from class since he had the car, and it costs money to park. I say:*

səmkʷi θo
səm=kʷi θu
FUT=CLD go
'He'll have already gone.' (vf | EP.2021/03/05)

Insofar as an account in terms of timing of evidence is simpler and fares better than an account in terms of verification for examples such as (589), I believe it is preferable.

Ippolito and Farkas (2019) focus on the 'presumptive future' in Italian, the future used for claims about eventualities that are not in the future of the reference time. They argue that the presumptive future is a special normality modal, where the speaker makes a modal claim based on their subjective judgement of what is most likely, rather than knowledge, which allows them to rule out a claim based on indirect evidence available at the time of speaking. Since judgements about what is likely are based on prior knowledge, this approach allows them to restrict the distribution of the future in similar ways to my account. It is not clear that their account would make the correct predictions for examples like (590) (repeated from (507a)), however, which relies on evidence available at the utterance time.

(590) *Felipe always bikes home at 5. I haven't been paying attention to the weather, but at 6 I look out the window and see that it is pouring and has been for some time. I figure Felipe will be home by now, but must have been soaked on his way. I say:*

a. χʷɛt **səm**kʷa ǎəm̓mot Felipe. saymot kʷ c̓ɩɬ ʔi xʷukʷt c̓ɩɬukʷts.
ǎʷit **səm**=kʷa ǎ̓əm̓-mut Felipe saymut kʷ=c̓əɬ ʔiy xʷukʷt c̓əɬukʷt-s
really FUT=CLD get.wet-INT Felipe intense DET=rain CONJ not.exist rain.jacket-3POSS
'Felipe will have gotten really soaked. It's pouring and he didn't have a rain jacket.'
(vf | EP.2021/03/05)

Ippolito and Farkas also do not attempt to unify presumptive future/non-future inferential uses with canonical future uses. I therefore do not attempt to extend their analysis to ʔayʔaǰuθəm.

Mihoc et al. (2019) are concerned with contrasts in the strength of the modal claim between non-future inferences with *will* and Romanian *va/o* and other strong epistemic modals. They contrast English *will* with English *must*, and also examine their Romanian counterparts. They claim that non-future inferences with *will* and Romanian *va/o* are not compatible with complete certainty, whereas complete certainty with *must* is fine. They provide examples such as the following:

(591) *Context: Jo is looking for Anna. Jo checks the time: It's 7 pm. Jo knows that at 7 pm Anna is always home. Jo concludes:*

a. Anna **must** be home now.

b. #Anna **will** be home now. (Mihoc et al. 2019: 353)

However, in my dialect of English,[23] both *must* and *will* are felicitous in these cases.[24] In ʔayʔaǰuθəm, *səm* regularly shows up in cases where we would expect the speaker to have complete certainty, such as when

[23] I speak a dialect of Canadian English from western Canada.

[24] In fact, in my dialect of English, *will* is compatible with deductions where it is even more clear that the speaker is completely certain, as in (i).

making a claim about whether the tide is high or low based on their knowledge of the schedule of the tides (e.g. (489)).

In addition, for contexts involving some uncertainty, Mihoc et al. (2019) predict both *will* and *must* to be good. Since the distribution of *will* and *must* overlap for non-future inferences, this is not necessarily problematic, but if the analysis were extended to ʔayʔaǰuθəm, both *səm* and *c̊ɛ* /c̊a/ would be predicted to be good in overlapping contexts as long as there is a degree of uncertainty involved – which would arguably constitute the majority of inferential cases. However, we have seen that *c̊ɛ* /c̊a/ is not generally allowed in the same contexts as *səm*, so an analysis in terms of certainty cannot extend to ʔayʔaǰuθəm.

8.11 Conclusion

In this chapter, I have argued that *səm* combines the semantics of a strong modal with prospective aspect. I have also argued that it carries a presupposition such that the evidence supporting the strong modal claim (the propositions in the modal base) must be in place prior to the earliest moment at which the prejacent is true. This captures the fact that *səm* can be used for inferences about non-future eventualities, but only when the inference is based on knowledge/facts in place prior to the eventuality – such as when making an inference based on regularities or habits. I compared the distribution of *səm* with that of *c̊ɛ* /c̊a/, which is also used for strong epistemic modal claims. Since these two morphemes are not interchangeable for inferences about non-future eventualities, I proposed that *c̊ɛ* /c̊a/ carries a presupposition such that at least some of the evidence on which the modal claim rests is true *no sooner* than the prejacent. This captures the fact that *c̊ɛ* /c̊a/ is often used for reasoning back from results to cause (though it is not confined to such cases, ruling out a causal analysis, as argued in Section 8.5.1). I examined the interaction between *səm* and aspect and showed how the analysis proposed here captures when non-future inferences are possible and when the modal claim must be about a future eventuality. Finally, I examined English *will* and *must* and extended the analysis of *səm* to English *will*, which shows the same distributional restrictions when used for non-future inferences. While *c̊ɛ* /c̊a/ and *must* share some restrictions on distribution, here the comparison is less clear cut: the restrictions on *must* possibly arise through pragmatic competition between *must* and *will*, rather than being semantically encoded.

(i) *Context: My friend put a stone under a cup. There are three identical cups in front of her and I was instructed to look away while she shuffled them. Now I'm guessing which cup it is under. I check two of the cups and the rock is not under either of them. Then I say, pointing to the third cup:*
Well, then it **will** be under that one.

Chapter 9

Two clitics *qał*: a past-perspective modal and negation-licensed temporal quantifier

9.1 Introduction

In this chapter, I examine two homophonous clitics *qał*. I argue that one is a strong circumstantial modal that obligatorily takes past temporal perspective; this *qał* acts as the past perspective counterpart to *səm*, which is also used for strong circumstantial modal claims but with present temporal perspective (unless embedded or within a narrative context; see Section 8.6.6).[1] I label this *qał* 'past perspective' *qał* (glossed PP.CIRC). I argue that the other *qał* always co-occurs with negation and contributes universal quantification over past times. I label this *qał* 'negation-licensed' *qał* (glossed NLQ).

I argue that the two *qał*s occupy the same syntactic position, since they cannot co-occur, but have different morphosyntactic properties: while past-perspective *qał* can be either an auxiliary or a 2PC, negation-licensed *qał* is always a 2PC.

9.2 Outline of the chapter

In Section 9.3, I examine the position of the two *qał*s in the clitic string and relate this to their syntactic position. In Section 9.4, I discuss previous literature, which labels *qał* as 'irrealis'. In the remaining sections, I argue for two distinct versions of *qał*, showing how their semantic and morphosyntactic distributions differ. I first examine past-perspective *qał* in Section 9.5, and then examine negation-licensed *qał* in Section 9.6.

9.3 Position in the clitic string

As 2PCs, both *qał*s occur late in the clitic string, following all other clitics, except perhaps the discourse particles *ʔit* /ʔəyt/ and *χʷot* /x̌ʷət/, discussed in Chapter 11. With respect to the latter, I have so far elicited *ʔit* /ʔəyt/ co-occurring with negation-licensed *qał* only once, with *qał* preceding *ʔit* /ʔəyt/, and this combination is not otherwise attested in my database. I have not so far found or elicited *χʷot* /x̌ʷət/ co-occurring with *qał*.

Negation-licensed *qał* is shown following inferential *c̓ɛ* /c̓a/, reportative *k̓ʷa*, and scalar exclusive *ʔot*

[1] *səm* is also used for epistemic modal claims, as discussed in Chapter 8; the circumstantial modal *qał* is specifically a counterpart to *səm* used as a circumstantial modal.

/ʔut/ in (592), while past-perspective *qał* is shown following the discourse particle *ga* in (593). It is shown preceding the discourse particle *ʔit* /*ʔəyt*/ in (592d).

(592) Negation-licensed *qał*

a. xʷaʔ **c̓ɛ qał** ṗaṗɛʔʊxʷəs. ṫᶿəpṫᶿapaw c̓ɛ.
xʷaʔ=**c̓a=qał** ṗaṗi-ʔ-əxʷ=as ṫᶿəp∼ṫᶿapaw=c̓a
NEG=INFER=NLQ get.fixed-EPEN-NCTR=3SBJV PLʔ∼busy=INFER
'He must not have fixed it yet. He must have gotten busy.' (vf | EP.2021/07/30)

b. *Context: You ask me if Fred has his new car yet. I reply:*
xʷaʔ **k̓ʷa qał** θahas maʔaxʷəs.
xʷaʔ=**k̓ʷa=qał** θu-h=as məʔ-əxʷ-as
NEG=RPT=NLQ go-EPEN=3SBJV get-NCTR-3ERG
'He hasn't gone to get it yet.' (vf | EP.2021/09/04)

c. xʷaʔ **ʔot qał** hoǰəs tᶿ pɪču.
xʷaʔ=**ʔut=qał** huǰ=as tᶿ=pəču
NEG=EXCL=NLQ finish=3SBJV 1SG.POSS=basket
'My basket is just not quite done yet.' (vf | EP.2021/07/30)

d. xʷaʔ **qał ʔit** c̓ɛχas.
xʷaʔ=**qał=ʔəyt** c̓ɛχ=as
NEG=EXCL=NLQ get.cooked=3SBJV
'Of course it is not cooked yet.' (sf | EP.2022/05/20)

(593) Past-perspective *qał*
Context: My cousin lives in Alberta, but came to Vancouver for a few days. I had planned to make a trip down from Tla'amin to see her, but I didn't want to drive, and I couldn't get a plane ticket – they were all sold out.

qʷaʔloł tᶿ ʔayiš ʔəkʷ Vancouver. hoč **ga qał** k̓ʷʊtoł.
qʷəl̓-uł tᶿ=ʔayiš ʔə=kʷ=Vancouver. hu=č=**ga=qał** k̓ʷə[n]-t-uł.
come-PST 1SG.POSS=cousin OBL=DET=Vancouver go=1SG.SBJ=DPRT=qał see-CTR-PST

qałč θo łukʷoł ʔi hɛhɛw k̓ʷa yɪc̓mot *airplane*.
qał=č θu łukʷ-uł ʔiy hihiw=k̓ʷa yəc̓-mut *airplane*
PP.CIRC=1SG.SBJ go fly-PST CONJ really=RPT full-INT airplane

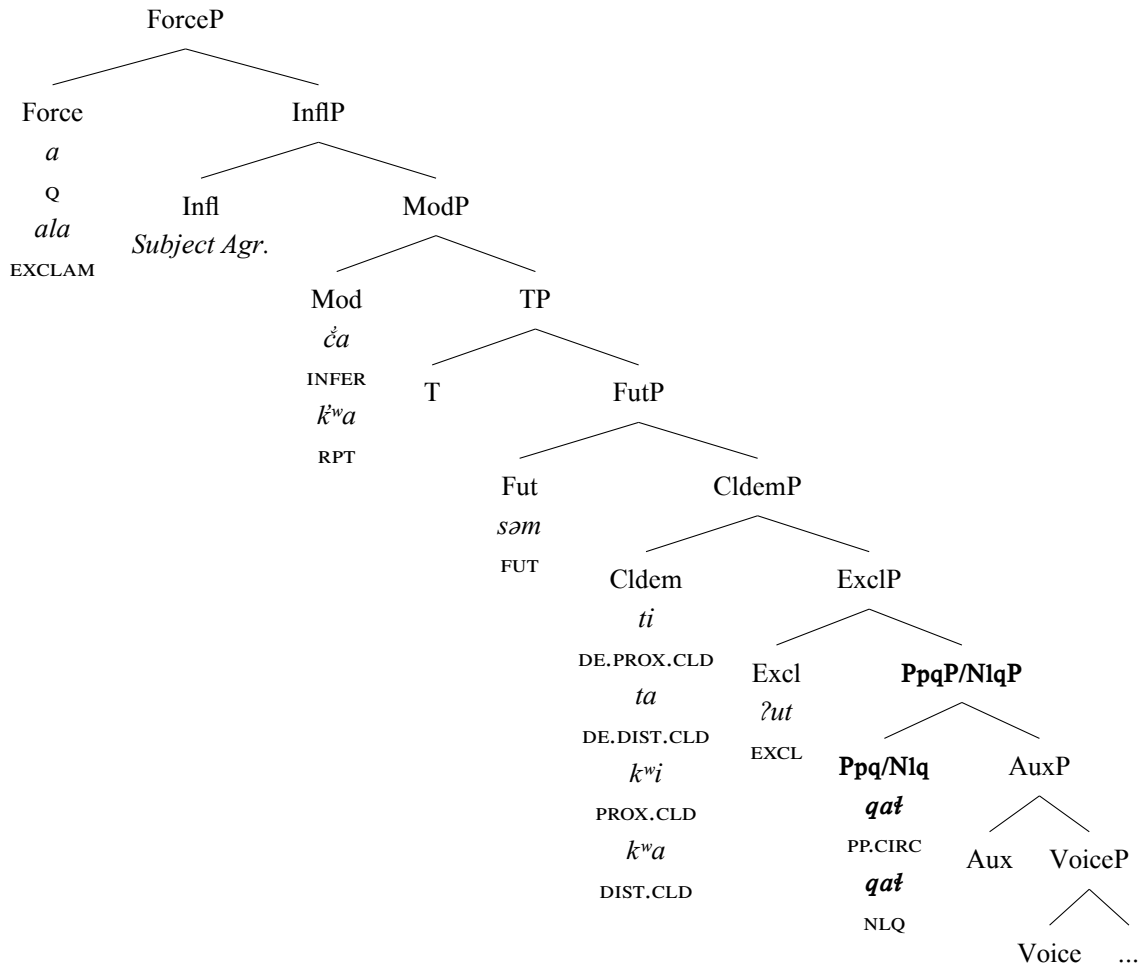
'My cousin came to Vancouver so I was going to go see her. I was going to fly but the airplane was full.'

(sf | EP.2022/05/14)

Based on the position of the two *qał*s in the clitic string, I represent them as occurring in the lowest functional head in the series of functional heads that make up the clitic string, as in (594).[2]

[2] As before, I do not show the discourse particles in the syntactic tree.

(594)



9.4 Previous literature

In previous literature on ʔayʔaǰuθəm, *qaɬ* is labelled 'irrealis' (see e.g., Watanabe 2003; J. Davis 2012b). Watanabe (2003: 523) describes it as indicating 'that the event or action described has not or has never actualized, or that it is hypothetical'. He also notes that this seems to be a reflex of what Kinkade (2001) reconstructs as the proto-Salish irrealis **qa-ɬ*. The name irrealis suggests that *qaɬ* would be generally used when the utterance is about an eventuality that is not true of the real world, such as when the eventuality is negated, in the scope of a modal, in a counterfactual or other conditional, in a claim about the future, or in an imperative (such uses are found in other languages with moods labelled 'irrealis', as discussed in e.g., Palmer 2001).

Even if we do not differentiate the two *qaɬ*'s, however, we only find *qaɬ* in a subset of these cases. It only sometimes appears accompanying negation, as can be seen in (595a–b):

(595) **Negation**

a. **With *qaɬ***

Context: Talking about something in the oven.

xʷa? qaɬ c̓əχas.

xʷa?=qaɬ c̓əx̌=as

NEG=NLQ get.cooked=3SBJV

'It isn't cooked yet.' (vf | JF.2018/08/31)

b. **Without *qaɬ***

Context: Some children in a story disbelieve their grandmother's story about the wild man t̓al.

xʷa? k̓ʷa q̓aq̓aymɛtəs niniǰɛ t̓al

xʷa?=k̓ʷa q̓a∼q̓ay-mi-t=as niniǰa t̓al

NEG=RPT PROG∼believe-REL-CTR=3SBJV about t̓al

'They didn't believe her about t̓al. (sf | EP.2020/06/16)

It only sometimes appears accompanying modals such as inferential *c̓ɛ* /c̓a/, as can be seen in (596a-b):

(596) **Modal context**

a. **With *qaɬ***

Context: We're staying away from home. There's a door at the place we're staying at that we're not supposed to open because it doesn't open or shut well. My husband forgot and was about to open it, but I caught him just in time.

niyʊxʷəs. **qaɬ c̓ɛ** gəq̓təs šɛ ʔɛmɛn.

niy-əxʷ-as **qaɬ=c̓a** gəq̓-t-as šə=ʔimin

forget-NCTR-3ERG PP.CIRC=INFER open-CTR-3ERG DET=door

'He forgot. He was going to open the door.' (vf | EP.2021/07/24)

b. **Without *qaɬ***

Context: I had seen Elsie already out barbecuing her fish early when I went for a run. Later Gloria and I drive by and see that the fire is out and the fish and equipment are put away.

c̓ɛ kʷa hoǰuxʷəs kʷ t̓ɛnʔəms

c̓a=kʷa huǰ-əxʷ-as kʷ=t̓in-ʔəm-s

INFER=CLD finish-NCTR-3ERG DET=barbecue.fish-ACT.INTR-3POSS

'She must have finished her barbecuing.' (vf | EP.2022/02/04)

Likewise, *qaɬ* only appears in a subset of conditionals: counterfactuals, as illustrated in (597).

(597) a. **Counterfactual conditional (with *qaɬ*)**

Context: Our boat wasn't pulled up quite high enough and there was a storm. Felipe noticed it starting to get drifted away and quickly ran down and waded out to get it.

χʷɛt **qaɬ**	giq̇ʷɛtəm	šɩms nuxʷɛɬ	**qaɬ**as	xʷa?	θahas
x̌ʷit=**qaɬ**	giq̇ʷ-it-əm	šə=ms=nəxʷiɬ	**qaɬ**=as	xʷa?	θa-h=as
really=PP.CIRC	drift-CTR-PASS	DET=1PL.POSS=boat	PP.CIRC=3SBJV	NEG	go-EPEN=3SBJV

taχʷatəs.
tax̌ʷ-at-as
get.beached-CTR-3ERG

'Our boat would have drifted away if he hadn't pulled it up.' (vf | EP.2022/03/12)

b. **Other conditional (without *qaɬ*)**

Context: Our ride didn't show up and so we think we'll phone Freddie for a ride.

ʔot kʷi	θo	ʔi	xʷaštəm	θohitat.
ʔut=kʷi	θu	ʔiy	xʷaʔ=št=əm	hu-h-əyt=at
if=CLD	go	CONJ	NEG=1PLSBJ=FUT	go-EPEN-PRF=1PL.SBJV

'If he has already left, we won't make it.' (vf | EP.2020/06/23)

qaɬ is not compatible with the future at all, as shown in (598B') and (599a). Note that a counterfactual counterpart of (599a) is ok with *qaɬ*, as in (599b), but then it does not have the future *səm*.

(598) **Future**

Context: Felipe puts his name into a draw for a boat because the proceeds are going to a good charity. There's lots of people putting their names in, so it's very unlikely he will win, but still I'm a bit alarmed.

A:	čɩm sa ga	ga ƛ̓ʊxʷ?əmat?	čɛsxʷ šta ga?
	čəṁ=sa=ga	ga=ƛ̓əxʷ-?əm=at	ča-sxʷ=št=a=ga
	how/what=FUT=DPRT	if=win-ACT.INTR=1PL.SBJV	where-CAUS=1PL.SBJ=FUT=DPRT

'What if we win it? What would we do with it?' (vf | EP.2022/05/14)

B: xʷaǰiščɛt **səm**.
xʷəʔǰ-iš=čat=**səm**
sell-TR=1PL.SBJ=FUT
'We'll sell it.' (vf | EP.2022/05/14)

B': ***qaɬ**štəm xʷaǰiš.
qaɬ=št=**əm** xʷəʔǰ-iš
PP.CIRC=1SG.SBJ=FUT sell-TR
'We would sell it.' (sf | EP.2022/05/14)

(599) a. *Context: It's Wednesday. There's a music festival in K'ómoks this coming weekend I want to go to, but my car is being repaired. I don't think it will be ready in time, but if it is then I'll make the trip over. I tell my friend:*

ʔot **səm (*qaɬ)**	ṗaṗeʔit	šɛtᶿ ʔatnopɛl	ʔi	{hotᶿ**əm**/***qaɬ**tᶿ**əm**
ʔut=səm=(***qaɬ**)	ṗaṗi-ʔəyt	šə=tᶿ=ʔatnupil	ʔiy	{hu=tᶿ**əm**/***qaɬ**=tᶿ=**əm**
if=FUT=PP.CIRC	get.fixed-PRF	DET=1SG.POSS=car	CONJ	{go=1SG.SBJ=FUT/PP.CIRC=1SG.SBJ=FUT

ho}
hu}
go}

'If my car is fixed, I will go.' (sf | EP.2022/05/14)

b. *Context: There was a music festival in K'ómoks last weekend I wanted to go to, but my car was being repaired and was not ready in time. I tell my friend:*

ʔot **qaɬ**	ṗaṗeʔit	šɛtᶿ ʔatnopɛl	ʔi	**qaɬ**č	θohitoɬ.
ʔut=**qaɬ**	ṗaṗi-ʔəyt	šə=tᶿ=ʔatnupil	ʔiy	**qaɬ**=č	hu-ʔəyt-uɬ.
if=PP.CIRC	get.fixed-PRF	DET=1SG.POSS=car	CONJ	PP.CIRC=1SG.SBJ	go-PRF-PST

'If my car had been fixed, I would have gone.' (vf | EP.2022/05/14)

And finally, *qaɬ* does not appear in imperatives (600):

(600) **Imperative**

Context: Felipe is going to drive to the university today but I know it will be rush hour on his way in.

a. ***qaɬ**čxʷ hiyɛ θo.
qaɬ=čxʷ hiya θu
PP.CIRC=2SG.SBJ right.away go
'Leave right away.' (vf | EP.2022/05/05)

b. hiyɛčxʷ θo.
hiya=čxʷ θu
right.away=2SG.SBJ go
'Leave right away.' (vf | EP.2022/05/05)

While markers in other languages labelled 'irrealis' do not necessarily occur in all the contexts above (and sometimes mark additional contexts not listed there: Palmer 2001), the distribution of *qaɬ* is sufficiently restricted that this label is not very useful in characterizing its function. Especially if 'irrealis' is understood as naming a mood generally associated with sentences about events that are not true of the real world, the term does not seem to be a good fit for *qaɬ*.

In the following sections, I will argue that the different uses of *qaɬ* should not be unified in any case, arguing instead that there are two distinct homophonous morphemes, each with a distinct contribution and morhosyntactic profile. I do not characterize either of these as irrealis markers, although both are typically used to describe events that have not occurred or are unlikely to occur. The term irrealis is too broad to capture their specific contexts of use.

9.5 A past perspective circumstantial modal

In this section, I examine the past-perspective circumstantial modal *qał*, which typically occurs with prejacent propositions known or suspected to be untrue. This version of *qał* occurs in three main environments: 1) in conditionals where the antecedent is suspected or known not to hold in the real world (the latter cases are counterfactuals) – here it appears in both the antecedent and the consequent, 2) in propositions conjoined (using the *ʔi* /*ʔiy*/ conjunction) with a second proposition that explains why the prejacent is doubted or believed to be untrue, 3) in independent clauses where the context clearly provides the reason for doubting/disbelieving the prejacent. Counterfactual conditionals are shown in (601), coordination structures in (602), and independent clauses in (603).

(601) **Conditionals**

a. *Context: I'm telling you about a series of mishaps that led to us missing our ferry. We could have made it up to the point where my brother didn't show up when he was supposed to.*

ʔot qał xʷaʔ ṯəqsəməs ʔi **qałšt** λ̓oλ̓oməm.
ʔut=qał xʷaʔ ṯəqs-əm=as ʔiy **qał**=st λ̓u∼λ̓um-əm
if=PP.CIRC NEG move.slow-MD=3SBJV CONJ PP.CIRC=1PL.SBJ PROG∼enough-MD
'If he hadn't been slow, we would have made it.' (vf | EP.2021/06/19)

b. *Context: There's a concert next week with a band I like, but there are no tickets available. I tell my husband:*

ʔot qał nɛʔ kʷ *tickets*, **qałč** θohiyt.
ʔut=qał niʔ kʷ=*tickets*, **qał**=č θo-ʔəyt
if=PP.CIRC be.there DET=tickets PP.CIRC=1SG.SBJ go-PRF
'If there had been tickets, I would have made it to go.' (sf/vt | EP.2021/11/26)

(602) **Coordinations**

a. *Context: I had a move on the weekend. My friend Daniel was supposed to help but then he got called in to work.*

qał qʷol č̓ɛgaθayɛʔmoɬ ʔə Daniel **ʔi** k̓ʷakʷa ṯᶿəpṯᶿəpaw.
qał qʷəl̓ č̓ag-aθay-əm-uɬ ʔə=Daniel **ʔiy** k̓ʷa=kʷa ṯᶿəp∼ṯᶿəpaw
PP.CIRC come help-CTR;1SG.OBJ-PASS-PST OBL=Daniel CONJ RPT=CLD PL∼busy
'Daniel was going to come help me but he got busy (with work).' (vf | EP.2021/10/02)

b. *Context: I planned to make a cake this afternoon to bring to my friend's this evening, but in the morning I look in the fridge and I don't have eggs. I tell Felipe:*

qaɬč hiyʔaʔmoɬ [ʔə]kʷ kiks tiṅ kʷʊtayɪtən **ʔi** xʷukʷtak̓ʷa
qaɬ=č həǰ-ʔəm-uɬ [ʔə=]kʷ=kiks tiṅ kʷətayitən **ʔiy** xʷukʷt=ala=k̓ʷa
PP.CIRC=1SG.SBJ make-ACT.INTR-PST [OBL=]DET=cake DEM afternoon CONJ not.exist=EXCLAM=RPT

kʷʊms χʷaχʷɪt.
kʷ=əms=x̌ʷax̌ʷit
DET=1PL.POSS=egg

'I was going to make cake this afternoon, but it turns out we're out of eggs!' (sf | EP.2022/01/21)

c. *Context: There's a meeting in a few hours. I was going to go, but Felipe needed the car, so I don't have a means to get there. Then my friend calls. I tell her:*

qaɬč θohoɬ kʷ *meeting* **ʔi** xʷut tᶿ car. čɪm ga
qaɬ=č θu-h-uɬ kʷ=*meeting* **ʔiy** xʷukʷt tᶿ=*car* čəṁ=ga
PP.CIRC=1SG.SBJ go-EPEN-PST DET=meeting CONJ not.exist 1SG.POSS=car how/why=DPRT

qʷolaxʷ λ̓oʔosθ?
qʷəl̓=axʷ λ̓uʔus-θ
come=2SG.SBJV pick.up-CTR;1SG.OBJ

'I would go to the meeting but I don't have a car. Can you pick me up?' (sf | EP.2022/01/14)

(603) **Independent clauses**

a. *Context: There's a door that locks automatically if it closes, and I don't have a key. I bumped it but I caught it before it closed.*

qʷaq̇ʊxʷən tə ʔɛmɛn. **qaɬ** č̓ɛ lɪklɛhiyɪš tə ʔɛmɛn.
qʷaq̇-əxʷ-an tə=ʔimin. **qaɬ**=č̓a ləkli-iyiš tə=ʔimin
bump-NCTR-1SG.ERG DET=door PP.CIRC=INFER lock-AUT DET=door

'I bumped the door. It could have locked.' (vf | PD.2018/11/08)
Implied: '...if I hadn't caught it.'

b. *Context: My brother isn't going to make it to a family gathering. I think it's too bad, because he would have enjoyed it. I tell you:*

χʷɛt **qaɬ** ʔiʔaǰusθot.
x̌ʷit=**qaɬ** ʔəǰ∼ʔəǰ-us-θut
really=PP.CIRC PL∼good-face-CTR.REFL

'He would have really enjoyed himself.' (vf | EP.2021/09/04)
Implied: '...if he could come.'

In what follows, I first discuss the morphosyntactic representation of past-perspective *qaɬ* in Section 9.5.1, followed by a more detailed discussion of its semantic contribution in Section 9.5.2. Finally, I provide a formal semantic analysis in Section 9.5.3.

9.5.1 Morphosyntax of the past-perspective circumstantial *qaɬ*

As mentioned above, circumstantial modal *qaɬ* can occur as an auxiliary or a second position clitic. This is illustrated with a minimal pair in (604): in (604a), the modal *qaɬ* occurs initially as an auxiliary hosting the subject agreement clitic *č*, while in (604b), *qaɬ* occurs encliticized to the auxiliary *θo* /θu/.

(604) *Context: I was planning to attend the annual logger sports event but I got held up.*

a. **qaɬč** θohoɬ [ʔə]kʷ *logger* *sports* ʔi ṫᶿəpṫᶿapawč.
qaɬ=č θu-h-uɬ [ʔə=]kʷ=*logger* *sports* ʔiy ṫᶿəp∼ṫᶿapaw=č
PP.CIRC=1SG.SBJ GO-EPEN-PST [OBL=]DET=logger sports CONJ PL∼busy=1SG.SBJ
'I was going to go to logger sports but I got busy.' (sf | EP.2021/09/04)

b. θohoɬč **qaɬ** [ʔə]kʷ *logger* *sports* ʔi ṫᶿəpṫᶿapawč.
θu-h-uɬ=č=**qaɬ** [ʔə=]kʷ=*logger* *sports* ʔiy ṫᶿəp∼ṫᶿapaw=č
GO-EPEN-PST=1SG.SBJ=PP.CIRC [OBL=]DET=logger sports CONJ PL∼busy=1SG.SBJ
'I was going to go to logger sports but I got busy.' (sf | EP.2021/09/04)

When *qaɬ* hosts other clitics pre-predicatively, it acts as a regular auxiliary, in parallel to motion auxiliaries *ho/θo* /hu/θu/ 'go' and *qʷolʼ* /qʷəl̓/ 'come': other 2PCs encliticize to it with the result that past-perspective *qaɬ* does not maintain the same ordering relative to other 2PCs as it has when within the clitic string.[3]

I therefore propose that *qaɬ* has two subcategorization frames, one with an enclitic feature and one without an enclitic feature.

(605) [PPQ] $\Longleftrightarrow$ $\left\{ \begin{array}{c} \text{/qaɬ/} \\ =___,___ \end{array} \right\}$

When *qaɬ* is inserted at the first stage of lexical insertion, either of these subcategorization frames can be used. If the subcategorization frame with the enclitic specification is used, it will cliticize to any preceding clitics or in the absence of preceding clitics, to the closest host – a lower auxiliary or predicate. If the subcategorization frame without the enclitic specification is used, it will act as a regular auxiliary, and the other clitics will encliticize to it. Since these subcategorization frames only become relevant at lexical insertion, the result is free variation in *qaɬ*'s linearization that does not have semantic consequences.

9.5.2 Semantic contribution of past-perspective *qaɬ*

Capturing the semantic contribution of *qaɬ* requires determining how *qaɬ* indicates that the prejacent should be understood as not true or unlikely to be true of the real world. The most straightforward explanation would be that *qaɬ* encodes the negation of the prejacent, but cases such as (606)–(608) (repeated from (602b-c) above) show that this approach is not correct. The negation of the prejacent is not entailed, since it is not yet certain that the prejacent will not come about.

[3]This indicates that *qaɬ* is acting as an auxiliary, not a proclitic. The clausal demonstratives, which occur pre-predicatively as proclitics, form a proclitic string with other clitics where the order between the clitics is maintained. See Section 2.6.2.

(606) *Context: I planned to make a cake this afternoon to bring to my friend's this evening, but in the morning I look in the fridge and I don't have eggs. I tell Felipe:*

qaɬč	hiy?a?moɬ	[?ə]kʷ kiks	tiṅ	kʷʊtayɪtən	**?i**	xʷukʷtak̓ʷa
qaɬ=č	həǰ-?əm-uɬ	[?ə=]kʷ=kiks	tiṅ	kʷətayitən	**?iy**	xʷukʷt=ala=k̓ʷa
PP.CIRC=1SG.SBJ	make-ACT.INTR-PST	[OBL=]DET=cake	DEM	afternoon	CONJ	not.exist=EXCLAM=RPT

kʷʊms χʷaχʷɪt.
kʷ=əms=x̌ʷax̌ʷit
DET=1PL.POSS=egg

'I was going to make cake this afternoon, but it turns out we're out of eggs!' (sf | EP.2022/01/21)

(607) *Context: There's a meeting in a few hours. I was going to go but Felipe needed the car so I don't have a means to get there. Then my friend calls. I tell her:*

qaɬč	θohoɬ	kʷ *meeting*	?i	xʷukʷt	tᶿ *car.*	čɪm ga
qaɬ=č	θu-h-uɬ	kʷ=*meeting*	?iy	xʷukʷt	tᶿ=*car*	čəṁ=ga
PP.CIRC=1SG.SBJ	go-EPEN-PST	DET=meeting	CONJ	not.exist	1SG.POSS=car	how/why=DPRT

qʷolaxʷ ƛ̓o?osθ?
qʷəl̓=axʷ ƛ̓u?us-θ
come=2SG.SBJV pick.up-CTR;1SG.OBJ

'I would go to the meeting but I don't have a car. Can you pick me up?' (sf | EP.2022/01/14)

(608) *Context: Felipe tells me that the grocery store will close early this afternoon. I know our roommate was planning to stop there and I don't know if she will take that into account.*

qaɬ k̓ʷa	ho?oɬ	yəqɬawum	Elise	tiṅ	kʷʊtayɪtən.	xʷač	[ga] toχʷnɛxʷən
qaɬ=k̓ʷa	hu-?-uɬ	yəq-ɬawum	Elise	tiṅ	kʷətayitən	xʷa?=č	təx̌ʷ-n<i>xʷ=an
PP.CIRC=RPT	go-EPEN-PST	buy-food	Elise	DEM	afternoon	NEG=1SG.SBJ	know-NCTR<STAT>=1SG.SBJV

θahas səm	təs	hɛwtəm	[?ə]kʷʊxʷ	təqs.
[ga=]θu-h=as=səm	təs	hiwtəm	?ə=kʷ=?əxʷ=təq=s	
COMP=go-EPEN=3SBJV=FUT	arrive	before	OBL=DET=OBL.NMLZ=get.closed=3POSS	

'Elise was going to go grocery shopping this afternoon. I don't know if she'll get there before it closes.'

(vf | EP.2022/03/12)

Further evidence against *qaɬ* somehow contributing the negation of the prejacent comes from the fact that even when the prejacent is about a past eventuality, the speaker does not have to believe the prejacent is false, but only doubt its truth. This is shown in (609), which is not infelicitous as might be expected if the speaker was first asserting the negation of the prejacent (i.e., that Daniel didn't get to Campbell River), but then denying having knowledge of whether he arrived or not.

(609) *Context: Daniel was going to go over on the ferry to Campbell River for a meeting but the weather has been rough so I'm unsure if he would have been able to make it. I tell you:*

qaɬ	θohoɬ	ʔəkʷ Campbell	River.	xʷač	toχʷnɛxʷən
qaɬ	θu-h-uɬ	ʔə=kʷ=Campbell	River	xʷaʔ=č	təx̌ʷ-n<í>xʷ=an
PP.CIRC	go-EPEN-PST	OBL=DET=Campbell	River	NEG=1SG.SBJ	know-NCTR<STAT>=1SG.SBJV

kʷʊnəs	θohiyt.	qʷayɪn	xʷa səm	θohiytəs	qʷayɪgən	qəkʷʊm	*ferry*.	hɛhɛw
kʷən=as	θu-ʔəyt	qʷayən	xʷaʔ=səm	θu-ʔəyt=as	qʷayigən	qəkʷ-əm	*ferry*	hihiw
Aux=3SBJV	go-PRF	maybe	NEG=FUT	go-PRF=3SBJV	maybe	stop-MD	ferry	really

saymot	kʷ puʔəm.
say-mut	kʷ=puʔəm
extreme-INT	DET=wind

'He was going to go to Campbell River. I don't know if he made it. I don't think he did. I think the ferry's got stuck. The wind is too high.' (vf | EP.2021/12/13)

Finally, the following two examples are not redundant as might be expected if *qaɬ* was negating the prejacent in the first conjunct followed by explicit negation of the prejacent in the second conjunct.

(610) *Context: My brother had been planning to come to Vancouver today for a visit, but so far the wind has been so extreme there haven't been any ferries running.*

qaɬ	qʷaʔloɬ	ʔi	kʷa	xʷaʔ	qʷolʔitəs.	čɛt k̓ʷa səm	qʷol	kʷisəm.
qaɬ	qʷəl̓-uɬ	ʔiy	kʷa	xʷaʔ	qʷəl̓-ʔəyt=as	čaʔat=k̓ʷa=səm	qʷəl̓	kʷisəm
PP.CIRC	come-PST	CONJ	CLD	NEG	come-PRF=3SBJV	then=RPT=FUT	come	tomorrow

'He was going to come, but he can't. He'll come tomorrow.' (vf | EP.2022/02/14)

(611) *Context: There was a meeting this morning, and I had been going to fly up to go to it, but all the flights were cancelled due to snow.*

qaɬč	θohoɬ	ʔi	xʷač	θohiytən.	hanəm	saymot	kʷ ʔaxʷ.
qaɬ=č	θu-h-uɬ	ʔiy	xʷaʔ=č	θu-ʔəyt=an	hanəm	say-mut	kʷ=ʔaxʷ
PP.CIRC=1SG.SBJ	go-EPEN-PST	CONJ	NEG=1SG.SBJ	go-PRF=1SG.SBJV	too.much	extreme-INT	DET=snow

'I was going to go but I couldn't. There's too much snow.' (sf | EP.2022/02/14)

Rather than arguing that *qaɬ* encodes the negation of its prejacent, I argue that *qaɬ* is a circumstantial modal that obligatorily takes past temporal perspective. This is already hinted at by the frequent translation with *would have*, which also encodes a circumstantial modal claim with a past reference time: claims with *would have* are not about how things are expected to be based on present circumstances, but rather about what was expected based on past circumstances (but typically did not come about). The analysis builds most directly on analyses of counterfactuals such as those proposed by Condoravdi (2002) and Ippolito (2003), where conditionals are assumed to have a modal component (following Kratzer 1981) and counterfactual conditionals are argued to involve a modal claim with a past evaluation time.

In taking a past temporal perspective, the speaker shifts the evaluation of the modal claim from the present to a past point in time. Knowledge is built over time, however, and the speaker and addressee also add to

the common ground (the knowledge shared by the discourse participants) over time (cf. Ippolito 2003). It is therefore infelicitous for the speaker to make a claim from a past point in time – where knowledge of more recent events cannot play a role in their reasoning – unless they have a specific reason for this move.

This means that if a modal claim about the prejacent can be made from a current temporal perspective, it typically should be, in which case the modal *səm* 'will' (often with a clausal demonstrative, either *kʷi* or *kʷa*) will be used instead of *qał* (see Chapter 8). This sets up a pragmatic competition between *səm* and *qał*, where *səm* is generally more informative and will be used unless there is specific reason for the speaker to make a claim from a past temporal perspective. Typically, this will be because the prejacent is known or suspected to be untrue given circumstances of the present, but the world could have unfolded in such a way that it was true given circumstances at a past point in time. The modal claim with *qał* is made from this past vantage point.

An analysis where *qał* encodes past temporal perspective makes the concrete prediction that it can never be used with a present temporal perspective. This seems to be the case. In (612), for instance, the modal claim is made from the present: in all (best) worlds where circumstances are as in the real world and Daniel wants to come, I pick Daniel up. Here *qał* is disallowed.

(612) a. *Gloria and I are planning a trip into town. I wonder whether Daniel, who is staying at a different location, might also want to go. Since I have a car, I could pick him up and bring him in with us.*

χaƛ̓sa c̓ɛ	θo	Daniel	kʷ tawən?	#**qał**č	ƛ̓oʔost(oł).
ǎaƛ̓-s=a=c̓a	θu	Daniel	[ʔə=]kʷ=tawən	**qał**=č	ƛ̓uʔus-t(-uł)
want-3POSS=Q=INFER	go	Daniel	[OBL]=DET=town	PP.CIRC=1SG.SBJ	pick.up-CTR-PST

'I wonder if Daniel wants to go to town? I would pick him up.' (sf | BW.2022/03/02)

b. *Corrected to:*

ƛ̓oʔosttᶿəm	ga χaƛ̓əs.
ƛ̓uʔus-t=tᶿ=əm	ga=ǎaƛ̓=as
pick.up-CTR=1SG.SBJ=FUT	COMP=want=3SBJV

'I'll pick him up if he wants.' (vf | BW.2022/03/02)

Even where the prejacent is considered unlikely from a present perspective, *qał* cannot be used. For instance, in (613), the modal claim is that in all worlds compatible with the circumstances of the real world at the present time and where Joanne wins the lottery (an unlikely occurrence), she goes travelling. With the future, the result seems to be completely ungrammatical since the future and *qał* never co-occur (613J'), while without the future the utterance is still infelicitous (613J").

(613) *Context: Joanne tells me that the lottery jackpot is at $100 million. She has a ticket but of course it's unlikely she would win. I ask her anyways:*

M: čɩm ga nɩgiyɛs ʔə ƛ̓ʊxʷʔəm ʔəkʷ qaχ tala? tam
čəṁ ga=nəgi=as ʔə=ƛ̓əxʷ-ʔəm ʔə=kʷ=qəx̌ tala tam
how COMP=2SG.INDPRO=3SBJV OBL=win-ACT.INTR OBL=DET=lots money what
kʷʊθ yɛθot?
kʷ=əθ=ya-θut
DET=2SG.POSS=do-CTR;REFL
'What if you won a lot of money? What would you do?'

J: hotᶿəm taʔačiš kʷ niǰɛ.
hu=tᶿ=əm taʔačiš [ʔə=]kʷ niǰa
go=1SG.SBJ=FUT travel OBL=DET=far
'I would travel far.' (vf | EP.2022/03/25)

J': ***qaɬtᶿəm** taʔačiš kʷ niǰɛ.
qaɬ=tᶿ=**əm** taʔačiš [ʔə=]kʷ niǰa
PP.CIRC=1SG.SBJ=FUT travel OBL=DET=far
'I would travel far.' (sf | EP.2022/03/25)

J": #**qaɬč** taʔačiš kʷ niǰɛ.
qaɬ=č taʔačiš [ʔə=]kʷ niǰa
PP.CIRC=1SG.SBJ travel OBL=DET=far
'I would travel far.' (sf | EP.2022/03/25)

The next example (614) is a similar case, repeated from (597) above. I showed before that *qaɬ* was ungrammatical co-occurring with the future in B's response (614B'). It is also infelicitous to use *qaɬ* on its own (614B") without the future. Like for the last example, the claim is made from a present temporal perspective since the draw has not yet happened and it is still possible for Felipe to win.

(614) *Context: Felipe puts his name into a draw for a boat because the proceeds are going to a good charity. There's lots of people putting their names in, so it's very unlikely he will win, but still I'm a bit alarmed.*

A: čɩm sa ga ga ƛ̓ʊxʷʔəmat? čɛsxʷ šta ga?
čəṁ=saʔ=ga ga=ƛ̓əxʷ-ʔəm=at ča-sxʷ=št=a=ga
how/what=FUT=DPRT COMP=win-ACT.INTR=1PL.SBJV where-CAUS=1PL.SBJ=FUT=DPRT
'What if we win it? What would we do with it?' (vf | EP.2022/05/14)

B: xʷaǰiščɛt səm.
xʷəǰ-iš=čat=səm
sell-TR=1PL.SBJ=FUT
'We would sell it.' (vf | EP.2022/05/14)

B': ***qaɬ**štəm* xʷaǰiš.
qaɬ=št=**əm** xʷəǰ-iš
PP.CIRC=1SG.SBJ=FUT sell-TR
'We would sell it.' (sf | EP.2022/05/14)

B":#**qaɬ**št xʷaǰiš.
qaɬ=št xʷəǰ-iš
PP.CIRC=1SG.SBJ sell-TR
'We would sell it.' (sf | EP.2022/05/14)

Finally, the following is another similar case, where the prejacent is considered unlikely but the modal claim is made from a present temporal perspective, since the modal claim is about possible developments given current circumstances. Once again, the result with *qaɬ* is infelicitous (615).

(615) a. *Context: There's a remote chance that my brother will come to Vancouver for a work conference* (*only if more senior employees are unable to come*). *He asks me whether he could stay with me if that did happen. I tell my roommate:*

#ʔot **qaɬ** qʷoḷ tᶿ qɛχ, niš **qaɬ** łaq̇atumołəs. ʔajɛ
ʔut=**qaɬ** qʷəḷ tᶿ=qiǐx niš=**qaɬ** łaq̇-at-umuɬ-as ʔəǰ=a
if=PP.CIRC come 1SG.POSS=younger.sibling be.here=PP.CIRC stay-CTR-1PL.OBJ-3ERG good-Q
kʷaṅ̇?
kʷaṅ̇
DEM
'If my younger brother were to come, he would stay with us. Is that ok?' (sf | BW.2022/03/2)

b. *Corrected to:*

qʷoqʷolam tᶿ qɛχ. χaƛ̓ kʷs nišs tɛʔɛ. ʔajɛ
qʷə∼qʷəḷ-am tᶿ=qiǐx ǐaƛ̓ kʷ=s=niš=s tiʔi ʔəǰ=a
PROG∼come-DESID 1SG.POSS=younger.sibling want COMP=NMLZ=be.here=3POSS DEM good=Q
kʷaṅ̇?
kʷaṅ̇
DEM
'My brother is wanting to come. He wants to stay here. Is that ok?' (vf | BW.2022/03/2)

Parallel utterances where the modal claim is made relying on circumstances at a past point in time are felicitous with *qaɬ*. In the case of (616), which parallels (613), the modal claim is evaluated at a point in time when winning the lottery was still a possibility.

(616) *Context: Joanne tells me that the lottery jackpot was at $100 million. She had bought some tickets, but unfortunately she didn't win. I ask her what she would have done if she had won. She tells me:*

qaɬč	θo	ta?ačiš	kʷ niǰɛ.
qaɬ=č	θu	ta?ačiš	kʷ=niǰa
PP.CIRC=1SG.SBJ	go	travel	DET=far

'I would have travelled far.' (vf | EP.2022/03/25)

Similarly, (617) parallels (614) but with a modal claim made based from a past point in time before the draw was decided. Here, once again, *qaɬ* is felicitous.

(617) *Context: Felipe, my husband, put his name into a draw for boat because the proceeds are going to a good charity. I was a bit alarmed but there were lots of people putting their names in, so he didn't win. After, I ask him:*

A:

qaɬčxʷ ga	čɛsxʷ	qaɬaxʷ	ƛ̓ʊxʷ?əm?
qaɬ=čxʷ=ga	časxʷ	qaɬ=axʷ	ƛ̓əxʷ?əm
PP.CIRC=2SG.SBJ=DPRT	where-CAUS	PP.CIRC=2SG.SBJV	win-ACT.INTR

'What would you have done had you won?' (vf | EP.2022/05/14)

B:

qaɬšt ?it	xʷa?ǰiš.
qaɬ=št=?əyt	xʷəǰ-iš
PP.CIRC=1PL.SBJ=DPRT	sell-TR

'We would have sold it, of course.' (vf | EP.2022/05/14)

Finally, (618) is a case partially repeated from (598) above. *qaɬ* is infelicitous when the modal claim is about possible developments based on current circumstances, taking a present temporal perspective (618a), but is felicitous when making a modal claim about how events might have developed given past circumstances, taking a past temporal perspective (618b).

(618) a. *Context: It's Wednesday. There's a music festival in K'ómoks this coming weekend I want to go to, but my car is being repaired. I don't think it will be ready in time, but if it is then I'll make the trip over. I tell my friend:*

#?ot **qaɬ**	ṗaṗe?it	šɛtᶿ ?atnopɛl	?i	**qaɬč**	θo
?ut=**qaɬ**	ṗaṗi-?iyt	šə=tᶿ=?atnupil	?iy	**qaɬ**=č	hu
if=PP.CIRC	get.fixed-PRF	DET=1SG.POSS=car	CONJ	PP.CIRC=1SG.SBJ	go

'If my car is fixed, I will go.' (sf | EP.2022/05/14)

b. *Context: There was a music festival in K'ómoks last weekend I wanted to go to, but my car was being repaired and was not ready in time. I tell my friend:*

?ot **qaɬ**	ṗaṗe?it	šɛtᶿ ?atnopɛl	?i	**qaɬč**	hohitoɬ
?ut=**qaɬ**	ṗaṗi-?iyt	šə=tᶿ=?atnupil	?iy	**qaɬ**=č	θu-?əyt-uɬ.
if=PP.CIRC	get.fixed-PRF	DET=1SG.POSS=car	CONJ	PP.CIRC=1SG.SBJ	go-PRF-PST

'If my car had been fixed, I would have gone.' (vf | EP.2022/05/14)

To summarize, *qał* is used to make modal claims from a past temporal perspective and cannot be used to make modal claims from a present temporal perspective, even if the prejacent is unlikely to come about. Typically, claims with *qał* are made in contexts where the prejacent is either known or suspected to be untrue given current circumstances. For claims compatible with current circumstances, the future *səm*, which typically takes present temporal perspective, will be used instead.

9.5.3 Analysis of past-perspective *qał*

I analyze *qał* as a strong circumstantial modal with a presupposition that ensures that the modal base is calculated at a time preceding the utterance time. As a head lower in the clitic string, it combines with the prejacent prior to the saturation of the reference time. *qał* adds a presupposition that restricts the reference time t to a time preceding the utterance time t_0, giving the modal claim a past temporal perspective. Its at-issue component is a strong modal claim with a future temporal orientation, as expected for a circumstantial modal (Condoravdi 2002).[4]

The contribution of the modal *qał* is then as in (619). The modal base f returns a set of propositions that are circumstances of the real world w at a past time t. The intersection of this set is the set of worlds where all the modal base propositions are true. The prejacent ϕ is then claimed to be true at a time t' following the past reference time t in the subset of those worlds ranked best by the stereotypical ordering source h.

(619) $[\![\textit{qał}_{\text{PP.CIRC}}\ \phi]\!]^{g,f,h,t_0} = \lambda t.\lambda w : t < t_0.\forall w'[w' \in BEST_{h(w)} \bigcap (f(w,t)) \rightarrow \exists t'[t \leq t' \wedge [\![\phi]\!]^{g,f,h,t_0}(t')(w')]]$

While the reference time t is presupposed to precede the utterance time t_0, the reference time for the prejacent t' may precede or follow the utterance time t_0. As a result, the event described by the prejacent may be an event that would have occurred prior to the utterance time or following it.

With this analysis in place it is easier to see why *qał* is in pragmatic competition with *səm*. Both are strong modals with future orientation and *səm* can take a circumstantial modal base like *qał*. The difference between them lies in the reference time. If we assume that a past temporal perspective is always less informative because more recent developments cannot play a role in the claim, we derive the fact that the use of *qał* is always more marked than the use of *səm*. The use of *qał* will give rise to the implicature that *səm* could not be used, which typically means that the modal claim could not be made from a present temporal perspective because the prejacent is known or likely to be false.

In counterfactuals, the antecedent – known not to be true from a present temporal perspective – will be a claim from a past temporal perspective; the antecedent will therefore contain *qał*. The consequent follows from the antecedent at the same past vantage point when the antecedent could still have been true and so will also contain *qał*. As a result, past-perspective *qał* always occurs in both the antecedent and the consequent of counterfactual conditionals:

[4] I leave for future research the question of whether this future orientation can be derived from the Diversity Condition or should be understood as a combination of the modal claim with prospective aspect (as in Rullmann and Matthewson 2018).

(620) *Context: I went to a party last night, and walked home before it got too late. My brother would have given me a ride but he was staying later. The next day I tell you:*

a. ʔotč **qał** łaʔq̇əm ʔi **qał** ʔowułstomayɪm ʔə šɪtᶿ qɛχ.
ʔut=č=**qał** łaq̇-ʔəm ʔiy **qał** ʔuwuł-stu-may-əm ʔə=šə=tᶿ=qiǐ
if=1SG.SBJ=PP.CIRC wait-ACT.INTR CONJ PP.CIRC get.aboard-CAUS-1SG.OBJ-PASS OBL=DET=younger.brother
‘ If I would have waited, my brother would have given me a ride.’ (sf | EP.2022/03/25)

b. *ʔotč łaʔq̇əm ʔi **qał** ʔowułstomayɪm ʔə šɪtᶿ qɛχ.
ʔut=č łaq̇-ʔəm ʔiy **qał** ʔuwuł-stu-may-əm ʔə=šə=tᶿ=qiǐ
if=1SG.SBJ wait-ACT.INTR CONJ PP.CIRC get.aboard-CAUS-1SG.OBJ-PASS OBL=DET=younger.brother
‘ If I would have waited, my brother would have given me a ride.’ (sf | EP.2022/03/25)

c. *ʔotč **qał** łaʔq̇əm ʔi ʔowułstomayɪm ʔə šɪtᶿ qɛχ.
ʔut=č=**qał** łaq̇-ʔəm ʔiy ʔuwuł-stu-may-əm ʔə=šə=tᶿ=qiǐ
if=1SG.SBJ=PP.CIRC wait-ACT.INTR CONJ get.aboard-CAUS-1SG.OBJ-PASS OBL=DET=younger.brother
‘ If I would have waited, my brother would have given me a ride.’ (sf | EP.2022/03/25)

(621) *Context: There’s a concert next week with a band I like but tickets are sold out. I tell my husband:*

a. ʔotč **qał** maʔamitoł kʷ *ticket* ʔi **qał**č θohit.
ʔut=č=**qał** məʔ-ʔəm-ʔəyt-uł kʷ=*ticket* ʔiy **qał**=č θu-ʔəyt
if=1SG.SBJ=PP.CIRC get-ACT.INTR-PRF-PST DET=ticket CONJ PP.CIRC=1SG.SBJ go-PRF
‘If I had been able to get a ticket I would have gone.’ (vf | EP.2022/03/14)

b. *ʔotč maʔamitoł kʷ *ticket* ʔi **qał**č θohit.
ʔut=č məʔ-ʔəm-ʔəyt-uł kʷ=*ticket* ʔiy **qał**=č θu-ʔəyt
if=1SG.SBJ get-ACT.INTR-PRF-PST DET=ticket CONJ PP.CIRC=1SG.SBJ go-PRF
‘If I had been able to get a ticket I would have gone.’ (sf | EP.2022/03/14)

c. *ʔotč **qał** maʔamitoł kʷ *ticket* ʔi θohitč.
ʔut=č=**qał** məʔ-ʔəm-ʔəyt-uł kʷ=*ticket* ʔiy θu-ʔəyt=č
if=1SG.SBJ=PP.CIRC get-ACT.INTR-PRF-PST DET=ticket CONJ go-PRF=1SG.SBJ
‘If I had been able to get a ticket I would have gone.’ (sf | EP.2022/03/14)

Following Kratzer (1986, 2012), the antecedent *qał* ψ forms part of the restriction on the domain of quantification for the modal (also *qał*) in the consequent. This is accomplished formally in (622) by updating the modal base f through the addition of *qał* ψ; the updated modal base is f'. The consequent is then claimed to be true in the best worlds where the propositions in the modal base plus *qał* ψ are true, that is, in the best worlds in the intersection of f'.

(622) $[\![\, ?ot\, qał\ \psi\ qał\ \phi \,]\!]^{t_0,g,f,h} = \lambda t.\lambda w : t < t_0.\forall w'[w' \in BEST_{h(w)}(\bigcap f'(w,t)) \rightarrow \exists t'[t \leq t' \wedge [\![\phi]\!]^{t_0,g,f,h}(t')(w')]]$,
where $\forall w \in W, f'(w,t) = f(w,t) \cup \{[\![qał\ \psi]\!]^{t_0,g,f,h}(t)\}$ (based on Kratzer 2012: 65)

For (620), for instance, this means that the modal claim is based on the premise that I would wait for my brother; this was compatible with circumstances at some past point in time when this was still a possibility, but not the circumstances of the present, since this did not, in fact, occur. The consequent then follows in worlds where the world developed in such a way that I waited for my brother (contrary to fact).

As discussed in Section 9.5, when *qał* occurs in independent clauses, there is often an understood antecedent provided by the context. For an example like (603), repeated here as (623), there is an understood 'if' clause 'if the world had developed such that he had gone to the family gathering'. I propose that these understood antecedents have the same effect on the semantics as their overt counterparts. For (623), then, the claim is that for all worlds where the antecedent 'my brother will go to the family gathering' holds at a past point in time, along with other relevant facts about the world, the consequent follows as a development in those worlds. Since this claim is based on a premise known to be untrue, it has a counterfactual interpretation.

(623) *Context: My brother didn't make it to a family gathering. I think it's too bad, because he would have enjoyed it.*

χʷɛt **qał** ʔiʔaǰusθot.
x̌ʷit=**qał** ʔəǰ∼ʔəǰ-us-θut
really=PP.CIRC PL∼good-face-CTR.REFL
'He would have really enjoyed himself.' (vf | EP.2021/09/04)

Apart from the occurrence of *qał* in conditionals and independent stand-alone clauses, we saw that *qał* occurs frequently in the first of two conjoined clauses, where the second conjunct provides an explanation for why the prejacent cannot be claimed of the present. These cases are also compatible with the analysis proposed here. The prejacent is claimed to follow from circumstances at some past point in time implicating that it is not compatible with circumstances at the present. The conjoined clause provides information – likely missing from the context – that allows the addressee to recover the reasoning behind using a past temporal perspective. For instance, in (624) (repeated from (602a)), the speaker expresses that at a past point in time, circumstances were in place for Daniel to come help with her move. She then explains why this did not transpire.

(624) *Context: I had a move on the weekend. My friend Daniel was supposed to help but then he got called in to work.*

qał qʷol c̓̌ɛgaθayɛʔmoł ʔə Daniel **ʔi** k̓ʷakʷa t̓ᶿəpt̓ᶿəpaw.
qał qʷəl̓ c̓̌ag-aθay-əm-uł ʔə=Daniel **ʔiy** k̓ʷa=kʷa t̓ᶿəp∼t̓ᶿəpaw
PP.CIRC come help-CTR+1SG.OBJ-PASS-PST OBL=Daniel CONJ RPT=CLD PL∼busy
'Daniel was going to come help me but he got busy (with work).' (vf | EP.2021/10/02)

While the cases we have analyzed so far all involve prejacents known to be false at present, we also saw examples where the prejacent was not known to be false, such as (625) (repeated from (609) above). Since *qał* does not encode negation of the prejacent, we expect these examples to be possible. Despite the prejacent still being possibly true, *qał* is felicitous because current circumstances, namely the weather, have introduced doubt about the truth of the prejacent, ruling out a strong modal claim from a present perspective that the prejacent has come about.

(625) *Context: Daniel was going to go over to Campbell River for a meeting but the weather has been rough so I'm unsure if he would have been able to make it. I tell you:*

qaɬ	θohoɬ	ʔəkʷ Campbell	River.	xʷač	toχʷnɛxʷən
qaɬ	θu-h-uɬ	ʔə=kʷ=Campbell	River	xʷaʔ=č	təx̌ʷ-n<í>xʷ=an
PP.CIRC	GO-EPEN-PST	OBL=DET=Campbell	River	NEG=1SG.SBJ	KNOW-NCTR<STAT>=1SG.SBJV

kʷʊnəs	θohiyt.	qʷayɪn	xʷa səm	θohiytəs	qʷayɪgən	qəkʷʊm	*ferry*.	hɛhɛw
kʷən=as	θu-ʔəyt	qʷayən	xʷaʔ=səm	θu-ʔəyt=as	qʷayigən	qəkʷ-əm	*ferry*	hihiw
Aux=3SBJV	GO-PRF	maybe	NEG=FUT	GO-PRF=3SBJV	maybe	STOP-MD	ferry	really

saymot	kʷ puʔəm.
say-mut	kʷ=puʔəm
intense-INT	DET=wind

'He was going to go to Campbell River. I don't know if he made it. I don't think he did. I think the ferry's got stuck. The wind is too high.' (vf | EP.2021/12/13)

In Section 9.4 above, I showed that *qaɬ* cannot co-occur with the future *səm* and cannot occur in imperatives. As discussed in Chapter 8, the future cannot take past temporal perspective for inferences about non-future eventualities; it also does not typically take past temporal perspective for claims about eventualities in the future of the reference time unless it is embedded or occurs within a narrative. As a result, we don't expect *qaɬ* and *səm* to co-occur, but rather for *qaɬ* to act as the past perspective counterpart of *səm*. They are both used to express strong circumstantial modal claims with future orientation, but differ in the perspective that they take.

Under the current analysis, we also do not expect *qaɬ* to occur in imperatives. Imperatives are instructions for the addressee to perform some task following the utterance time; for an imperative to be used felicitously, it should be based on circumstances that are relevant at the utterance time. We do not expect felicitous imperatives based on circumstances of the past that have since been updated.

Before closing this section, there is one further point in need of discussion. In the analysis proposed above, the falsity of the prejacent arises via implicature. As an implicature, we expect it to be cancellable. We have seen cases where the prejacent is not known to be false, but none where it is known to be true. So far, most attempts to elicit such cases have not been successful.

(626) *Context: My brother went to my uncle's birthday party on the island. He got stuck in bad traffic and nearly missed the last ferry, but he made it just in time.*

***qaɬ** k̓ʷa	θohoɬ	ʔi	čɪgɪtəm	yɛqaw	kʷ*ferry*.
qaɬ=k̓ʷa	θu-h-uɬ	ʔiy	čəgətəm	yaqaw	kʷ*ferry*
PP.CIRC=RPT	GO-EPEN-PST	CONJ	almost	late	DET=ferry

He was going to go but was almost late for the ferry. (sf | EP.2021/11/20)

Consultant's comment: No you wouldn't put the *qaɬ k̓ʷa θohoɬ* 'cause he did make it, he made the next ferry.

However, Ippolito (2003) also notes the difficulty of cancelling the implicature of falsity in similar cases involving past temporal perspective in English counterfactuals, and argues that they are in fact cancellable, but only in very specific contexts. She notes that implicatures are only felicitously cancelled where the discourse

context provides a reason for this move. She argues that use of past temporal perspective without involving circumstances that are incompatible with the present requires a discourse context where reasoning from past circumstances is more relevant than from the present, despite the same result being obtained. While more work is still needed to fully test whether *qał* can be felicitously used in such cases, there is at least one case that suggests that it can:[5]

(627) *Context: My friend sees a bike sitting dusty in my shed and remembers when I had first bought it.*

A: čɪm ga θ yɛqtoł šɛθ *bike* ʔi xʷačxʷ
čəṁ=ga ʔəθ=yəq-t-uł šə=θ=*bike* ʔiy xʷaʔ=čxʷ
how/why=DPRT 2SG.POSS=buy-CTR-PST DET=2SG.POSS=bike CONJ NEG=2SG.SBJ
yiq̇ašɛxʷʔ
yə∼yq̇-aš=axʷ
PROG∼use-TR=2SG.SBJV
'Why did you buy that bike when you don't use it?' (vf | EP.2022/05/14)

B: **qał**č ʔit yiq̇ašoł kʷʊtᶿ θo tiwšɛm. namałč ʔot
qał=č=ʔəyt yə∼yq̇-aš-uł kʷ=ətᶿ=θu tiwšəm namał=č=ʔut
PP.CIRC=1SG.SBJ=DPRT PROG∼use-TR-PST DET=1SG.POSS=go study little.while=1SG.SBJ=EXCL
yiq̇ašoł ʔi hoyč. hanəm niǰɛ.
yə∼yq̇-aš-uł ʔiy huy=č hanəm niǰa
PROG∼use-TR-PST CONJ finish=1SG.SBJ too.much far
'I was going to use it to go to school. I used it for a while, and then I stopped. It was too far.'
(sf | EP.2022/05/14)

9.6 Negation-licensed *qał*

I turn now to the version of *qał* I refer to as negation-licensed *qał* (NLQ). This version of *qał* always occurs enclitic on negation. It is often translated with 'yet', as noted in Section 6.1, but is also translated 'ever' (628) and 'never' (629) (see also Watanabe 2003: 523–524).

(628) a. *Context: I'm wondering how plans for a new centre are developing. I ask whether the committee has gotten together to finalize the location. You tell me:*
xʷaʔ **qał** qʷɛqʷayitəs.
xʷaʔ=**qał** qʷi∼qʷay-ʔəyt=as
NEG=NLQ PROG∼talk-PRF=3SBJV
'They haven't talked about it yet.' (vf | EP.2021/09/04)

[5] If, on further inspection, it seems that the implicature really cannot be cancelled, the analysis proposed here could be strengthened. We could require an antecedent (optionally implicit, given by the context) that is presupposed not to be true in most worlds which are most similar to the real world:

(i) $[\![qał\ \phi]\!]^{t_0,g,f,h} = \lambda q.\lambda t.\lambda w.\forall w'[w' \in BEST_{h(w)}(\bigcap f(w)(t) \cup q(t)) \rightarrow \exists t'[t \leq t' \wedge [\![\phi]\!](t')(w')]]$;
defined iff $t < t_0$ and $\neg q(t)(w')$ for most w' most similar to w.

b. *Context: I put a cold pack in the freezer a little while ago so we could use it when we go for a grocery run. Felipe asks me:*

xʷaʔa **qaɬ** taʔgasʔ
xʷaʔ=a=**qaɬ** təġ=as
NEG=Q=NLQ freeze=3SBJV
'Isn't it frozen yet?' (vf | EP.2021/09/18)

(629) a. xʷaʔačxʷ **qaɬ** hahaxʷʔ
xʷaʔ=a=čxʷ=**qaɬ** ha-h=axʷʔ
NEG=Q=2SG.SBJ=NLQ go-EPEN=2SG.SBJV
'Have you ever gone?' (Watanabe 2003: 524)

b. xʷamotč ʔot **qaɬ** ʔoɬqʷoʔən.
xʷaʔ-mut=č=ʔut=**qaɬ** ʔuɬqʷu-ʔ=an
NEG-INT=1SG.SBJ=EXCL=NLQ dig.clams-EPEN=1SG.SBJV
'I have never dug clams.' (Watanabe 2003: 524)

In what follows, I first discuss and provide an analysis of negation-licensed *qaɬ*'s morphosyntactic profile in Section 9.6.1 and then discuss its semantic contribution and provide a semantic analysis in Section 9.6.2.

9.6.1 Morphosyntax of negation-licensed *qaɬ*

As previewed above, negation-licensed *qaɬ* is always an enclitic on negation and cannot precede negation as an auxiliary (630).

(630) *Context: We were expecting someone around dinner time, but he's not here yet.*

a. xʷaʔ **qaɬ** qʷoləs hɛwt.
xʷaʔ=**qaɬ** qʷəl̓=as hiwt
NEG=NLQ come=3SBJV get.home
'He hasn't arrived home yet.' (vf | EP.2021/09/04)

b. #**qaɬ** xʷaʔ qʷoləs hɛwt.
qaɬ xʷaʔ qʷəl̓=as hiwt
NLQ NEG come=3SBJV get.home
'He hasn't arrived home yet.' (sf | EP.2021/09/04)

qaɬ can be found as an auxiliary c-commanding and scoping over negation, but these cases are always interpreted as the past-perspective modal *qaɬ*.

(631) *Context: Felipe was on a trip to Seattle and was supposed to get home last night, but his bus back got cancelled. He would have had to stay another night, but his friend gave him a ride.*

qał c̓ɛ	**xʷa?**	qʷol?itəs	hɛwt	snanatoł	?i	?owułstom
qał=c̓a	**xʷa?**	qʷəl̓-?əyt=as	hiwt	snanat-uł	?iy	?uwuł-st-um
PP.CIRC=INFER	NEG	come-PRF=3SBJV	get.home	evening-PST	CONJ	get.aboard-CAUS-PASS

t̓ogútəs.	hɛ ga	qʷols	hɛwt.
t̓ug-út-as	hił+ga	qʷəl̓=s	hiwt
recognize-CTR\STAT-3ERG	COP+DPRT	come=3POSS	get.home

'He would not have got home last night but someone he knew gave him a ride. That's how he got home.'

(sf | EP.2022/03/12)

(632) *Context: I was tired last night and just planning to eat a sandwich, but then my friends brought by a freshly caught sockeye and I changed my mind. The next day I tell you:*

qałč	**xʷa?**	kʷukʷanoł	snatoł	?i	qʷolsta?əmθayəm
qał=č	**xʷa?**	kʷukʷ=an-uł	snat-uł	?i	qʷəl̓-st-?əm-θay-əm
PP.CIRC=SG.SBJ	NEG	cook=1SG.SBJV-PST	night-PST	CONJ	come-CAUS-IND-CTR;1SG.OBJ-PASS

tᶿ qəmqəm	šɛ θəqay.
tᶿ=qəmqəm	šə=θəqay
1SG.POSS=friend	DET=sockeye

'I wasn't going to cook last night, but then my friends dropped by with a fresh sockeye.'

(sf | BW.2022/03/09)

(633) *Context: I was invited to a meeting in Campbell River, but I had no means to get there. Luckily for me, Freddie is going.*

qałč	**xʷa?**	θahanoł	?i	θo k̓ʷa	Freddie.	hɛ sa ga
qał=č	**xʷa?**	θu-h=an-uł	?iy	θu=k̓ʷa	Freddie	hił+səm=ga
PP.CIRC=1SG.SBJ	NEG	go-EPEN=1SG.SBJV-PST	CONJ	go=RPT	Freddie	COP+FUT=DPRT

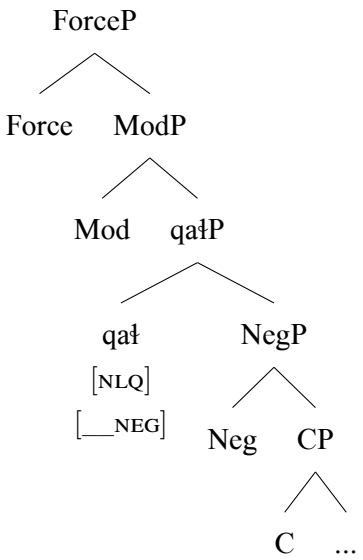
tᶿ ?owuł.
tᶿ=?uwuł
1SG.POSS=get.aboard

'I wasn't going to go but Freddie is going so I'll get a ride.' (vf | EP.2022/0305)

Negation structures are biclausal: negation is the main clause predicate which takes a subordinate subjunctive clause as its complement (see Davis 2001, 2005b for discussion). I propose that negation-licensed *qał* occurs in a functional head that selects for negation. This means that it originates in the upper (negating) clause adjacent to negation. The syntactic head associated with *qał* is shown in (635), along with its featural specification and subcategorization frame. Unlike past-perspective *qał*, negation-licensed *qał* does not have

an auxiliary version and so it never occurs preceding negation and does not host other clitics.[6] The lexical entry for negation-licensed *qał* is given in (636) with its enclitic specification.

(635)



(636) $\left[\ \text{NLQ}\ \right] \iff \left\{ \begin{array}{l} \text{/qał/} \\ \text{= ___} \end{array} \right\}$

The functional head occupied by *qał* will be the lowest in the series of functional projections headed by 2PCs, meaning that it will occur as the last clitic in the string, consistent with what I showed in Section 9.3. If other clitics co-occur with *qał*, *qał* will encliticize to them at Stage 1 of lexical insertion, prior to the whole string encliticizing to negation. If it occurs on its own, its enclitic feature will force it to encliticize directly to negation. Since both past-perspective and negation-licensed versions of *qał* occur in the same position at the end of the clitic string, I assume that they occur in different versions of the same syntactic head; each version has different features corresponding to the different versions of *qał*, but occurs in the same position in the syntactic hierarchy.[7]

This analysis predicts negation-licensed *qał* and past-perspective *qał* to be in complementary distribution. This prediction is borne out: attempts to insert both in the same clause are rejected.

[6]Negation-licensed *qał* also cannot act as an auxiliary in the subordinate clause. If *qał* could behave as an auxiliary, it would be expected to be able to host the subjunctive clitics originating in the lower clause, but it cannot (in contrast to other auxilaries like *qʷolİ* 'come'):

(634) a. *Context: Hoss arrives at the lodge and asks if Freddie is there. I tell him:*

xʷa? **qał** qʷoləs təs Freddie.
xʷa?=**qał** qʷəİ=as təs Freddie
NEG=NLQ come=3SBJV arrive Freddie
'Freddie's not here yet.' (sf | EP.2022/03/05)

b. *xʷa? **qał**əs qʷol təs.
xʷa? **qał**=as qʷəİ təs
NEG NLQ=3SBJV come arrive
'He's not here yet.' (sf | EP.2022/03/05)

[7]An alternate approach would have negation-licensed *qał* originating in the lower clause and clitic-climbing into the upper clause in order to encliticize to negation. Such clitic-climbing does occur in St'á't'imcets, where demonstrative pronouns routinely climb out of a clause embedded under negation to encliticize to negation in the upper clause (Henry Davis, p.c., 2022). However, there is no motivation or evidence for such clitic-climbing in ʔayʔaǰuθəm.

(637) *Context: I had put a turkey in the oven but misunderstood the instructions I read online and had the oven pretty low. Luckily my mum noticed and turned up the temperature. It's cooked at dinner time.*

χʷɛt **qaɬ**	xʷaʔ (***qaɬ**)	c̓ɛχəs	təms *turkey*	qaɬəs	xʷaʔ	nišəs
x̌ʷit=**qaɬ**	xʷaʔ=(***qaɬ**)	c̓əx̌=as	tə=ms=*turkey*	qaɬ=as	xʷaʔ	niš=as
really=PP.CIRC	NEG=NLQ	get.cooked=3SBJV	DET=1PL.POSS=turkey	PP.CIRC	NEG	be.here=3SBJV

tᶿ tan.
tᶿ=tan
1SG.POSS=mother

'Our turkey would not be ready yet if my mother wasn't here.' (sf | EP.2022/05/14)

(638) A: *Context: Gail was making a button blanket and you are surprised at how quickly it came together. You say:*

hɛhɛwčxʷ	λ̓oʔoǰɛ!
hihiw=čxʷ	λ̓i-ʔ-uǰa
really=2SG.SBJ	fast-EPEN-hand

'You're really quick with your hands.'

B: *Gail wants to acknowledge the help she had, since there were a few people who chipped in sewing on buttons and doing other tasks:*

ʔotč qaɬ	pɩpayɛmɛt	ʔi	**qaɬ**	xʷaʔ (***qaɬ**)	hoǰəs.
ʔut=č=qaɬ	pipaya-mi-t	ʔiy	**qaɬ**	xʷaʔ=(***qaɬ**)	huǰ=as
if=1SG.SBJ=PP.CIRC	one.person-DIR-CTR	CONJ	PP.CIRC	NEG=NLQ	finish=3SBJV

'If I had been working on my own it would not be done yet.'
Consultant's comment: You don't use *xʷaʔ qaɬ* in there. (sf | EP.2022/05/14)

The restriction to only one *qaɬ* in these structures is predicted if they both originate in different versions of the same syntactic head in the upper (negating) clause.

9.6.2 Semantics of negation-licensed *qaɬ*

Negation-licensed *qaɬ*, like the past perspective modal *qaɬ*, involves reference to past times, but with negation-licensed *qaɬ*, it is the time at which the prejacent is evaluated, rather than the reference time for the proposition as a whole, that is placed in the past. It also introduces universal quantification, like the past perspective modal *qaɬ*. However, negation-licensed *qaɬ* introduces universal quantification over *times* rather than worlds. The denotation in (639) has *qaɬ* introducing quantification over times t' preceding the reference time t within some contextually given or lexically specified interval C; the prejacent p is asserted not to hold at any of the points in time in C in w.

(639) Negation-licensed *qaɬ*:
$[\![\textit{qaɬ x}^w\textit{a? } \phi]\!]^{g,c} = \lambda t.\lambda w.\forall t'[t' \in C \wedge t' < t \rightarrow \neg[\![\phi]\!](t')(w)]]$

When the contextual restriction is large, perhaps the subject's lifetime, 'never/ever' interpretations arise. The 'yet' interpretations arise when the context provides an expectation that though the prejacent is not true of any past time in *C*, it will still be true at a later date.

C can also be lexically restricted, such as by a temporal adverb as in (640). In this case, the quantification is interpreted over some span, giving rise to the interpretation that the prejacent is not true within some period of time.

(640) *Context: Seeing an old friend's son on a trip.*

ǰɛqaʔ	nɛʔ	Harold.	hɛhɛw	χʷoχʷmot	xʷahan **qał**	k̓ʷʊnʊxʷan.
ǰaqa	niʔ	Harold.	hihiw	x̌ʷux̌ʷ-mut	xʷaʔ=an=**qał**	k̓ʷən-əxʷ=an.
EX	be.there	Harold	really	long.time-INT	NEG=1SG.SBJV=IRR	see-NCTR-1SG.SBJV

'Oh, Harold's there! I haven't seen him for a long time.' (vf | EP.2018/08/08)

This analysis makes two important predictions, which are both borne out: 1) *qał* does not quantify over times in the future of the reference time, and 2) *qał* is not compatible with claims that the prejacent did not occur at a *specific* past reference time. The latter prediction arises because the variable t', the time at which the prejacent is claimed not to hold, is in the scope of the universal quantifier.

The inability of *qał* to quantify over times in the future of the reference time is shown in (641a); like past-perspective *qał*, it seems to be ungrammatical in combination with the future. Instead, a construction with *xʷaʔ čɛṁəs*, often translated as 'won't' or 'can't', is used.

(641) a. *Context: I've heard too many stories about Florida and all the alligators. I've never had any particular plans to go to Florida and I don't plan to ever go. Florida comes up on the news and I tell you:*

*xʷatᶿəm **qał**	θahan	ʔəkʷ *Florida*.
xʷaʔ=tᶿ=əm=**qał**	θa-h=an	ʔə=kʷ=*Florida*
NEG=1SG.SBJ=FUT=NLQ	go-EPEN=1SG.SBJV	OBL=Det=Florida

'I'm never going to Florida.' (sf | EP.2011/11/14)

b. *For the context in (641a), this was provided instead:*

xʷaʔ	čɛməs	ʔi	hoč	ʔəkʷ šiṅ.
xʷaʔ	čəṁ=as	ʔiy	hu=č	ʔə=kʷ=šiṅ
NEG	why/how=3SBJV	CONJ	go=1SG.SBJ	OBL=DET=DEM

'I won't go there.' (vf | EP.2011/11/14)

The inability of *qał* to occur in claims about specific past times is shown in (642). Here the question sets up a past reference time – the time of the meeting last night. B's answer without *qał* is fine, but with *qał*, it is not felicitous.

(642) *Context: There was a meeting last night and I know you usually go to those meetings so I ask if you went.*

A:	θohoɬacxʷ	kʷ *meeting*	snanatoɬ?	B:	xʷa?,	xʷač (***qaɬ**)
	θu-h-uɬ=a=čxʷ	kʷ=*meeting*	snanat-uɬ		xʷa?	xʷa?=č=(***qaɬ**)
	go-EPEN-PST=Q=2SG.SBJ	DET=meeting	evening-PST		NEG	NEG=1SG.SBJ=NLQ

θahanoɬ.
θu-h=an-uɬ
go-EPEN=1SG.SBJV-PST

'A: Did you go to the meeting? B: No, I didn't go.' (sf | EP.2022/03/12)

9.7 Conclusion

In this chapter, I have recharacterized the 'irrealis' marker as two separate clitics. Both introduce a temporal variable with a past interpretation, but differ in the role this variable plays. For past-perspective *qaɬ*, this variable is the time at which a circumstantial modal claim is evaluated and must precede the utterance time. For negation-licensed *qaɬ*, this variable represents the times in the scope of a universal quantifier, which precede the reference time. Both versions of *qaɬ* introduce universal quantification, but differ in whether the quantification is over worlds or times.

In terms of their morphosyntax, I have proposed that both versions of *qaɬ* occur in different versions of the same syntactic head (with a different set of morphosyntactic features) so that they occur in the same position in the clitic string but have different requirements for insertion; negation-licensed *qaɬ* only co-occurs with negation. This correctly predicts that they cannot co-occur. They also differ in their morphosyntactic features: negation-licensed *qaɬ* only ever occurs as a clitic, while past-perspective *qaɬ* can also occur as an auxiliary.

It seems likely that these two versions of *qaɬ* originate from the same diachronic source. How these two versions of *qaɬ* came about diachronically and diverged in meaning is another interesting question that must be left for future research.

Part III

Discourse sensitive clitics: the scalar exclusive and discourse particles

Introduction to Part III

In Part III of this dissertation, I examine five discourse-sensitive enclitics that occur at or near the end of the clitic string. The first is the scalar exlusive *ʔot* /ʔut/, primarily used to rule out contextually salient alternatives that are higher than the prejacent on some contextually-provided scale; it is often translated with the scalar exclusive *just* in English.

The other four clitics are discourse particles: *ʔit* /ʔəyt/, which indicates that the speaker believes the content of the utterance should already be in the common ground; *ga*, which indicates that the utterance follows from some other proposition salient in the context; *gi*, which occurs only in imperatives, conveying politeness; and *χʷot* /x̌ʷət/, which indicates that the speaker is not committed to the truth of the propositional content of the utterance.

While the clitics discussed in Part III are all sensitive to discourse context, they can only be loosely grouped together, since the ways in which they exhibit discourse sensitivity are quite varied. The scalar exclusive in particular differs from the others, since it contributes to the at-issue propositional content of the clause, whereas the others seem to contribute only not-at-issue content.

9.8 Outline of the chapter

In Section 9.9, I briefly review the position of the five clitics discussed in Part III. In Section 9.10, I discuss the different types of discourse sensitivity displayed by these clitics. Finally, in Section 9.11, I provide an outline of Part III .

9.9 Position in the clitic string

The clitics discussed in Part III all occur at or near the end of the clitic string. The syntactic positions of these clitics will be discussed in the following chapters. While the linear position of *ʔot* /ʔut/ reflects its syntactic height and scope (Section 10.3, 10.4.2), the discourse particles do not fit so neatly with the mapping between linear order, syntactic height, and semantic composition shown for the other clitics (Section 11.3).

Table 9.1: Discourse particles in the clitic string

Force		Subject		Evid		Fut		ClDem		Other							
a	Q	č	1SG.SBJ	č̓a	INFER	səm/saʔ	FUT	ti	CLD	**ga**	DPRT	**ʔut**	EXCL	qał	PP.CIRC	**ʔəyt**	DPRT
ala	EXCLAM	čxʷ	2SG.SBJ	k̓ʷa	RPT			ta	CLD	**gi**	DPRT			qał	NLQ	**x̌ʷət**	DPRT
		št	1PL.SBJ					kʷi	CLD								
		čap	2PL.SBJ					kʷa	CLD								

9.10 Different types of discourse sensitivity

The scalar exlcusive particle *ʔot* /ʔut/ and the discourse particles are grouped together because a key aspect of their contribution involves sensitivity to discourse structure. For the scalar exclusive, this sensitivity comes about indirectly. The scalar exclusive *ʔot* /ʔut/ associates with a focused item. An item is focused when the discourse context provides alternatives to this item (e.g. Rooth 1985 et seq.).

One such environment involves contrastive focus, as illustrated in (643), where the discourse context provides alternative contrasting animals to the focused item *walθ* 'frog' (the heron, the small bird, and the chipmunk) and different contrasting types of food to the focused item flies *χʷaχʷayɪm* /x̌ʷax̌ʷayəm/ (the types of foods preferred by the other animals: fish for the heron, worms for the bird, pinecones for the chipmunk). The focused DPs are bolded and both are introduced in clefts, a common strategy for focussing DPs in ʔayʔa-ǰuθəm and other Salish languages (see e.g., Davis et al. 2004; Koch 2008; Koch and Zimmermann 2010). The first focused DP *walθ* 'frog' is introduced by the clefting predicate *hɛɬ* /hiɬ/, while the second *χʷaχʷayɪm* /x̌ʷax̌ʷayəm/ 'flies' is introduced by the clefting predicate *hoy* /huy/, which together with *ʔot* /ʔut/ gets the interpretation 'only'.

(643) *Context: From a storyboard where a squirrel is trying to figure out who stole his food. He checks whether a frog, a heron, a small bird, and finally a chipmunk stole his food. It turns out to be the chipmunk!*

kʷʊnas	ga hɛɬ	**walθ**.	qʷayɪn	xʷaʔ.	hoy **ʔot**	**χʷaχʷayɪm**	məmkʷtəm	[ʔə] walθ.
kʷən=as	ga=hiɬ	**walθ**	qʷayin	xʷaʔ	huǰ=**ʔut**	**x̌ʷax̌ʷayəm**	mə∼mkʷ-t-əm	[ʔə=]walθ.
AUX=3SBJV	COMP=COP	frog	maybe	not	finish=EXCL	fly	PROG∼eat-CTR-PASS	OBL=frog

'I wonder if it was **frog**. Maybe not. He only eats **flies**.' (vf | MH.2016/07/20)

The scalar exclusive associates with focused items and excludes the contextually provided alternatives (again following Rooth 1985 et seq.). This is shown in (643) above, where *ʔot* /ʔut/ is used in excluding alternatives to *χʷaχʷayɪm* /x̌ʷax̌ʷayəm/ 'flies' that frog might eat. It is also shown in (644) where the scalar exclusive is used when excluding the higher number of chairs expected to be in the other room.

(644) A:

čɛlas	θukʷnačtən	kʷikʷa	θoʔna.	ho=ga	mat.
čalas	θəkʷnačtən	kʷəẏkʷa	θuʔna.	hu=ga	məʔ-t
three	chair	DEM	other.room	go=DPRT	get-CTR

'There are three chairs in the other room. Please go get them.'

B:

xʷa	čɛlasəs.	sasyɛ **ʔot**.
xʷa	čalas=as.	sa<s>ya=**ʔut**
NEG	three=3SBJV	two<DIM>=EXCL

'There's not three. There's just two.' (vf | EP.2019/06/10)

How association with focus is represented structurally will be discussed in Section 10.4.2.

The discourse particles show discourse sensitivity in a different way: they are involved in providing cues about discourse structure (see e.g., Zimmermann 2011). The discourse particles I examine here accomplish this in a variety of ways. I adopt a model where ongoing discourse canonically adds information to the

common ground: the knowledge shared by both discourse participants (Stalnaker 1978 et seq.). The discourse particles help organize the conversation against this backdrop. *ʔit* /ʔəyt/ indicates that the speaker believes the propositional content of the utterance should already be in the common ground. *ga* links the utterance to salient information in the context, often information in the common ground, providing discourse coherence. *χʷot* /x̌ʷət/ conveys that the speaker is not fully committed to the propositional content of the utterance. This helps the discourse participants determine whether to add the propositional content to the common ground. Finally, *gi* is not directly related to common ground management, but marks imperatives as polite.

From this brief introduction, it is apparent that the clitics in this section only group together under a broad notion of discourse-sensitivity, sharing less in common than the clitics discussed together in Part II.

9.11 Outline of Part III

The first chapter of Part III (Chapter 10) focuses on the scalar exclusive *ʔot* /ʔut/, motivating its analysis as a scalar exclusive and accounting for a puzzling aspect of its distribution, namely, that it associates with the universal quantifier *ʔukʷ* /ʔəwk̓ʷ/ 'all'; the analysis of this clitic also sheds light on similar puzzling data from English where the scalar exclusive *just* associates with the universal quantifier *every*. The second chapter of Part III (Chapter 11) focuses on the discourse particles. The analyses of these clitics are somewhat preliminary due to the difficulty of determining their subtle contributions, but generalizations and preliminary analyses are sketched for each, as well as directions for future research.

Chapter 10

Scalar exclusives at the top of the scale: Innocent Inclusion and domain widening

10.1 Introduction

In this chapter, I examine the semantic contribution of the ubiquitous clitic *ʔot* /ʔut/. I argue that *ʔot* /ʔut/ is a scalar exclusive operator. Its typical role is to contribute a 'no more than' interpretation, ruling out contextually salient alternatives, as in (645)–(647) ((645) and (646) are repeated from (643) and (644)):

(645) *Context: From a storyboard where a squirrel is trying to figure out who stole his food. He checks whether a frog, a heron, a small bird, and finally a chipmunk stole his food. It turns out to be the chipmunk!*

kʷʊnas	ga hɛɬ	walθ.	qʷayɪn	xʷaʔ.	hoy **ʔot**	χʷaχʷayɪm	məmkʷtəm	[ʔə] walθ.
kʷən=as	ga=hiɬ	walθ	qʷayin	xʷaʔ	huǰ=**ʔut**	x̌ʷax̌ʷayəm	mə∼mkʷ-t-əm	[ʔə=]walθ.
AUX=3SBJV	COMP=COP	frog	maybe	not	finish=EXCL	fly	PROG∼eat-CTR-PASS	OBL=frog

'I wonder if it was frog. Maybe not. He just eats flies.' (vf | MH.2016/07/20)

(646) A:

čɛlas	θukʷnačtən	kʷikʷa	θoʔna.	ho=ga	mat.
čalas	θəkʷnačtən	kʷəy̓kʷa	θuʔna.	hu=ga	məʔ-t
three	chair	DEM	other.room	go=DPRT	get-CTR

'There are three chairs in the other room. Please go get them.'

B:

xʷa	čɛlasəs.	sasyɛ **ʔot**.
xʷa	čalas=as.	sa<s>ya=**ʔut**
NEG	three=3SBJV	two<DIM>=EXCL

'There's not three. There's just two.' (vf | EP.2019/06/10)

(647) kʷanáčč **ʔot**.
kʷanáč=č=**ʔut**
sit\STAT=1SG.SBJ=EXCL
'I'm just sitting.' (vf | EP.2018/09/11)

The alternatives that *ʔot* /ʔut/ quantifies over are typically scalar, ranked according to some contextually-given scale: ranked according to number (646) or the amount of activity involved (647), for instance. (645) can also be understood as involving (partially ordered) scalar alternatives since the alternatives involve other foods in addition to flies, such as flies and nuts, flies and seeds, flies and nuts and seeds, etc. (see e.g., Coppock and Beaver 2014). *ʔot* /ʔut/ rules out alternatives higher on the scale than its prejacent, asserting that 'no more than' its prejacent is the case.

However, *ʔot* /ʔut/ exhibits certain puzzling behaviours under a scalar exclusive analysis. It often associates with universal quantifiers, which are highest on the scale of alternative quantifiers.

(648) *Context: You went to the store with a shopping list. The last couple times you've gone, you've forgotten eggs. When you get home, you say:*

ʔukʷ̓ ʔot	tam	yɛχɛtən	sṯʰokʷ̓.
ʔəwkʷ̓=ʔut	tam	yaǎ-at-an	s=ṯʰukʷ̓
all=EXCL	thing	remember-CTR-1SG.ERG	NMLZ=day

'I remembered everything today.' (sf | BW.2016/11)
Consultant's comment: You're really emphasizing that you got everything.

Here, there are no higher alternatives to exclude, so *ʔot* /ʔut/'s contribution should be vacuous, but instead it seems to contribute emphasis.

I argue that in these cases *ʔot* /ʔut/ exhaustively quantifies over alternatives with differing domains of quantification and rules in alternatives, resulting in domain widening. I also extend this analysis to the English scalar exclusive *just* where it associates with the universal quantifier *every*, as in (649):

(649) a. Is it ever possible to run away from **just everything**?[1]

b. *Context: Daniel was in charge of bringing food for a gathering. We'd already made a list and set the food aside, but he got worried about whether there would be enough and started to pack more and more things into the car. Gloria was with him while he was doing this, but I was busy upstairs. Finally, Gloria comes to get me, and I ask her if Daniel has gotten everything on the list into the car. She replies:*
Yes, but he's packing **just EVERYTHING** into the car! You need to stop him! [ENGLISH]

10.2 Outline of the chapter

In Section 10.3, I discuss the morphosyntax of *ʔot* /ʔut/. In Section 10.4, I argue that *ʔot* /ʔut/ is a scalar exclusive operator and examine how *ʔot* /ʔut/ associates with focused items. I also briefly justify treating English *just* as a scalar exclusive, in order to set the stage for the comparison between *ʔot* /ʔut/ and *just* that

[1] Retrieved October 24, 2021 from https://www.quora.com/Is-it-ever-possible-to-run-away-from-just-everything

follows. In Section 10.5, I examine the co-occurrence of *ʔot* /ʔut/ and *just* with universal quantifiers and lay out similarities and differences in the distribution of this co-occurrence between the two languages. In both languages, I argue that the scalar exclusive contributes domain widening in these cases. In Section 10.6, I propose an account of the differences in the distribution of this co-occurrence in terms of differences in the setting of the domain of quantification between the languages. In Section 10.7, I propose a formal analysis of the contribution of *ʔot* /ʔut/ and *just* as exhaustivity operators and formalize the alternatives that they quantify over in order to account for their use both in excluding and including alternatives (the latter leading to domain widening). Finally, in Section 10.8, I extend the account of domain widening proposed for *ʔot* /ʔut/ and *just* with universal quantifiers to the domain widening associated with Free Choice *any* in English.

10.3 Morphosyntax of *ʔot* /ʔut/

ʔot /ʔut/ occurs following the future (650) and the clausal demonstratives (651) (repeated from (398) above) but preceding negation-licensed *qał* (652) (repeated from (592c) above).

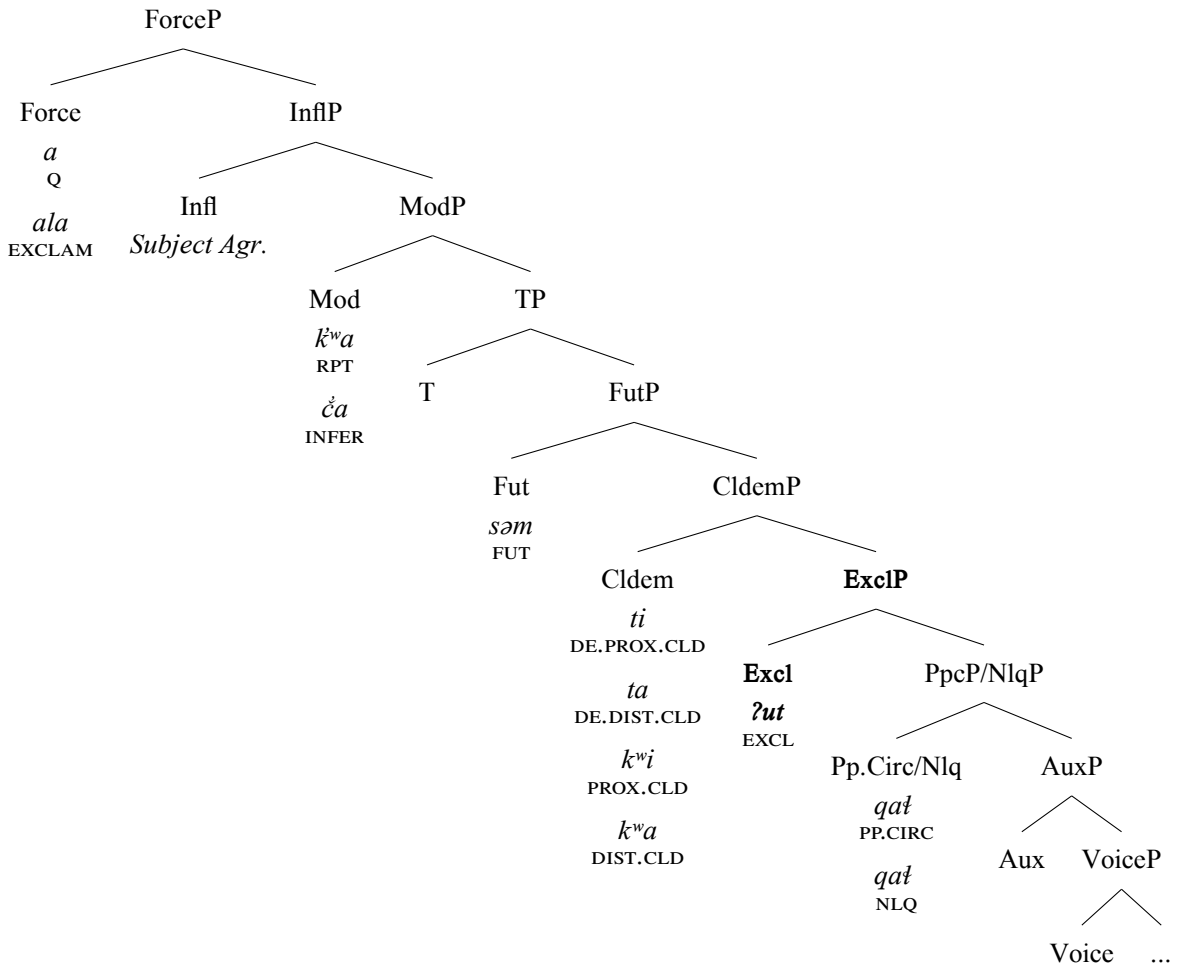
(650) qɛqʔɛχ **səmt** kʷʊtᶿ χanaθɛ.
qiqʔiǐ=**səm**+**ʔut** kʷ=ətᶿ=ǎn-aθi
lots.DIM=FUT+EXCL DET=1SG.POSS=give-CTR;2SG.OBJ
'I'll give you just a little more.' (vf | EP.2018/02/18)

(651) *Context: I'm headed over to pick my friend up and head to a meeting. When I get close to her house, I see her already out walking towards the meeting.*
qʷolčɛn ǎ̀əǎ̀ʔost ʔi **tit** θo ʔɛmaš.
qʷəl̀=čan ǎ̀ə∼ǎ̀ʔos-t ʔiy **ti**+**ʔut** θu ʔimaš
come=1SG.SBJ PROG∼pick.up-CTR CONJ CLD+EXCL go walk
'I'm coming to pick her up and she's already left walking.' (vf | EP.2020/06/23)

(652) xʷaʔ **ʔot qał** hoǰəs tᶿ pɪču.
xʷaʔ=**ʔut**=**qał** huǰ=as tᶿ=pəču
NEG=EXCL=NLQ finish=3SUBJ 1SG.POSS=basket
'My basket is just not quite done yet.' (vf | EP.2021/07/30)

I assume that *ʔot* /ʔut/ occurs syntactically below the clausal demonstratives and above negation-licensed/past-perspective *qał*. This is consistent with its semantic scope under the modal evidentials (see Section 2.4.3) and the future (650) and over the prejacent proposition.

(653)



10.4 Scalar exclusives

In this section, I examine the contribution of *ʔot* /ʔut/ in ʔayʔaǰuθəm and *just* in English, arguing that they are both exclusive operators. This will lay the groundwork for the following discussion of these operators in combination with universal quantifiers. I will discuss the ʔayʔaǰuθəm facts first, and then turn to the English facts, for which I will draw on previous literature.

10.4.1 The scalar exclusive contribution of *ʔot* /ʔut/

In contexts with numbers, *ʔot* /ʔut/ has a clear scalar exclusive ('no more than') contribution. In (654B), the speaker asserts that she has two eggs and follows this with *qaχ χʷaχʷɩt nisxʷan gaθ χaƛ̓əs* /qəx̌ x̌ʷax̌it nisxʷan gaθ x̌aƛ̓s/ 'I have lots more if you want them'. When *ʔot* /ʔut/ is added to the initial assertion, however, it rules out the possibility that there are more than two eggs (654B'), making the continuation *qaχ χʷaχʷɩt nisxʷan gaθ χaƛ̓əs* /qəx̌ x̌ʷax̌it nisxʷan gaθ x̌aƛ̓s/ 'I have lots more if you want them' infelicitous.

(654) A: *Context: I'm making a cake and I run out of eggs.*

čɪm ga	kʷ χanaθaxʷ	ʔəkʷ saʔa	χʷaχʷɪtʔ
čaṁ=ga	kʷ=x̌an-aθ=axʷ	ʔə=kʷ=saʔa	x̌ʷax̌ʷitʔ
QUEX=DPRT	DET=give-CTR;1SG.OBJ-2SG.SUBJ	OBL=DET=two	egg

'Can I borrow two eggs?'

B:

ʔɛʔ,	saʔa	χʷaχʷɪt	kʷ nisxʷən.	χanaθɛtᶿəm.	qaχ
ʔiʔ	saʔa	x̌ʷax̌ʷit	kʷ=niš-sxʷ-an	x̌an-aθi=tᶿəm	qəx̌
yes	two	egg	DET=be.here-CAUS-1SG.ERG.SBJ	give-CTR;2SG.OBJ=1SG.SBJ+FUT	many

kʷʊtᶿ χʷaχʷɪt	gaθ χaḵ̇as	qɛqʔɛχ.
kʷ=ətᶿ=x̌ʷax̌ʷit	ga=θ=x̌aḵ̇=as	qiqʔix̌.
DET=1SG.SBJ=egg	COMP=2SG.POSS=want=3SBJV	lots.DIM

'Yes, I have two eggs left. I'll give them to you. I have lots if you want a few more.'

B':

ʔɛʔ,	saʔa **ʔot**	χʷaχʷɪt	šɛ nisxʷən.	χanaθɛtᶿəm.	#	qaχ
ʔiʔ	saʔa=**ʔut**	x̌ʷax̌ʷit	šə=niš-sxʷ-an	x̌an-aθi=tᶿəm		qəx̌
yes	two=EXCL	egg	DET=be.here-CAUS-1SG.ERG.SBJ	give-CTR;2SG.OBJ=1SG.SBJ+FUT		many

kʷʊtᶿ χʷaχʷɪt	gaθ χaḵ̇as	qɛqʔɛχ.
kʷ=ətᶿ=x̌ʷax̌ʷit	ga=θ=x̌aḵ̇=as	qiqʔix̌.
DET=1SG.SBJ=egg	COMP=2SG.POSS=want=3SBJV	lots.DIM

'Yes, I have just two eggs left. I'll give them to you. #I have lots if you want a few more.'

(sf | BW.2020/11/19)

In (654), *ʔot* /ʔut/ excludes alternatives ordered by entailment, where an alternative proposition with a higher number than the prejacent entails the prejacent. (Since two eggs is a subset of three eggs, if I have three eggs it follows that I have two.)

ʔot /ʔut/ also excludes higher alternatives on other types contextually and lexically supplied scales. In (655a), the scale is a scale of activity, provided by contrasting pictures, with 'sleeping' lower on the scale, and 'jumping' higher on the scale. The scale in (655b) is one of unwellness, with being cold lower on the scale than being actually sick.

(655) a. *Context: This describes a picture where a frog is sleeping on a rock. The picture was contrasted with another picture where the frog was jumping up and down on the rock.*

ḵʷʊt gi	tə walθ!	hoy **ʔot**	s=ḵ̇iḉ̇ts.	xʷaʔ	čɛm(əs)	ḵʷitᶿɛm.
ḵʷə[n]-t=gi	tə=walθ	huǰ=**ʔut**	s=ḵ̇<i>ḉ̇t=s	xʷaʔ	čaṁ(=as)	ḵʷiṫᶿ-im
look-CTR=PRT	DET=frog	finish=EXCL	NMLZ=sleep<STAT>=3POSS	NEG	MOD(=3SBJV)	jump-MD

'Look at the frog! He's just sleeping. He won't jump.'

(vf | JF.2016/10/03)

b. *Context: Tony's sitting with a blanket around him. Art comes home and you tell him:*

hoy **ʔot** s c̓ɛc̓ɪms. xʷaʔ kʷukʷtəməs.
huǰ=**ʔut** s=c̓ə∼c̓əm=s xʷaʔ kʷə∼kʷt-əm=as
finish=EXCL NMLZ=PROG∼cold=3POSS NEG PROG∼sick-MD=3SBJV
'He's just cold. He's not sick.' (vf | JF.2016/10/03)

The contribution of *ʔot* /ʔut/ is at-issue, rather than a presupposition or an implicature. For instance, if *ʔot* /ʔut/ presupposed that higher alternatives were ruled out, (656) would be an impossible question. It would already presuppose that 'no more than' the prejacent (*c̓ɛc̓ɪm* 'she is cold') could be asserted in answer to the question.

(656) kʷukʷtəma kʷʊnas**ʔot** c̓ɛc̓ɪm?
kʷə∼kʷtəm=a kʷənas=**ʔut** c̓ə∼c̓əm?
PROG∼sick-MD=Q COMP=EXCL PROG∼cold
'Is she sick or just cold?' (sf | EP.2018/06/07)

We already saw in (654B') that the contribution of *ʔot* /ʔut/ is not cancellable. This is further illustrated in (657), which shows that the response to a polar question with *ʔot* /ʔut/ (657A) cannot be positive if the speaker is contradicting the contribution of the scalar exclusive (657B'). Since the contribution of *ʔot* /ʔut/ is not cancellable, it cannot be a conversational implicature.

(657) *Context: You see Freddie walking home with just three fish – he usually gets more because he's a good fisherman, so you're surprised.*

A: oh, čɛləsa**ʔot** θ qeyt?
oh čalas=a=**ʔut** θ=qəẏ-t
oh three=Q=EXCL 2SG.POSS=die-CTR
'Oh, did you only catch three?' (sf)

B: xʷaʔ, qaχmot tᶿ qeytoɬ. čkʷa ʔukʷ̓ ʔaθəmoɬ.
xʷaʔ qəx̌-mut tᶿ=qəẏ-t-uɬ č=kʷa ʔəwkʷ̓ ʔaθ-əm-uɬ
NEG lots-INT 1SG.POSS=die-CTR-PST 1SG.SBJ=CLD all give.away-MD-PST
'No, I caught lots. I gave them all away.' (vf)

B': #ʔɛ, qaχmot tᶿ qeytoɬ.
ʔi, qəx̌-mut tᶿ=qəẏ-t-uɬ.
yes lots-INT 1SG.POSS=die-CTR-PST
#'Yes, I caught lots.' (sf) (EP.2019/08/05)

In summary, *ʔot* /ʔut/ has an at-issue 'no more than' contribution which excludes alternative propositions to the prejacent that are higher on some lexically or contextually supplied scale. This behaviour is typical of a scalar exclusive operator. In the next subsection, I examine the syntactic position of *ʔot* /ʔut/ and how it interacts with focus. This background will help clarify the role of focus in mediating the relationship between *ʔot* /ʔut/ and the universal quantifier *ʔukʷ̓* /ʔəwkʷ̓/ 'all'.

10.4.2 The syntax of *ʔot* /ʔut/ and focus

The alternatives that *ʔot* /ʔut/ quantifies over are propositional alternatives, consistent with its syntactic position above the core propositional content of the clause (see Section 10.3). The location of variation in the alternatives is determined by focus, which is conveyed through a combination of syntax and context. Focus in Salish is associated with the predicate (Davis 2007; Koch 2008).[2] Focused items can function as the main predicate of the clause or appear in the focus position of a cleft, in which case they function predicatively through composition with the clefting predicate. Focused arguments, for instance, can appear as nominal predicates or clefted DPs. The nominal predicate construction is illustrated in (658), where the theme is contrastively focused. The focused theme *mɛʔɛn* /miʔin/ 'carrot' functions as a nominal predicate that takes a headless relative clause *tə məmkʷtəs* /tə məmkʷtas/ 'the (thing) she's eating' as its argument.

(658) *Context: Two Elders were discussing a picture of a girl eating a carrot. One Elder remarked:* ʔɛlawɛ ʔə tan̓. *'That's a turnip.' The other Elder corrected him saying:*

xʷaʔ, mɛʔɛn, mɛʔɛn tə məmkʷtəs
xʷaʔ, miʔin miʔin tə=mə∼mkʷ-t-as
NEG carrot carrot DET=PROG∼eat-CTR-3ERG
'No, it's a carrot, it's a carrot she's eating.' (vf | EP.2017/02/25)

The clefting strategy is illustrated in (659) where the subject DP is focused both contrastively and in answer to a question; the focused DP is introduced by the clefting predicate *hɛɬ* /hiɬ/ and the remnant by the particle *ʔə*.

(659) *Context: In answer to a question about characters in a storyboard where there is a hardworking squirrel and a lazy frog: 'Who is more industrious/ambitious? Is it squirrel or is it frog?'*

hɛɬ tə kʷɪkʷaǰu ʔə k̓ʷɛhɛt qaqɛʔɛt.
hiɬ tə=kʷikʷaǰu ʔə=k̓ʷihit qaqiʔit
COP DET=squirrel CLF.PRT=increase hardworking
'It's the squirrel that's more hardworking.' (vf | EP.2016/05/21)

With this background in place, I now illustrate more precisely how *ʔot* /ʔut/ associates with focus. I examine the derivation for (654B'), repeated here as (660). The prejacent contains focus on the number *saʔa* 'two', which is contrasted with higher numbers.

(660) ʔɛʔ, saʔa **ʔot** χʷaχʷɪt šɛ nisxʷən.
ʔiʔ saʔa=**ʔut** x̌ʷax̌ʷit šə=niš-sxʷ-an
yes two=EXCL egg DET=be.here-CAUS-1SG.ERG.SBJ
'Yes, I have just two eggs left.' (sf | BW.2020/11/19)

[2]Koch (2008) argues that the prosodic phrase containing focus is aligned to the left edge of intonational phrase (Koch 2008); since Salish languages are predicate initial, this results in a predicative focus strategy. In contrast, Davis (2007) argues that the association of focus with the predicate is a syntactic strategy for expressing focus. The exact motivation for the association of focus with the predicate is not important for my purposes in this chapter, however, so I will not discuss the arguments for each position here.

Here, the nominal *saʔa χʷaχʷɩt* /saʔa x̌ʷax̌ʷit/ 'two eggs' functions as the predicate, a position associated with focus. The context makes it clear that it is the number within the NP that is focused, rather than the whole NP.[3]

(661) [$_{NP}$ saʔa x̌ʷax̌ʷit] [$_{DP}$ šə nišsxʷan]
two eggs DET be.here-CAUS-1SG.ERG

The nominal predicate takes a headless relative clause argument. For the purposes of this illustration, I assume a simplified headless relative clause structure where a null operator is extracted, creating an intransitive predicate through Predicate Abstraction (Heim and Kratzer 1998: 96); this predicate then combines with a determiner to denote an entity.[4] *ʔot* /ʔut/ takes the entire consituent containing both the predicate and its argument as its complement. For simplicity, I will label this constituent AspP (Aspect Phrase), since it is below TP but above the predicate and its argument.

(662) [$_{CP}$ʔut [$_{AspP}$[$_{NP}$saʔa$_F$ x̌ʷax̌ʷit] [$_{DP}$šə [$_{CP}$*Op* [nišsxʷan ~~*Op*~~]]]]
EXCL two eggs DET *Op* be.here-CAUS-1SG.ERG ~~*Op*~~

Semantically, *ʔot* /ʔut/ combines with the proposition and quantifies over the focus alternatives, excluding all stronger alternatives to the prejacent. For now, we can give *ʔot* /ʔut/ the scalar exclusive denotation in (663) (following Rooth 1996: 280), though this will be revised in section 10.7; the denotation I adopt has the prejacent at issue rather than presupposed, in contrast to a number of prominent accounts, such as Beaver and Clark (2008); Coppock and Beaver (2014). This is in line with the version of the scalar exclusive I ultimately adopt in Section 10.7, and I will defend this choice in Section 10.7.2. The denotation in (663) asserts the prejacent p and states that for all alternatives in the contextually given set of alternatives C, if they are true, they are either p or entailed by p. In (663), $\leq$ is used to represent the ranking of alternatives in terms of entailment, where alternatives lower than the prejacent p are entailed by p and alternatives higher than p entail p; other types of rankings are also possible depending on what alternatives are contextually salient.

(663) $[\![\ ʔut\ ]\!]^{C,w} = \lambda p \lambda w.p(w) \wedge \forall q \in C[q(w) \rightarrow q \leq p]$ (to be revised)

I will abstract away from the temporal argument of the prejacent proposition throughout this chapter for simplicity.

The alternatives that *ʔot* /ʔut/ quantifies over are calculated by abstracting over the focused number and replacing it with alternatives of the same type (see Koch and Zimmermann 2010: 246 for Nłeʔkepmxcín). This is illustrated below for (660) with a slightly modified version of Koch and Zimmermann's (2010) analysis (their exclusive analysis is not scalar and they illustrate with a cleft rather than a nominal predicate structure).[5]

[3] H. Davis (2012a) shows that either the modifier, the head, or the whole complex may be the focus in a complex nominal predicate in St'át'imcets.

[4] See Davis 2010 for convincing arguments from St'át'imcets that the construction is a matching construction involving movement of a DP within the relative clause to a left peripheral position.

[5] I argue below in Section 10.6.1.1 that ʔayʔaǰuθəm determiners introduce a choice function that picks out an individual from the powerset of individuals matching the description of the NP (with some additional evidential restrictions). This choice function is existentialy closed at the highest level for *šɛ* /šə/ (and /tə/). Rather than introducing this complexity into (664b), I leave *šɛ* /šə/ between interpretation brackets.

(664) a. ⟦ saʔa **ʔut** x̌ʷax̌ʷit šə nišsxʷan ⟧^{C,w} (= I have only [two]$_F$ eggs)

b. = [$\lambda p.\ p(w) \wedge \forall q \in C\ [q(w) \rightarrow q \leq p\ ]$] ([λx. eggs(x) $\wedge$ |x| = 2] ([⟦šə⟧ ([*Op*] [λx. I have x]])))

c. = 1 iff I have two eggs in *w* and for all *q* in the set of focus-alternative propositions { I have one egg, I have three eggs, etc}: if *q* is true in *w* then it is the proposition that I have two eggs or a proposition entailed by this proposition.

10.4.3 The scalar exclusive contribution of *just*

Now I turn briefly to a discussion of English *just*. Though not as extensively discussed as the exclusive *only*, most previous analyses treat *just* as a scalar exclusive (e.g. Beaver and Clark 2008; Coppock and Beaver 2014; Wiegand 2018).[6] For instance, Coppock and Beaver (2014) show that *just* behaves in parallel to *only* in excluding alternatives to the prejacent, as illustrated in (665).

(665) Mary **just** invited John and Mike.
Entails: Mary invited **at most** John and Mike. (Coppock and Beaver 2014: 379)

Just as for *ʔot* /ʔut/ in ʔayʔaǰuθəm, it is possible to show that *just* contributes at-issue content, rather than presupposition or implicature. For instance, its contribution can be targeted by negation (666).

(666) Mary didn't **just** invite John and Mike.
Entails: Mary invited **at least** John and Mike. (Coppock and Beaver 2014: 379)

Just's contribution also does not project in questions (667), since otherwise the 'no more than' contribution would be presupposed and the speaker could not sincerely ask whether an alternative higher than the prejacent (*you have two eggs*) is true.

(667) Do you have three eggs or **just** two eggs?

Finally, the contribution of *just* cannot be cancelled. For instance, B cannot agree with A in (668) while making an assertion that contradicts the 'no more than' contribution of the exclusive.

(668) A: Mary invited **just** John and Mike.

B: # Yes, and in fact, she also invited Joe.

I therefore assume that a scalar exclusive analysis of *just* is correct and analyze *just* as an operator which rules out alternatives to the prejacent on a variety of lexically and contextually supplied scales. For simplicity, I will treat *just* as taking propositional scope and associating with focus (but see Coppock and Beaver 2014 for discussion of alternate scopes).

[6] But see Morzycki (2012); Beltrama (2016) for an analysis of *just* as an Extreme Degree Modifier.

10.5 Co-occurrence with universal quantifiers

In this section, I examine similarities and differences between ʔayʔaǰuθəm and English in terms of where the scalar exclusive is felicitous in combination with the universal quantifier. While they co-occur quite freely in ʔayʔaǰuθəm, the combination is quite restricted in English. In the following section (Section 10.6), I propose a locus for this difference in the semantics of the restrictor in each language.

10.5.1 ʔayʔaǰuθəm

The scalar exclusive *ʔot* /ʔut/ occurs frequently with the universal quantifier *ʔukʷ* /ʔəwkʷ/. In particular, it occurs where the speaker is emphasizing the universal to exclude exceptions, or widening the domain to include additional, unspecified individuals.[7] Focus on the universal quantifier in these contexts is indicated by its appearance pre-predicatively. As a second-order predicate, its position clause-initially is consistent with ʔayʔaǰuθəm's predicative focus-marking stategy. This is illustrated in (669b) for (669a), where *ʔukʷ* /ʔəwkʷ/ takes *tam* 'thing' as its first argument and the remnant clause as its second argument:

(669) a. *Context: The last couple of times I went shopping I forgot milk. You're hoping I remember today. When I get home from shopping, you ask me: how was the shopping trip? I reply:*

ʔukʷ ʔot	tam	yɛχatən	sṭʰokʷ.
ʔəwkʷ=ʔut	tam	yaǎ-at-an	s=ṭʰukʷ
all=EXCL	thing	remember-CTR-1SG.ERG	NMLZ=day

'I remembered everything today.' (vf | BW.2020/10/01)

b. [ʔukʷ [tam] [yɛǎatən sṭʰokʷ]]

When *ʔukʷ* /ʔəwkʷ/ is not focused, it can appear post-predicatively with its DP restrictor, as in (670).

[7] There is another meaning I will have to set aside here. Occasionally when *ʔot* /ʔut/ associates with *ʔukʷ* /ʔəwkʷ/, the interpretation is minimizing, as indicated by one of my consultant's comment when presented with (i):

(i) *Context: I'm at a family meeting. It took a while, but finally everyone that I called on has arrived. Someone asks me if everyone has arrived. I tell them:*

ʔɛ,	ʔukʷ **ʔot**	gɛt	niš.
ʔi,	ʔəwkʷ=**ʔut**	gat	niš
yes	all=EXCL	who	be.here

'Yes, everyone is here.' (sf | EP.2020/10/16)
Consultant's comment: Casual, maybe that's good enough, maybe that's enough that we could go ahead with the meeting.

This reading of 'just enough for some purpose' is also found when *ʔot* /ʔut/ occurs with certain adjectives, such as *χaχał* /ǎǎał/ 'tall'.

(ii) *Context: Something up high is broken. Luckily there is someone around who is tall.*

oh,	hɛsəm	θo	ṗaṗɛt.	χaχał **ʔot**.
oh	hił=səm	θu	ṗaṗi-t.	ǎǎał=**ʔut**
oh	COP=FUT	go	fix-CTR	tall=EXCL

'Oh, he'll fix it. He's tall enough.' (vf | EP.2019/02/19)

These cases obviously would make an interesting study themselves, given the lack of overt encoding of the standard of comparison, but are beyond the scope of this chapter.

(670) *Context: Daniel had a list of things to get for a party we're planning. Gloria goes along with him. When they get back, Daniel is busy, so I ask Gloria if he got everything on the list. I'm not too worried because nothing on the list was particularly difficult to find. She tells me: Yes, he got everything.*

ʔɛ,	yɛqtəsoɬ	**ʔukʼʷ**	təms χaʎ̓.
ʔiʔ	yəq-t-as-uɬ	**ʔəwkʼʷ**	tə=əms=ǎaʎ̓
yes	buy-CTR-3ERG-PST	all	DET=1PL.POSS

'Yes, he bought everything we wanted.' (vf | BW.2020/10/20)

ʔot /ʔut/ often appears with the universal quantifier when the speaker is excluding exceptions. For instance, in (669a) above, the current situation in which the speaker remembers everything on the list contrasts with a salient previous situation in which she did not, and *ʔot* /ʔut/ appears associating with the universal quantifier. (671) is a similar case, where the addressee has an expectation that less than everything was remembered. Again, *ʔot* /ʔut/ associates with the universal quantifier.

(671) *Context: I'm worried Daniel might not have everything with him for the party we're putting together and keep asking about things he might have forgotten, but Gloria tells me:*

xʷaʔčxʷ	χaχʎ̓ɛmaxʷ.	ʔukʼʷ **ʔot**	tam	nɛʔsxʷəs.
xʷaʔ=čxʷ	ǎǎʎ̓im=axʷ	ʔəwkʼʷ=**ʔut**	tam	niʔ-sxʷ-as
NEG=1SG.SBJ	worry=2SG.SUBJ	all=EXCL	thing	be.there-CAUS-3ERG

'Don't worry. He has everything.' (vf | BW.2020/08/12)

Both of these cases involve ruling out alternatives where there are exceptions to the domain of quantification (see Kadmon and Landman 1993).

ʔot /ʔut/ also frequently appears associated with *ʔukʼʷ* /ʔəwkʼʷ/ in contexts involving domain widening.[8] For instance, (672) involves widening the domain of *ʔukʼʷ* /ʔəwkʼʷ/. B is including more than the contextually salient amounts and types of food – those set aside for the gathering – in the domain of the quantifier. In this case, *ʔot* /ʔut/ again appears associating with a fronted universal quantifier, and the use of the indefinite wh-pronoun *tam* and the adverb *χʷɛt* 'really' also contribute towards signalling domain widening.

(672) *Context: Daniel was in charge of bringing food for a gathering. Gloria was with him while he was getting ready. Gloria comes to get me, and I ask her if Daniel has packed everything into the car that we had written on the list. She replies that yes, he packed everything! He packed all that was on the list and most of the food in the fridge!*

A:	kʷʊna	ʔowuɬsxʷas	šɛ ʔatnopɛl	ʔukʼʷ	kʷʊms χaʎ̓ʔ
	kʷən=a	ʔuwuɬ-sxʷ-as	šə=ʔatnupil	ʔəwkʼʷ	kʷ=ʔəms=ǎaʎ̓
	COMP=Q	get.on.board-CAUS-3ERG	DET=car	all	DET=1PL.POSS=want

'Has he packed everything we wanted into the car?'

[8] Kadmon and Landman (1993) propose that domain widening is used to exclude exceptions. In this chapter, I differentiate between the exclusion of exceptions and the widening of a quantificational domain, for reasons that will become clear when discussing the English facts in Section 10.5.2. Essentially, I argue that exclusion of exceptions to the domain of the universal quantifier *every* does not typically involve domain widening in English, but rather involves ruling out a weaker quantifier choice (e.g. *all* > *most* > *many*). Since Kadmon and Landman are focused on *any*, which always involves domain widening, they do not need to make this distinction.

B: ʔɛ, χʷot **ʔot** ʔukʷ̓ tam ʔɛltɛn ʔowuɬsxʷas šɛ ʔatnopɛl!
ʔi x̌ʷit=**ʔut** ʔəwkʷ̓ tam ʔiɬtin ʔuwuɬ-sxʷ-as šə=ʔatnupil
yes really=EXCL all thing food get.on.board-CAUS-3ERG DET=car
'Yes, he's packed all kinds of food into the car!' (vf | BW.2020/10/01)

(673) is parallel, but in this case the restrictor is a post-predicative DP, rather than a wh-indefinite pronoun.[9]

(673) *Context: I had made some cookies this morning. This afternoon my brothers come to visit. Not only do they eat the fresh cookies I made, but they eat the package of cookies we kept in the cupboard as a back-up as well. When my partner comes home, I tell him:*
χʷot **ʔot** ʔukʷ̓ mʊkʷtəs kʷʊms ṯɪgɪmqɛtən!
x̌ʷit=**ʔut** ʔəwkʷ̓ məkʷ-t-əs kʷ=əms=ṯigimqitən
really=EXCL all eat-CTR-3ERG DET=1PL.POSS=sweet.food
'They ate just every one of our cookies!' (vf | BW.2020/10/20)

In contrast, in (674) the domain is clearly provided by the context and not contrasted with expected exceptions or smaller domains. Here, one of my consultants dispreferred *ʔot* /ʔut/, while another consultant accepted it (but did not volunteer it in this context). The negative judgement from the first was obtained in a forced choice task in this case since judgements between these examples are quite subtle.

(674) *Context: Daniel had a list of things to pack into the car. When I last checked he had most items already packed. I'm upstairs doing a bit of tidying, but I'm wondering if Daniel has everything ready and it's time to go. I notice Gloria coming upstairs so I ask her:* kʷʊna ʔukʷ̓ tam ʔowʊɬstom Daniel? *'Does Daniel have everything packed?' She replies:*

a. ʔɛ, ʔukʷ̓ tam ʔowuɬɛtsxʷəs.
ʔiʔ, ʔəwkʷ̓ tam ʔuwuɬ-it-sxʷ-as
yes all thing get.on.board-STAT-CAUS-3ERG
'Yes, he's packed everything.'

b. ʔʔɛ, ʔukʷ̓ **ʔot** tam ʔowuɬɛtsxʷəs.
ʔiʔ, ʔəwkʷ̓=**ʔut** tam ʔuwuɬ-it-sxʷ-as
yes all=EXCL thing get.on.board-STAT-CAUS-3ERG
'Yes, he's packed everything.' (sf | BW.2020/11/26)

It is also worth noting that while *ʔot* /ʔut/ appears frequently with *ʔukʷ̓* /ʔəwkʷ̓/ where there is a contrast with expected exceptions or a larger domain is contrasted with a smaller domain, it is not generally judged to be obligatory in these contexts.

10.5.2 English

In English, co-occurrence of the scalar exclusive *just* and the universal quantifier *every* is quite restricted. While *just every* can occur in contexts involving domain widening, it does not occur in contexts involving

[9]For examples like (673) with a post-predicative DP, I have to assume something like the restriction raising proposed in Davis (2013) in order to compose the restrictor with the quantifier before the nuclear scope.

the exclusion of exceptions. I will propose that the latter cases involve scalar alternatives, rather than domain alternatives, in English (whereas they would involve domain alternatives in ʔayʔaǰuθəm, as will be seen in Section 10.6).

Co-occurrence of the scalar exclusive *just* with the universal quantifier *every* is possible where the speaker is including additional, unspecified individuals in the domain of quantification. It is not, however, obligatory in such contexts, as illustrated in (675) (repeated from (649)).

(675) *Context: Daniel was in charge of bringing food for a gathering. We'd already made a list and set the food aside, but he got worried about whether there would be enough and started to pack more and more things into the car. Gloria was with him while he was doing this, but I was busy upstairs. Finally, Gloria comes to get me, and I ask her if Daniel has gotten everything on the list into the car. She replies:*
Yes, but he's packing **(just)** EVERYTHING into the car! You need to stop him!

Just every is also felicitous where the restrictor introduces a relative clause containing a modal operator.

(676) a. *Context: I'm telling you about a new book store that I've found that I'm very excited about.*
They had **just** every title I **could** think of.

b. *Context: Talking about a giant department store:*
They had **just** everything you **can** imagine.

Just every does not appear where the universal is emphasized to signal a contrast with a salient situation in which there are exceptions to the quantificational domain. In these contexts, the use of *just* with *every* is infelicitous. This infelicity contrasts with the parallel ʔayʔaǰuθəm cases ((669a), (671)), where *ʔot* /ʔut/ is felicitous.

(677) *Context: I'm worried Daniel might not have packed everything for the party we're putting together and keep asking about things he might have forgotten. Finally, Gloria tells me:*

a. #Don't worry. He's packed **just** EVERYTHING.

b. Don't worry. He's packed EVERYTHING.

(678) *Context: At the beginning of the COVID 19 pandemic, it was difficult to obtain Lysol wipes and toilet paper. I go to the grocery store with a list that includes those two items. When I get home, my partner asks me: 'Were you able to find toilet paper and Lysol wipes?' I tell him:*

a. #Yes, I managed to get **just** EVERYTHING this time.

b. Yes, I managed to get EVERYTHING this time.

In these cases, the domain is clearly provided by the context and focus evokes scalar alternatives (*everything* > *most of the things* > *some of the things*), rather than domains of alternate larger and smaller sizes.

When the domain of the quantifier is clearly provided by the context and there is no expectation of exceptions, the scalar exclusive does not co-occur with the universal (679). Focus on the universal quantifier is also infelicitous in this case.

(679) *Context: I'm guessing Daniel has everything ready for the party we're planning. Gloria has been with him while he's been packing, but I've been upstairs. When she comes to get me, I ask if Daniel has everything in the car. She tells me:*

a. Yes, he's packed everything.

b. #Yes, he's packed EVERYTHING.

c. #Yes, he's packed **just** EVERYTHING.

For these contexts, *ʔot* /ʔut/ behaves similarly, at least for one of my consultants (674).

10.5.3 Summary and preview of analysis

In this section, we have examined the combination of scalar exclusives with universal quantifiers in both ʔayʔaǰuθəm and English. In both languages, the scalar exclusive is found in a subset of environments where the universal quantifier is used. These environments involve a contrast with a salient alternative domain of quantification. This restriction suggests that the scalar exclusives are not vacuous when associating with the universal quantifier, but contribute meaning that is only compatible with the activation of domain alternatives.

I will argue that the scalar exclusives act as exhaustivity operators, which exclude and include alternatives depending on their relationship to the prejacent. In a case where the speaker asserts *I have just two eggs*, there are stronger alternatives that entail the prejacent and are not entailed by the prejacent (*I have three eggs, I have four eggs, etc.*) and weaker alternatives that are entailed by the prejacent (*I have two eggs, I have one egg*). A scalar exclusive such as *just* will rule out the stronger alternatives, and vacuously rule in the weaker alternatives. In the cases where domain widening occurs, there is no clear entailment relationship between the prejacent and the activated alternatives. This is the case in ʔayʔaǰuθəm (672) and English (675), where the context does not make it clear what things Daniel has packed into the car, except that the packed items include the items originally on the list and more besides; the hearer and likely even the speaker do not know what all the additional items are, nor from what possible subdomains (e.g. food, clothing, etc.). In these cases, the activated alternatives cannot be excluded without potentially contradicting the prejacent, but they can be included without contradiction. In exhaustifying over the activated alternatives, an exclusive operator will therefore include all the activated alternatives with alternative quantificational domains. Because the domain of the quantifier in the prejacent need not have encompassed all the alternative domains accessible from the context, the inclusion of all alternative propositions results in a stronger assertion and domain widening. The addressee cannot know exactly what alternatives are salient to the speaker, but the speaker's use of the scalar exclusive with the universal quantifier signals to the addressee that no potential alternative should be ruled out. Under this analysis, the association of a scalar exclusive with a universal quantifier is not vacuous specifically in the cases where domain alternatives are activated. Where no domain alternatives are activated, association of a scalar exclusive with a universal quantifier is vacuous, and so use of the scalar exclusive is dispreferred.

Given the analysis just previewed, we would expect the distribution of the scalar exclusive with the universal quantifier in ʔayʔaǰuθəm and English to be essentially equivalent, occurring only where domain alternatives are activated resulting in domain widening. We have seen, however, that the use of the scalar exclusive is more restricted in English than in ʔayʔaǰuθəm. In ʔayʔaǰuθəm it occurs not just when there is obvious domain widening, but also where exceptions are excluded. I turn next to exploring why this is the case.

10.6 Domain of quantification

In this section, I examine the semantics of the restrictor for the universal quantifier in ʔayʔaǰuθəm and English. I argue that the restrictor in ʔayʔaǰuθəm does not enforce either maximality or familiarity relative to the context, while the restrictor in English typically does. Since the quantificational domain is not automatically maximal relative to the context in ʔayʔaǰuθəm, domain widening is much more freely available than in English. One consequence of this difference between the languages is that the exclusion of exceptions to the quantificational domain proceeds differently. Since the restrictor in ʔayʔaǰuθəm does not enforce maximality nor familiarity, the universal can be used without including all entities matching the description of the restrictor DP. In order to exclude exceptions to the quantificational domain, domain widening occurs. In English, the restrictor of the quantifier generally must pick out the maximal domain relative to the context. Excluding exceptions therefore involves a contrast with alternative weaker quantifiers (scalar alternatives), rather than domain widening.

If the scalar exclusives contribute domain widening in combination with the universal quantifier, as I propose, it is expected that the scalar exclusives should only co-occur with the universal quantifier where domain widening is possible. Because domain widening is much more freely available in ʔayʔaǰuθəm, including in the contexts where exceptions are being excluded, this analysis predicts that the combination of the scalar exclusive and universal quantifier will have a wider distribution than in English. In the next section (Section 10.7), I develop an account of how scalar exclusives achieve this domain widening.

10.6.1 ʔayʔaǰuθəm

In ʔayʔaǰuθəm, there are two possible types of restrictors for the universal quantifier: either a full DP or a wh-indefinite pronoun such as *tam* 'what/something' or *gɛt* 'who/someone'. Neither type of restrictor enforces domains that are fully maximal and familiar relative to the context. This means that there is always room for domain widening. In what follows, I first examine DP restrictors and then turn to the somewhat lexicalized combinations of the universal quantifier with wh-indefinite pronouns.

10.6.1.1 ʔayʔaǰuθəm determiners

In ʔayʔaǰuθəm, DPs are typically introduced by a determiner or demonstrative, with the exception of proper names. I focus on DPs introduced by determiners in this section. I discuss DPs introduced by three of the five determiners in the section, leaving aside the feminine determiners (for discussion of the feminine determiners see Huijsmans and Reisinger 2022b). The determiners, like the demonstratives discussed in Section 7.4.1, contribute evidential information. The paradigm of determiners (minus the feminine determiners) is given in Table 10.1.

Table 10.1: Determiner paradigm

Current direct evidence	Previous direct evidence	Evidence neutral
tə	*šɛ* /šə/	*kʷ*

The contribution of each of these determiners is discussed in more detail below, but first I provide background that generalizes to all three.

Determiners in ʔayʔaǰuθəm, as in other Salish languages, do not encode definiteness (Matthewson 1996,

1999; Gillon 2006). This is illustrated in (680) where the *tə* determiner precedes both *c̓ȧ̓nu* 'dog' and *mimaẇ* 'cat' when the dog and cat are first introduced, and then appears again before *mimaẇ* 'cat' when referring back anaphorically.

(680) *Context: The consultant was presented with a short cartoon showing first a dog walking, then the dog seeing a cat, then chasing the cat.*

hoθo	**tə** c̓ɛȧ̓o.	k̓ʷʊnʊxʷəs	**tə** mɛmaẇ.	ʔaq̇atəs	**tə** mɛmaẇ.
hu∼θu	**tə**=c̓ȧ̓nu	k̓ʷən-əxʷ-as	**tə**=mimaẇ	ʔaq̇-at-as	**tə**=mimaẇ
PROG∼go	DET=dog	see-NCTR=3ERG	DET=cat	chase-CTR-3ERG	DET=cat

'A dog is walking along. It sees a cat. It chases the cat.' (Huijsmans et al. 2018b: 333)

The following example is parallel but taken from a traditional story:

(681)

q̇ʷaq̇ʷθosθɛtᶿəm	yɛyɛθots		qayχ.	ʔu:::k̓ʷ	tam
q̇ʷaq̇ʷθus-θi=tᶿəm	ya ya-θut=s		qayx̌	ʔəwk̓ʷ	tam
story.tell-CTR;2SG.OBJ=1SG.SBJ=FUT	PROG∼do-CTR;REFL=3POSS		Mink	all	thing
sasaɬtəgamɛtəs	payɛʔ.	oooh, k̓ʷʊnʊxʷəs	[**tə**] qaχmot	walθ...[8]	
sa saɬtig-am-mi-t-as	paya?	oooh, k̓ʷən-əxʷ-as	[**tə**]=qəx̌-mut	walθ	
PROG∼propose-MD-REL-CTR-3ERG	always	oh see-NCTR-3ERG	lots-INT	DET=frogs	

'I'm going to tell you about Mink's doings. He was always proposing marriage to all different creatures. Oh, he saw a whole bunch of frogs...' [MINK AND FROG]
(EP.2020/02/17)

Even though the frogs are mentioned for the first time in this excerpt and therefore the DP *tə qaχmot walθ* /tə qəx̌mut walθ/ does not have an antecedent, the DP is introduced by the determiner *tə*.

The determiners also do not encode maximality relative to the context of the utterance. This is illustrated in (682) where the DP *tə qaqsɛm* 'the toys' in the first clause is not interpreted maximally relative to the context – it does not refer all the toys in the room or the house – but refers only to a subset of the toys: those in the box.

(682) *Context: My niece comes over to play. She asks where the toys are. Most are in a box, and there are a few on the shelf beside the box. I tell her:*

nɛʔ	nəpɛ́t	[ʔə] tə k̓ʷaxʷa	**tə qaqsɛm**	ʔi	nɛʔ	ṫoṫɬɛt	ʔə taʔa
niʔ	nəp-ít	[ʔə=]tə=k̓ʷaxʷa	**tə=qaqsim**	ʔiy	niʔ	ṫu<ṫ>ɬ-ít	ʔə=taʔa
be.there	put.in-STAT	OBL=DET=box	DET=toy	CONJ	be.there	put.on.top<PL>-STAT	OBL=DEM

tə sqʷaq.
tə=sqʷaq
DET=some

'The toys are in the box and the rest are on top there.' (vf | EP.2020/10/16)

[8] Rhetorical lengthening on *ʔuk̓ʷ* /ʔəwk̓ʷ/ is indicated with '::::'. Square brackets around *tə* indicates where the determiner was originally elided (which occurs quite commonly) and was subsequently accepted when re-inserted by the author. Finally, *qayχ* /qayx̌/ is a proper name and so is not preceded by a determiner.

Similarly, in (683), the roots referred to in the first sentence are only a subset of the roots visible in the context, yet no infelicity arises, even when explicitly contrasting this set with the other roots in the context.

(683) *Context: I have a bundle of straight roots and a bundle of crooked roots, both visible on the table.*

hɛhɛw	ʔimot	**tə**tᶿ kʷaʔamnač,	θaθčmot.	łaχmot	tə sqʷaq,	k̓ɛk̓lɛθ.
hihiw	ʔəǰ-mut	**tə**=ʔətᶿ=kʷaʔamnač	θ<aθ>č-mut	łəx̌-mut	tə=sqʷaq	k̓<ak̓>liθ
really	good-INT	DET=1SG.POSS=roots	straight<PL>-INT	bad-INT	DET=some	crooked<PL>

'My roots are really good, they're straight. The rest are bad, they're crooked.' (sf | EP.2021/07/28)

When the context does not introduce exceptions, the determiners are typically interpreted maximally; they give rise to a cancellable maximality implicature (see Gillon 2006 for Sk̲wx̲wú7mesh and Lyon 2013, 2015 for Nsyílxcen).[9]

Following Matthewson (1999, 2001), I propose that the determiners introduce choice functions.[10] In order to capture the fact that a choice function introduced by one of these determiners is not uniquely determined by the context, since it enforces neither maximality nor familiarity, I propose that the choice function is existentially closed at the highest level (Reinhart 1997; Winter 1997), following Matthewson (1999) for St'át'imcets. The domain of existential closure is restricted by the evidential presuppositions introduced by *tə* and *šɛ* /šə/. When *tə* is used, for instance, the speaker must have current direct evidence for the referent – usually this means the speaker is able to see the referent at the UT. In contrast, *šɛ* is used when the speaker had previous direct evidence for the referent, but no longer does at the UT.

(684) *Context: You look out the window and there's a bear in your yard.*

nɛʔ	{**tə** / #šɛ / #kʷ} mɛχał.
niʔ	{**tə** / #šə / #kʷ}=miχał
be.there	{CDE.DET / PDE.DET / DET}=black.bear

'There's a bear.' (Reisinger et al. 2021: 755)

(685) *Context: I'm at your house, telling you about a bear I encountered this morning.*

nɛʔoł	{#tə / **šɛ** / ʔkʷ} mɛχał	ʔə šɛtᶿ ʔasq̇ič	skʷiǰoł.
niʔ-uł	{#tə / **šɛ** / ʔkʷ}=miχał	ʔə=šə=ətᶿ=ʔasq̇iyč	skʷiǰuł
be.there-PST	{CDE.DET / PDE.DET / DET}=black.bear	OBL=PDE.DET=1SG.POSS=outside	morning

'There was a bear in my yard this morning.' (Reisinger et al. 2021: 756)

Abstracting away from the details of an evidential analysis for these determiners (see Huijsmans et al. 2020; Reisinger et al. 2021), we can capture this restriction as a presupposition such that the choice function

[9] See also Matthewson (1999: 113, fn. 32).

[10] See Huijsmans et al. (2020); Reisinger et al. (2021) for an analysis where ʔayʔaǰuθəm determiners encode relations between situations (following Speas 2010; Kalsang et al. 2013) in parallel to the clausal demonstratives discussed in Chapter 7. This situation-based analysis would also be compatible with the account developed here, since it also captures the fact that the ʔayʔaǰuθəm determines do not enforce maximality; however, the situation-based account would require a more complex presentation, so I adopt the simpler representations found in (686) and (687).

picks out a referent for which the speaker has direct evidence. For *tə*, the presupposition is more informative, stating that the speaker has direct evidence (DE) at the UT. Through Maximize Presupposition, *tə* will be preferred to *šɛ* /šə/ whenever it can be felicitously used.

(686) $[\![\ tə_1\ ]\!] = \lambda P_{\langle e,t\rangle}$: the speaker has *DE* for $f_{1\langle\langle e,t\rangle e\rangle}(P)$ at UT. $f_1(P)$

(687) $[\![\ šɛ_1\ ]\!] = \lambda P_{\langle e,t\rangle}$: the speaker has *DE* for $f_{1\langle\langle e,t\rangle e\rangle}(P)$. $f_1(P)$

I assume that these choice function variables are existentially closed at the highest level (following Matthewson 1999 for St'át'imcets). The indices introduced by the determiners ensure that each choice function is bound separately through existential closure when there is more than one determiner in a sentence (each instance of existential closure will likewise carry a selection index matching the index introduced by one of the determiners, see Heim 1982: 96 for discussion of selection indices on quantifiers).[11]

Since the choice functions introduced by the determiners are existentially closed, they are predicted not to be fully contextually determined. This makes the correct predictions for the nonmaximal uses of the determiners, as found in (682) and (683) above. The implicature of maximality arises pragmatically as the speech act participants assume the most contextually salient choice function, the one that picks out all the entities matching the description of the NP and meeting the evidential requirement of the determiner in the context, in the absence of evidence to the contrary (see Gillon 2006 for more detailed discussion in terms of domain restriction).

The existential quantifier is introduced at the highest level and cannot scope under negation or modals: otherwise there would be a clash between the presupposition contributed by *tə* and *šɛ* /šə/ and the at-issue content of the DP.[12] This is also a correct prediction since these determiners always take widest scope (this is illustrated in (689)–(690) below).

The denotation for a sentence containing *tə* such as (684) above is then as in (688) below. The denotation requires that there is a bear for which the speaker has direct evidence at the utterance time. If more than one bear were present, however, the determiner is not predicted to enforce maximality relative to the context – a correct prediction.

(688) $[\![\ ni?\ tə_1\ miǩał\ ]\!] = \exists f_1[be.there(f_1(bear))]$; defined iff the speaker has *DE* for $f_1(bear)$ at UT

[11]The denotations in (686) and (687) are ill-formed in isolation since there is an unbound choice function variable, though this will always be resolved at the sentence level (see (688) below). In order to have a well-formed denotation locally, we could adopt a notation where the interpretation function is updated with variables introduced by binders at higher levels when interpreting subtrees over which the binding takes scope. Such a representation would be as in (i) below, where the assignment function g is updated to g', which incorporates the index 1 locally in its domain due to the higher existential closure over f_1, as in (688). As a result, the denotation is locally well-formed, while still depending on existential closure at the highest level.

(i) $[\![\ tə_1\ ]\!]^{g'[1\to f_1]} = \lambda P_{\langle e,t\rangle}$: the speaker has *DE* for $[g'(1)]_{\langle\langle e,t\rangle e\rangle}(P)$ at UT. $[g'(1)](P)$

[12]If the existential quantifier scoped under negation there would be no way for the speaker to have direct evidence for the individual picked out by the choice function – there would be no such individual! If the existential quantifier scoped under a modal the choice function would only be asserted to exist in certain possible worlds – not necessarily the actual world – yet the speaker would need to have direct evidence for the individual picked out by the choice function. Both cases would cause a clash between the at-issue and presupposed meaning components.

The determiner *kʷ* behaves differently from the other determiners since it can take narrow scope relative to negation and modals. The contrast between *kʷ*, which can take low scope relative to the modal verb *χaƛ̓* /x̌aƛ̓/ 'want', and *šɛ* /šə/, which cannot, is shown in (689–690).

(689) *Context: Gloria wants to get a kitten, and she particularly likes black cats. She hasn't chosen any specific one yet though.*

χaƛ̓s k̓ʷa	Gloria	{#šɛ / **kʷ**} p̓ɛp̓ɛθ	mɛmmaẇ.
x̌aƛ̓-s=k̓ʷa	Gloria	{#šə / **kʷ**}=p̓<ip̓>iθ	mi<m>maẇ
desire-3POSS=RPT	Gloria	{PDE.DET / DET}=black<DIM>	cat<DIM>

'Gloria wants a black kitten.' (sf | EP.2020/11/20)

(690) *Context: Gloria's neighbour has kittens. I've been there to see them with her and I know there's one little black one that she wants. I tell the neighbour:*

χaƛ̓s k̓ʷa	Gloria	{**šə** / #kʷ} p̓ɛp̓ɛθ	mɛmmaẇ.
x̌aƛ̓-s=k̓ʷa	Gloria	{**šə** / #kʷ}=p̓<ip̓>iθ	mi<m>maẇ
desire-3POSS=RPT	Gloria	{PDE.DET / DET}=black<DIM>	cat<DIM>

'Gloria wants the black kitten.' (sf | EP.2020/11/20)

The *kʷ* determiner is shown taking scope below negation in (691).

(691) *Context: Marianne is about to start weaving a cedar root basket with Betty, but she doesn't have an awl. She tells Betty:*

xʷukʷt	{#tətθ / #šɛtθ / **kʷ**ʊtθ} χʷoχʷp̓.
xʷukʷt	{#tə=ətθ / #šə=ətθ / **kʷ**=ətθ}=x̌ʷuʔx̌ʷp̓
not.exist	{#CDE.DET=1SG.POSS / #PDE.DET=1SG.POSS / DET=1SG.POSS}=awl

'I don't have any awl.' (Reisinger et al. 2021: 758)

The *kʷ* determiner is the only determiner not to introduce an evidential presupposition. Unlike the other determiners, therefore, I propose that *kʷ* introduces a choice function that may be existentially closed below other semantic operators. This is permitted since clashes with presupposed content do not arise (unlike for the other determiners).

(692) $[\![k^w{}_1]\!] = \lambda P_{\langle e,t\rangle}.\ f_{1\langle\langle e,t\rangle e\rangle}(P)$

(691) then gets the interpretation in (693), with the existential closure for the choice function scoping below negation.

(693) $[\![x^w u k^w t\ k^w{}_1 ə t^{\theta}\ x̌^w u ʔ x̌^w p̓]\!] = \neg\exists f_1[exists(f_1(my.awl))]$

10.6.1.2 Wh-indefinite pronouns

I turn now to the other possible type of restrictor for the universal quantifier in ʔayʔaǰuθəm. The restrictor of *ʔukʷ* /ʔəwkʷ/ may also be a wh-indefinite pronoun. Crucially for our purposes, these indefinite pronouns do not encode maximality or familiarity; they are NPs that function as wh-words when occurring predicatively and as indefinite pronouns in argument positions.

As wh-words, they are nominal predicates taking a DP complement.

(694) a. **gɛt** ga tan̓?
gat=ga tan̓
who=DPRT DEM
'Who is that?' (vf | EP.2019/10/26)

b. **tam** c̓̌ɛ tita?
tam=c̓̌ɛ təy̓ta
what=INFER DEM
'What is this?' (vf | EP.2019/06/29)

As indefinite pronouns, they occur in argument positions, preceded by a determiner and accompanied by subjunctive morphology. See Matthewson (2010b) for a discussion of similar facts in St'át'imcets.

(695) a. *Context: Gloria answered the phone and the call was for Daniel.*
q̓eyɛtəm Gloria, "χaλ̓̌s kʷs qʷaqʷaystomɛt
q̓ay-at-əm Gloria x̌aλ̓̌-s kʷ=s=qʷa∼qʷay-stu-mi-it
holler-CTR-PASS Gloria want-3POSS COMP=NMLZ=PROG∼talk-CAUS-2SG.OBJ-SBRD.PASS
kʷ **gat**əs."
kʷ=**gat**=as
DET=who=3SBJV
'Gloria called out to him, "Someone wants to talk to you!"'
(vf | BW.2020/08/12)

b. *Context: You walk into an apartment building, and someone is cooking something that smells really nice.*
ʔaǰɛqəp kʷ **tam**əs.
ʔəǰ-aqap kʷ=**tam**=as.
good-smell DET=what=3SBJV
'Something smells good.' (vf | PD.2018/11/08)

I assume that the cases where the wh-indefinite pronouns function as the restrictor of the universal quantifier involve a null *kʷ*-type determiner that occurs between the quantifier and the wh-indefinite pronoun. This avoids having to posit type-shifting for the universal quantifier. The null determiner contributes a choice function which picks out a plural individual matching the description of the wh-indefinite pronoun (human for *gɛt*

'who/someone', nonhuman for *tam* 'what/something').[13]

Since neither wh-indefinite pronouns nor DP restrictors of the universal quantifier enforce maximality relative to the context, we expect that universal quantification in ʔayʔaǰuθəm will more easily tolerate exceptions relative to English *every*. The universal quantifiers in both St'át'imcets and Island Halkomelem exhibit this behaviour, as shown in Davis (2013), and ʔayʔaǰuθəm *ʔukʷ* /ʔəwkʷ/ appears to behave similarly, though judgements are somewhat mixed. While the following examples were volunteered by one speaker, another speaker rejected similar examples I suggested.[14]

(696) a. *Context: A picture of a bunch of girls dancing and one girl at the side not dancing.*

ʔukʷ	čičɬɛm	nəgəpti.	xʷa	čičɬɛməs	paʔa	hɛɬ.
ʔəwkʷ	či∼čɬ-im	nəgəpti.	xʷaʔ	či∼čl-im=as	paʔa	hiɬ
all	PL∼dance-MD	young.women	NEG	PL∼dance-MD=3SBJV	one	be

'All the young women are dancing. One isn't dancing.' (vf | JF.2019)

b. *Context: A picture of five apples followed by a picture of four apple cores and one apple. I told the consultant that Marianne's brother ate all her apples except one.*

qəχmot	ʔapəls	Marianne,	ʔi	ho	təs	blətəs	Marianne.	**ʔukʷ**	mʊkʷtəs
qəx̌-mut	ʔapəls-s	Marianne	ʔiy	hu	təs	blətə-s	Marianne.	**ʔəwkʷ**	məkʷ-t-as
lots-INT	apples-3POSS	Marianne,	CONJ	go	arrive	brother-3POSS	Marianne	all	eat-CTR-3ERG

ʔapəls	Marianne.	papyɛ ʔot	ʔapəls	ʔaxʷi.
ʔapəls-s	Marianne	pa∼pyaʔ=ʔut	ʔapəls	ʔaxʷi
apples-3POSS	Marianne	DIM∼one=EXCL	apples	left

'Marianne had a lot of apples, and Marianne's brother came. He ate all of Marianne's apples. There's just one apple left.' (vf | JF.2019)

In addition, since the restrictor of the universal quantifier never forces maximality relative to the context, we predict domain widening to be always possible in ʔayʔaǰuθəm. The relative frequency with which *ʔot* /ʔut/

[13]The combination of wh-indefinite pronouns and universal quantifiers seem to be somewhat lexicalized. The wh-indefinite pronouns cannot be separated from the universal quantifier, unlike other restrictors which can be separated from the quantifier by the predicate.

(i) a. *Context: Mink is a trickster and has been misbehaving. The people had a plan to capture Mink and punish his misbehavior, but he escaped.*

*ʔukʷ	χaɬɛt	kʷ gɛt(əs)
ʔəwkʷ	x̌aɬ-it	kʷ=gat(=as)
all	get.angry-STAT	DET=who=3SBJV

'All the people were angry.' (sf | BW.2020/09/15)

b. *Context: There is a meeting that is about to begin and everyone has arrived.*

ʔukʷ	qʷol	təs	tə qayɛmɪxʷ.
ʔəwkʷ	qʷəl̓	təs	tə=qay<iw>mixʷ
all	come	arrive	DET=people<PL>

'All the people have arrived.' (vf | BW.2020/09/15)

Given the lexicalized nature of these combinations, the absence of an overt determiner is less surprising.

[14]Since these cases are pragmatically marked, it is not entirely surprising that they would be dispreferred when attention is drawn to them, which is inevitable when they are suggested to a speaker. In addition, the speaker who rejected these worked as a language teacher for many years, which means she is especially aware of wanting to guide learners (including linguists) towards pragmatically unmarked utterances. Since it is possible to include *čɪgɪtəm* 'almost' before *ʔukʷ* 'all' for these contexts, this was preferred.

accompanies *ʔukʷ* is therefore expected under an analysis where *ʔot* /ʔut/ is accomplishing domain widening, as I argue in Section 10.7.

10.6.2 English

The English facts are, of course, different. In English, the domain of the quantifier is typically anaphoric to the context and interpreted maximally relative to the context (see e.g., von Fintel 1994 et seq.).[15] Typical uses of *every* require there to be a contextually salient domain of quantification. In cases where there is no contextually salient domain and it is also improbable that the domain encompasses all individuals matching the restrictor in the world, infelicity results, as in (697a). Of course, as soon as there is a contextually salient resource domain, use of the universal is completely felicitous (697b).

(697) a. *Context: Walking into a public swimming pool, I remark to my friend:*
Oh look! Everyone is here.

b. *Context: We are holding a birthday party for my friend at the swimming pool. As we walk in, we see the guests already arrived, and I remark:*
Oh look! Everyone is here.

Since the domain of the quantifier is typically interpreted maximally relative to the context, there is not usually any room for widening the domain of the quantifier. Domain widening therefore occurs only in exceptional cases. I propose that two such cases are where the domain of the quantifier is left vague to include additional unspecified entities (as in (698a), from (675) above) and/or involves a restrictor with a modal operator so that the extent of the domain depends on possible worlds (as in (698b–698c), repeated from (676a–676b) above). These are the cases where we saw *just* co-occuring with the universal quantifier in the previous section.

(698) a. *Context: Daniel was in charge of bringing food for a gathering. We'd already made a list and set the food aside, but he got worried about whether there would be enough and started to pack more and more things into the car. Gloria was with him while he was doing this, but I was busy upstairs. Finally, Gloria comes to get me, and I ask her if Daniel has gotten everything on the list into the car. She replies:*
Yes, but he's packing **just** EVERYTHING into the car! You need to stop him!

b. *Context: I'm telling you about a new book store that I've found that I'm very excited about.*
They had **just** every title I could think of.

c. *Context: Talking about a giant department store:*
They had **just** everything you can imagine.

In order to handle domain setting for the universal quantifier in English I propose that the universal quantifier introduces a choice function.[16] This choice function is a free variable whose identity is contextually

[15] In some cases, universal quantifiers are interpreted instead relative to a salient resource situation, which is a subpart of the situation the sentence is about (see e.g. Berman 1987; Heim 1990; Elbourne 2005).

[16] This is to keep the discussion as parallel as possible with the discussion of the ʔayʔaǰuθəm facts. It would also be possible to develop the analysis using topic and resource situations as in, e.g., Elbourne 2005; Schwarz 2009.

determined – it must be in the Common Ground, able to receive its value via the assignment function (e.g. Kratzer 1998, 2003). This means that the choice function must be familiar through previous discourse or contextually salient enough to be accomodated into the Common Ground.[17] Due to this restriction, the speaker cannot generally refer to only a subset of the set of salient/familiar individuals meeting the description of the restrictor – the hearer needs to be able to recover how the choice of individuals is made. Since the universal quantifier will quantify over all individuals in that set, the interpretation will be maximal relative to the context.

In the denotation in (699), the assignment function applies to the variable 1 in order to return a choice function which is presupposed to be contextually given, being an element of C.[18] This choice function picks out a contextually salient subset from the powerset of P, which is the set of sets of entities that match the description of the NP restrictor P. This subset is the domain of quantification for the universal quantifier and the nuclear scope Q is asserted to be true of all the entities in this subset.

(699) $[\![every_1]\!]^{C,g} = \lambda P \lambda Q : g(1) \in C . \forall x[x \in [g(1)](Pow(P)) \rightarrow Q(x)]$
Where C is the set of familiar discourse referents, choice functions, and propositions in the context

The cases that allow *just every* are those that allow an interpretation where the domain of quantification is not completely determined by the context – either because it is interpreted relative to possible worlds, or because the vague restrictor signals that the addressee is not expected to recover a specific domain of quantification. I propose that in these latter cases the choice function variable is existentially bound at the highest level as a last resort since the domain is not contextually given.

(700) $[\![every_1]\!]^{C,g} = \lambda P \lambda Q \exists f_1 . \forall x[x \in f_1(Pow(P)) \rightarrow Q(x)]$

The cases with the modals in the restrictor involve a contextually-given choice function; I will discuss how the presence of the modal in the restrictor gives rise to effects similar to existential closure of the choice function in Section 10.7.2.

The preceding discussion provides useful background for addressing why I focus on *every* here and not on the other universal quantifiers *all* or *each*. The domain widening readings are more difficult to get with *just all* and do not seem to be available for *just each*. For *just all*, this is presumably because *all* takes a definite DP restrictor except when interpreted generically (Partee 1995: 583). The overt presence of the definite determiner prevents it from being coerced into having an interpretation where the domain is not contextually given (701a-c).

(701) a. *Context: As in (698a).*
Yes, but he's packing **just all** the things into the car! You need to stop him!

b. *Context: As in (698b).*
#They had **just all** the titles I could think of.

c. *Context: As in (698c).*
?They had **just all** the things you can imagine.

[17] See Kratzer (1998, 2003) for discussion of what it means for a choice function to be familiar.

[18] The denotation in (699) may be an oversimplification since *every* likely just introduces the domain restriction (including the choice function) and requirement that the DP raise to the specifier of a distributive operator; this distributive operator would then contribute the universal quantification (see discussion in, e.g., Szabolcsi 2010).

There are some cases of *just all* that do seem to involve domain widening in parallel to the *just every* cases, however, typically where the NP in the restrictor is *things* (702).

(702) a. *Context: I'm telling my partner how much I appreciate my extended family.*
They always find **just all the things** that make me happy.

b. You can't seem to stay on top of the grocery list, laundry, meals, appointments, phone calls, and **just all the things**.[19]

c. ... Chores. Family. Milo. Huckleberry. Laundry… **just all the things** that get stuck in your mind and you feel like you're doing all the work in your head but nothing's actually getting done.[20]

These cases share a number of similarities with the cases with the cases of *just every* described above: they have an indefinite restrictor and seem to signal that the addressee should not rule out other alternatives that might be under consideration.

Despite their similarity to the cases of *just every* examined in this chapter, however, there are additional complications with these types of examples. They all involve generic/habitual interpretations, rather than episodic ones, and seem to involve quantification over 'kinds of things' rather than sets of individuals. In this way, they differ from the *just every* cases discussed here, and also from the ʔayʔaǰuθəm cases with which they are compared. Because analyzing them would involve introducing semantics for habituals and perhaps kinds, I set these cases aside for now, in the hope that accounting for the *just every* cases will provide the framework to return to these more complex cases in the future.

Otherwise, cases of *just all* that are felicitous typically involve the exclusion of alternatives rather than domain widening:

(703) I'd like to know how to translate just all the posts, but nothing else.[21]

The alternatives excluded in (703), for instance, are alternatives where other content in addition to the posts is translated. Since these cases can be handled by a standard scalar exclusive analysis (excluding alternatives where *more than* all the posts are translated), I do not focus on them here.

As far as I am aware, there are no similar cases where domain widening seems to occur with *just each*. This collocation is certainly not available in any of the contexts where *just every* and *just all* are possible.

(704) a. *Context: As in* (*698a*).
Yes, but he's packing **just each of the things/just each thing** into the car! You need to stop him!

b. *Context: As in* (*698b*).
#They had **just each of the titles/just each title** I could think of.

c. # *Context: As in* (*698c*).
They had **just each of the things/just each thing** you can imagine.

d. *Context: As in* (*702a*).
#They always find **just each of the things/just each thing** that make me happy.

[19] Retrieved Oct. 24, 2021 from https://www.thesimplehomeschooler.com/homeschool-mom-encouragement/.
[20] Retrieved Oct. 24, 2021 from https://getfitwithpaige.com/the-virus-isnt-the-only-thing-thats-contagious-our-energy-is-too/.
[21] Retrieved Oct 24, 2021 from https://wpml.org/forums/topic/hi-id-like-to-know-how-to-translate-just-all-the-posts-but-nothing-else-thx/.

e. # You can't seem to stay on top of the grocery list, laundry, meals, appointments, phone calls, and **just each of the things/just each thing**.

f. #... Chores. Family. Milo. Huckleberry. Laundry...**just each of the things/just each thing** that get stuck in your mind and you feel like you're doing all the work in your head but nothing's actually getting done.

While *just every NP* is a quite restricted collocation in English, it seems that *just each NP* is completely unavailable. The requirement for the domain of *each* to be contextually given seems to be even stronger than for *every*, which may be due to its stronger distributivity requirement and perhaps also the pragmatics involved in choosing the more distributive *each* over *every* (Tunstall see e.g. 1998 for discussion): in order to make a claim that maps each atom in the domain to its own subevent, it may be more necessary to be able to identify exactly the domain of quantification involved, for instance. I will not attempt to account for this difference between *each* and *every* in this chapter, however, but leave this for future research.

10.7 Formal analysis

In this section, I propose an analysis where domain widening occurs in two steps. First, domain alternatives – propositional alternatives to the prejacent that vary in the resource domain of the quantifier – are activated through a combination of context and focus. Then the scalar exclusives function as exhaustivity operators over these alternatives. I argue that the exhaustivity operator does not exclude, but includes these alternatives, effectively widening the domain of the quantifier. In what follows, I introduce Bar-lev and Fox's (2017) exhaustivity operator, which they propose to handle Free Choice disjunction (Section 10.7.1); I adopt the semantics of this operator for *ʔot* /ʔut/ and *just*. I will then provide an account of how the exhaustivity operator achieves domain widening in combination with a universal quantifier (Section 10.7.2).

10.7.1 Bar-lev and Fox's exhaustivity operator

In Free Choice (FC) disjunction, there are two inferences that arise. The first is the scalar implicature that the stronger alternative proposition with conjunction is not true. For instance, from (705a) we infer that Mary is not allowed to have both icecream and cake (705c). The second is the FC inference that both conjuncts are possible (705d); the reading is that each option is permitted, not that only one or the other is the permitted option (this is originally observed in Kamp 1974).

(705) a. Mary can eat the icecream or the cake.

b. Proposition: $\diamond(\alpha \vee \beta)$

c. Scalar implicature: $\neg\diamond(\alpha \wedge \beta)$

d. Free choice inference:
i. $\rightsquigarrow \diamond\alpha$
ii. $\rightsquigarrow \diamond\beta$
iii. $\rightsquigarrow \diamond\alpha \wedge \diamond\beta$

Fox (2007) proposes that the scalar implicature in (705c) is derived by a covert exhaustivity operator *EXH* with the semantic contribution of a scalar exclusive. This operator rules out alternative propositions that are

stronger than the prejacent. However, in the example above, $\diamond\alpha$ and $\diamond\beta$ are both stronger than $\diamond(\alpha \vee \beta)$: $\diamond\alpha$ entails $\diamond(\alpha \vee \beta)$ (since one of α or β is possible, namely $\diamond\alpha$) and $\diamond\beta$ entails $\diamond(\alpha \vee \beta)$ (since one of α or β is possible, namely $\diamond\beta$), but $\diamond(\alpha \vee \beta)$ entails neither (either of $\diamond\alpha$ or $\diamond\beta$ may be the case if $\diamond(\alpha \vee \beta)$ is true). If both $\diamond\alpha$ and $\diamond\beta$ are ruled out, however, this contradicts the prejacent. In order to avoid such contradictions, Fox proposes the notion of *Innocent Exclusion* (here I give a slightly modified version from Bar-Lev and Fox 2017: 5).

(706) **Innocent Exclusion procedure:**

a. Take all maximal sets of alternatives that can be negated consistently with the prejacent.

b. Only exclude (i.e., negate) those alternatives that are members in all such sets—the Innocently Excludable (=IE) alternatives.

This is formalized as in (707) from Bar-Lev and Fox (2017: 7).

(707) a. IE(p, C) = $\cap\{C' \subseteq C$: C' is a maximal subset of C, s.t. $\{\neg q$: $q \in C'\} \cup \{p\}$ is consistent$\}$

We can calculate the Innocently Excludable alternatives for (705a), first listing the maximal sets that can be negated consistently with the prejacent (708).

(708) a. $\{\diamond\alpha, \diamond(\alpha \wedge \beta)\}$

b. $\{\diamond\beta, \diamond(\alpha \wedge \beta)\}$

The only alternative that is found in all such sets is $\diamond(\alpha \wedge \beta)$; this is the IE alternative. Excluding this alternative correctly derives the scalar implicature. In (705), this is the implicature that Mary cannot have *both* the icecream and the cake (705c).

While IE suffices to derive the scalar implicature, it does not derive the FC inference. Following Alonso-Ovalle (2005), Bar-Lev and Fox (2017) treat the FC inference also as a scalar implicature. To derive the FC implicature, Bar-Lev and Fox (2017: 8) propose the notion of *Innocent Inclusion*.

(709) **Innocent Inclusion procedure:**

a. Take all maximal sets of alternatives that can be asserted consistently with the prejacent and with the negation of all IE alternatives.

b. Only include (i.e., assert) those alternatives that are members in all such sets—the Innocently Includable (=II) alternatives.

This is formalized as in (710) from Bar-Lev and Fox (2017: 10).

(710) II(p, C) = $\cap\{C'' \subseteq C$: C'' is a maximal subset of C, s.t. $\{r$: $r \in C'\} \cup \{p\} \cup \{\neg q$: $q \in$ IE(p, C)$\}$ is consistent$\}$

For (705a), there is only one maximal set of alternatives that can be asserted consistently with the prejacent and the negation of all IE alternatives, namely the set in (711).

(711) $\{ \diamond\alpha, \diamond\beta, \diamond(\alpha \vee \beta) \}$

All alternatives in this set are thus Innocently Includable. Note that this set includes the prejacent itself, so that the prejacent is also asserted. For (705), the Innocent Inclusion procedure derives that both the icecream and the cake are permitted options for Mary: the Free Choice inference in (705d).

Bar-Lev and Fox (2017: 7) propose the following denotation for the covert exhaustivity operator (712). The exhaustivity operator asserts that all Innocently Includable propositions are true in *w* and that all Innocently Excludable propositions are false in *w*.

(712) $[\![\text{EXH}^{\text{IE + II}}]\!](C)(p) = \lambda w\, \forall r \in \text{II}(p,C)[r(w)] \wedge \forall q \in \text{IE}(p,C)[\neg q(w)]$

10.7.2 Exhaustification and domain alternatives

In this section, I propose an account of domain widening where *just* and *ʔot* /ʔut/ instantiate Bar-lev and Fox's exhaustivity operator and quantify over domain alternatives. This analysis predicts the domain widening that occurs when these operators occur with universal quantifiers. I showed above that this co-occurrence is permitted where the domain of the quantifier is not fully determined by the context. This is most clearly the case in ʔayʔaǰuθəm, where the restrictor of the quantifier never enforces maximality relative to the context, but I argued that it is also true of a restricted set of cases in English. In cases where the domain of the prejacent is not fully specified, the domain alternatives will neither be entailed by the prejacent nor contradict it. When the exhaustivity operator quantifies over these alternatives, they are ruled in, resulting in domain widening.

I begin by looking at the ʔayʔaǰuθəm cases. As discussed in section 10.6, the restrictor of the universal quantifier *ʔukʷ* /ʔəwkʷ/ is either a DP, denoting a plural individual, or a wh-indefinite pronoun. Neither enforces maximality relative to the context, which means that the domain of the universal will never be fully determined by the context.

For example, in (713), the determiner *tə* introduces a choice function that involves an evidential presupposition and is existentially closed at the sentence level.

(713) *Context: My puppy chewed up all my shoes when I was at an appointment. Exasperated, I phone you up to tell you:*

ʔukʷ **ʔot**	čɛqatəs	tətᶿ qʷołqʷołayšɩn.
ʔəwkʷ=**ʔut**	čaq-at-əs	tə=tᶿ=qʷəł∼qʷəłayšin
all=EXCL	shred-CTR-3ERG	DET=1SG.POSS=PL∼shoe

'She shredded just every one of my shoes!' (sf | BW.2020/10/15)

The prejacent will have the interpretation in (714), where the choice function picks out a plural individual from the set denoted by the NP (following Matthewson 1999, 2001; Szabolcsi 2010). The quantifier ranges over individual parts of the plural individual *tətᶿ qʷołqʷołayšɩn* /tətᶿ qʷəłqʷəłayšən/ 'my shoes' and asserts that my puppy shredded each of them; the Π symbol adopted from (Link 1983) is the individual-part relation, which relates a sum/plural individual to its consituent parts.[22] I assume the third person subject is a null *pro* interpreted by the assignment function.

[22]This representation of the universal quantifier may be an oversimplication, and its representation as at-issue may need revising. Davis (2010, 2013) argues that St'át'imcets quantifiers are not-at-issue since there are no quantifier-scope interactions. ʔayʔaǰuθəm

(714) $[\![$ *ʔəwk̓ʷ ʔut čaqatas pro*$_j$ *t*$_i$*ətᶿ qʷəłqʷəłayšən* $]\!]^g = \lambda w \exists f_i \forall y[y \Pi f_i(my.shoes) \rightarrow chewed(y)(g(j))(w)]$;
defined iff the speaker has current DE for $f_i(P)$

While the denotation in (714) looks quite weak, the implicature of maximality from the determiner means that the universal will still usually be interpreted maximally relative to the context. Focus on the universal quantifier in conjunction with the exhaustivity operator considerably strengthens the assertion, as I show below.

Now that we have a denotation for the prejacent, we can turn to calculating the alternatives. The pre-predicate position of the universal signals focus in this context. I propose that focus on the universal in this context evokes domain alternatives (following Shank (2004) for English *every*). The set of alternatives will then be as in (715): the set of alternative propositions accessible from the context with domains of quantification that 'stand a chance', i.e., that satisfy the presupposition imposed by the determiner and render the at-issue content of the proposition true. I represent just three alternatives (in addition to the prejacent) for ease of exposition.

(715) C = $\{\lambda w \forall y[y \Pi \boldsymbol{f_1}(my.shoes) \rightarrow chewed(y)(g(j))(w)]$,
$\lambda w \forall y[y \Pi \boldsymbol{f_2}(my.shoes) \rightarrow chewed(y)(g(j))(w)]$,
$\lambda w \forall y[y \Pi \boldsymbol{f_3}(my.shoes) \rightarrow chewed(y)(g(j))(w)]$,
$\lambda w \forall y[y \Pi \boldsymbol{f_i}(my.shoes) \rightarrow chewed(y)(g(j)(w))]\}$;
all alternatives defined iff the speaker has current DE for $f(P)$

ʔot /ʔut/, instantiating Bar-Lev and Fox's exhaustivity operator, takes the prejacent and the set of its alternatives as its arguments.

(716) $[\![$ *ʔot* /ʔut/$^{IE + II}$ $]\!](C)(p) = \lambda w\ \forall q \in IE(p,C)\ [\ \neg q(w)\ ] \wedge \forall r \in II(p,C)[\ r(w)\ ]$

The first part of *ʔot* /ʔut/'s contribution is the exclusion of all Innocently Excludable alternatives. Innocently Excludable alternatives are those that appear in all maximal sets of alternatives that can be negated consistently with the prejacent. From the set of alternatives in (715), the maximal sets of alternatives that can be negated consistently with the prejacent are shown in (717).

(717) a. $\{\lambda w \forall y[y \Pi \boldsymbol{f_1}(my.shoes) \rightarrow chewed(y)(g(j))(w)]$,
$\lambda w \forall y[y \Pi \boldsymbol{f_2}(my.shoes) \rightarrow chewed(y)(g(j))(w)]\}$

b. $\{\lambda w \forall y[y \Pi \boldsymbol{f_1}(my.shoes) \rightarrow chewed(y)(g(j))(w)]$,
$\lambda w \forall y[y \Pi \boldsymbol{f_3}(my.shoes) \rightarrow chewed(y)(g(j))(w)]\}$

c. $\{\lambda w \forall y[y \Pi \boldsymbol{f_2}(my.shoes) \rightarrow chewed(y)(g(j))(w)]$,
$\lambda w \forall y[y \Pi \boldsymbol{f_3}(my.shoes) \rightarrow chewed(y)(g(j))(w)]\}$

quantifiers also do not appear to give rise to quantifier scope interactions, though not all the necessary tests have been conducted. On the other hand, the universal quantifier takes scope below negation, which could indicate an at-issue contribution (see Szabolcsi 2010: 119 for similar observations regarding English *all*). I do not fully explore the issue here, as it is not crucial to my purposes. Both an at-issue and a not-at-issue analysis are compatible with my proposal, so long as domain alternatives are generated. For instance, Davis (2013) proposes that the universal in St'át'imcets is a not-at-issue domain adjuster, following Brisson's 2003 proposal for English *all*. If we adopted the same analysis for *ʔuk̓ʷ* /ʔəwk̓ʷ/ the alternatives would be alternatives to the domain of the distributivity operator that accompanies the predicate, while *ʔuk̓ʷ* /ʔəwk̓ʷ/ itself would have a not-at-issue contribution that would limit the possible covers of the universe of discourse. Adopting a standard if oversimplified semantics for the universal simplifies the presentation.

While each of the alternatives in C can be negated consistently with the prejacent, all three cannot be negated simultaneously without contradicting the existential assertion in the prejacent that there is a choice function for the domain of the quantifier. In effect, this means that none of the alternatives appear in every maximal set of alternatives that can be negated consistently with the prejacent, and therefore none are Innocently Excludable.

We now turn to the second part of the contribution of the exhaustivity operator, Innocent Inclusion. Innocent Inclusion rules in all alternatives that appear in all maximal sets that can be asserted consistently with the prejacent and the negation of all Innocently Excludable alternatives. All the alternatives in (715) are consistent with each other and the prejacent, so they form just one maximal set (718).

(718) $\{ \lambda w \forall y[y \Pi \boldsymbol{f_1}(my.shoes) \rightarrow chewed(y)(g(j))(w)],$
$\lambda w \forall y[y \Pi \boldsymbol{f_2}(my.shoes) \rightarrow chewed(y)(g(j))(w)],$
$\lambda w \forall y[y \Pi \boldsymbol{f_3}(my.shoes) \rightarrow chewed(y)(g(j))(w)],$
$\lambda w \exists \boldsymbol{f_i} \forall y[y \Pi \boldsymbol{f_i}(my.shoes) \rightarrow chewed(y)(g(j))(w)] \}$

Since there is only one maximal set that can be asserted consistently with the prejacent and the negation of all Innocently Excludable alternatives (there are no Innocently Excludable alternatives), these alternatives count as being in every maximal set that meets this criteria. All three alternatives are therefore Innocently Includable and asserted along with the prejacent. Since all alternatives, with quantifier domains of various composition and sizes, are now asserted along with the prejacent, a stronger assertion results. The domain of the quantifier is also widened in so far as the prejacent only asserts the existence of a choice function returning the domain of the quantifier, while following exhaustification over the contextually given alternatives, the alternate domains of quantification are all included in the assertion.

The cases with the *kʷ* determiner, including the cases with the indefinite restrictors *tam* 'something' and *gɛt* /gat/ 'someone' which I assume to carry a null *kʷ* determiner, work in parallel, but neither the prejacent nor the alternatives carry a presupposition. This has the interesting effect of making the enriched contribution following combination with the exhaustivity operator stronger. All the contextually provided alternatives will be asserted alongside the prejacent and the set will not be restricted to those that meet a presupposition introduced by the determiner.

To take a concrete example, for (719) (repeated from (673) above), the prejacent will have the denotation in (720) (abstracting away from the intensification contributed by *χʷɛt* /x̌ʷit/ 'really').

(719) *Context: I had made some cookies this morning. This afternoon my brothers come to visit. Not only do they eat the fresh cookies I made, but they eat the package of cookies we kept in the cupboard as a back-up as well. When my partner comes home, I tell him:*

χʷot **ʔot**	ʔukʼʷ	mʊkʷtəs	kʷʊms ṫɪgɪmqɛtən!
x̌ʷit=**ʔut**	ʔəwkʼʷ	məkʷ-t-əs	kʷ=əms=ṫigimqitən
really=EXCL	all	eat-CTR-3ERG	DET=1PL.POSS=sweet.food

'They ate just every one of our cookies!' (vf | BW.2020/10/20)

(720) $[\![\check{x}^w it\ ?ut\ ?əwk'^w\ mək^w tas\ pro_j\ k^w{}_i əms\ \dot{t}igimqitən]\!]^g = \lambda w \exists f_i \forall y[y \Pi f_i(our.cookies) \rightarrow eat(y)(g(j))(w)]$

The alternatives will vary by the choice function; the set of alternatives will be determined by the set of choice functions in the domain of existential closure in the context (i.e., those that stand a chance of identifying the referent).

(721) $C = \{\lambda w \forall y[y \Pi \boldsymbol{f_1}(our.cookies) \rightarrow eat(y)(g(j))(w)],$
$\lambda w \forall y[y \Pi \boldsymbol{f_2}(our.cookies) \rightarrow eat(y)(g(j))(w)],$
$\lambda w \forall y[y \Pi \boldsymbol{f_3}(our.cookies) \rightarrow eat(y)(g(j))(w)]\}$

Once again, the contribution of *ʔot* /ʔut/ as an exhaustivity operator involves both Innocent Exclusion and Innocent Inclusion. Again in this case, there are no Innocently Excludable alternatives. No alternative will occur in every maximal set that can be negated consistently with the prejacent – every maximal set of alternatives that can be negated consistently with the prejacent will have to be missing one of the alternatives, otherwise the existential assertion of the prejacent would be contradicted. On the other hand, all the alternatives can be asserted consistently with the prejacent and will be Innocently Included.

Since the set of alternatives involved when *kʷ* introduces the restrictor of the quantifier is not restricted to those meeting an evidence presupposition, more alternatives are potentially evoked and included than in contexts where the *tə* or *šɛ* /šə/ determiners are used. This means that domain widening is less restricted with *kʷ* than with *tə* or *šɛ* /šə/, potentially resulting in a greater degree of domain widening and a stronger assertion.

The English cases are more restricted, but work in parallel. We saw previously that the scalar exclusive *just* only combines with the universal where the domain of the quantifier is not clear from the context (as in (722a), repeated from (698a) above) and/or involves a restrictor with a modal operator so that the extent of the domain must be interpreted relative to possible worlds (as in (722b–722c), repeated from (698b–698c) above).

(722) a. *Context: Daniel was in charge of bringing food for a gathering. We'd already made a list and set the food aside, but he got worried about whether there would be enough and started to pack more and more things into the car. Gloria was with him while he was doing this, but I was busy upstairs. Finally, Gloria comes to get me, and I ask her if Daniel has gotten everything on the list into the car. She replies:*
Yes, but he's packing **just** EVERYTHING into the car! You need to stop him!

b. *Context: I'm telling you about a new book store that I've found that I'm very excited about.*
They had **just** EVERY TITLE I could think of.

c. *Context: Talking about a giant department store:*
They had **just** EVERYTHING you can imagine.

I therefore propose that the domain of the quantifier in the prejacent is not fully determined by the context in these cases. In the cases that involve a modal, this is independently predicted. I give a simplified denotation of the prejacent for (722c) in (723a). Following Szabolcsi (2010), f is a contextually given choice function that selects an element from the powerset of the NP, in this case *thing that you can imagine*;[23] as in Section

[23] In order to have a powerset for this example, we have to assume that there is a finite subset of possible worlds that are accessible from the context and these form the domain of quantification for the universal quantifier.

10.6.2, I model the requirement that the choice function be contextually given as a presupposition. Because the choice function is provided by the context, it returns the maximal set matching the restrictor relative to the context. The presence of the modal in the restrictor means that the domain of quantification is dependent not just on the context, however, but on possible worlds. Given that the domain of the quantifier varies with possible worlds, I propose that the domain alternatives are generated as in (723b).[24,25]

(723) a. Prejacent: $[\![\textit{They}_i \textit{ had just every}_j \textit{ thing you could imagine}]\!]^{g,C} = \lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : \exists w'[imagine(x)(you)(w')]\})) \rightarrow had(x)(g(i))(w)]$;
defined iff $g(j) \in C$

b. $C = \{\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_1)]\})) \rightarrow had(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_2)]\})) \rightarrow had(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_3)]\})) \rightarrow had(x)(g(i))(w)], \ldots \}$

Just combines with the prejacent and set of alternatives C, contributing the semantics of Bar Lev and Fox's 2017 exhaustivity operator.

(724) $[\![\, just^{\mathrm{IE}+\mathrm{II}} \,]\!](C)(p) = \lambda w\, \forall q \in \mathrm{IE}(p,C)[\, \neg q(w)\,] \wedge \forall r \in \mathrm{II}(p,C)\, [\, r(w)\,]$

It first Innocently Excludes any alternatives that are members of all maximal sets of alternatives that can be negated consistently with the prejacent. Much like for the ʔayʔaǰuθəm cases above, while each alternative in C can be negated consistently with the prejacent, they cannot all appear in the same maximal set of alternatives that can be negated consistently with the prejacent without denying the claim that the choice function chooses a domain for the quantifier that allows the prejacent to be true in at least one possible world. This means that in every maximal set of alternatives that can be negated consistently with the prejacent, at least one alternative will be absent, meaning that no alternative appears in every maximal set that can be negated consistently with the prejacent. Illustrating with just three alternatives in C, the maximal sets that could be negated consistently with the prejacent are shown in (725). None of the alternatives will appear in all such maximal sets, so none of the alternatives will be Innocently Excludable.

(725) a. $\{\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_1)]\})) \rightarrow had(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_2)]\})) \rightarrow had(x)(g(i))(w)]\}$

b. $\{\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_1)]\})) \rightarrow had(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_3)]\})) \rightarrow had(x)(g(i))(w)]\, \}$

[24] Use of $\in$ for the English cases instead of Π as in the ʔayʔaǰuθəm cases reflects the different syntax of these examples; the restrictor in ʔayʔaǰuθəm is a DP of type e, but in English the restrictor is an NP of type $\langle e,t \rangle$.

[25] This account correctly predicts that *just* will not be felicitous in cases with a strong modal in the restrictor, as in (i).

(i) *Context: I'm telling you about a new book store that I've found that I'm very excited about.*
They had (#**just**) EVERY TITLE I had to get.

In these cases, domain widening cannot occur: the restrictor is asserted to hold in all accessible possible worlds and the alternatives must either also hold of this set of accessible possible worlds, or some subset. In either case, the alternatives would be entailed by the prejacent and no domain widening would occur when they are Innocently Included. As a result, *just* cannot contribute domain widening and is not felicitous. See Menendez-Benito (2005) for an in-depth discussion of similar restrictions concerning strong modals scoping over free choice items.

c. $\{ \lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_2)]\})) \rightarrow had(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_3)]\})) \rightarrow had(x)(g(i))(w)], \ldots \}$

The exhaustivity operator will then include all alternatives that are members of all maximal sets that can be asserted consistently with the prejacent and the negation of all Innocently Excludable alternatives. Since there are no Innocently Excludable alternatives and all the alternatives can be asserted consistently with the prejacent and each other, they will appear in one such maximal set (726) and will thus be all Innocently Includable.

(726) $\{\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_1)]\})) \rightarrow had(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_2)]\})) \rightarrow had(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : [imagine(x)(you)(w_3)]\})) \rightarrow had(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in [g(j)](Pow(\{x : thing(x)\} \cap \{x : \exists w[imagine(x)(you)(w)]\})) \rightarrow had(x)(g(i))(w)]\}$

All these alternatives are asserted along with the prejacent, resulting in a stronger assertion and the inclusion of entities from all alternative domains of the quantifier. Once again this has the effect of domain widening.

Where there is no modal, but the domain of the quantifier is not clear from the context, I propose that the choice function is existentially closed. I assume that existential closure of the choice function is a last resort: usually the choice function must be contextually given, and if it is not contextually provided, infelicity results (as in (697a)). However, cases like (722a) escape infelicity since it is clear that the addressee is not expected to recover a specific, contextually-salient set: this is signalled by the use of a vague restrictor *thing*. I therefore give the prejacent in (722a) the denotation in (727a). The alternatives have different possible values for the choice function.[26]

(727) a. Prejacent: $[\![(722c)]\!]^g = \lambda w \exists f_j \forall x\, [x \in f_j(Pow(thing)) \rightarrow packing(x)(g(i))(w)]$

b. $C = \{ \lambda w\, \forall x\, [x \in \boldsymbol{f_1}(Pow(thing) \rightarrow packing(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in \boldsymbol{f_2}(Pow(thing) \rightarrow packing(x)(g(i))(w)],$
$\lambda w\, \forall x\, [x \in \boldsymbol{f_3}(Pow(thing) \rightarrow packing(x)(g(i))(w)], \ldots \}$

Again, the contribution of *just* is to negate all Innocently Excludable alternatives and assert all Innocently Includable alternatives. Just as in the analyses of the previous examples, there are no Innocently Excludable alternatives. If every alternative appeared in the same maximal set of negated alternatives, the existential assertion in the prejacent that there is a choice function that can pick out the domain of quantification would be contradicted. For every maximal set of negated alternatives, then, there must be at least one alternative that is not included. On the other hand, the alternatives can all belong to the same maximal set that is asserted consistently with the prejacent and with the negation of Innocently Excludable alternatives (since there are none), so the alternatives will all be Innocently Includable. Once again, this results in a stronger assertion than the prejacent, and one where the quantificational domain includes entities from all alternative domains given by the context, resulting in domain widening.

Before leaving this section, I examine how the semantics I have proposed for *ʔot* /ʔut/ and *just* derive the canonical scalar exclusive reading. I revisit (654B'), repeated below as (728). In this case, the number *saʔa* 'two' in the nominal predicate *saʔa χʷaχʷɩt* /saʔa x̌ʷax̌ʷit/ 'two eggs' is focused giving rise to the alternatives.

[26] Existential closure of the choice function would result in a proposition that is far too weak, except that these cases always involve domain widening, either with the overt exhaustivity operator *just* or a covert version of this operator.

(728) ʔɛʔ, saʔa **ʔot** χʷaχʷɩt kʷ nisxʷən.
ʔiʔ saʔa=**ʔut** x̌ʷax̌ʷit kʷ=niš-sxʷ-an
yes two=EXCL egg DET=be.here-CAUS-1SG.ERG.SBJ
'Yes, I have just two eggs left.' (sf | BW.2020/11/19)

The denotation of the prejacent is given in (729a); the choice function in this case determines the referent of the headless relative clause *kʷ nisxʷən* /kʷ nišsxʷan/ 'what/the ones I have' that is the argument of the nominal predicate. The alternative set, with just three alternatives plus the prejacent for simplicity, is given in (729b):

(729) a. Prejacent: $[\![(728)]\!]^g = \lambda w \exists f[[\lambda x.\ two\ eggs(x)](f(Pow(I\,have)))(w)]$

b. $C = \{ \lambda w \exists f[[\lambda x.\textbf{\textit{one}}\ egg(x)](f(Pow(I\,have)))(w)],$
$\lambda w \exists f[[\lambda x.\ \textbf{\textit{two}}\ eggs(x)](f(Pow(I\,have)))(w)],$
$\lambda w \exists f\ [[\lambda x.\ \textbf{\textit{three}}\ eggs(x)](f(Pow(I\,have)))(w)],$
$\lambda w \exists f\ [[\lambda x.\ \textbf{\textit{four}}\ eggs(x)](f(Pow(I\,have)))(w)]\ \}$

The scalar exclusive *ʔot* /ʔut/ combines with the prejacent and excludes all Innocently Excludable alternatives. For simplicity we limit ourselves to just the three alternatives in (729b). In this case, the maximal set of alternatives that can be negated consistently with the prejacent is given in (730).

(730) $\{ \lambda w \exists f[[\lambda x.\ \textbf{\textit{three}}\ eggs(x)](f(Pow(I\,have)))(w)],$
$\lambda w \exists f[[\lambda x.\ \textbf{\textit{four}}\ eggs(x)](f(Pow(I\,have)))(w)]\ \}$

Since there is only one such set, these alternatives are all Innocently Excludable and ruled out. We turn next to the Innocent Inclusion contribution of the scalar exclusive. There is only one alternative that can be asserted consistently with the prejacent and the negation of all Innocently Excludable alternatives. There is therefore only one maximal set of alternatives meeting this criterion, which includes only this alternative and the prejacent itself:

(731) $\{ \lambda w \exists f[[\lambda x.\textbf{\textit{one}}\ egg(x)](f(Pow(I\,have)))(w)],$
$\lambda w \exists f[[\lambda x.\ \textbf{\textit{two}}\ eggs(x)](f(Pow(I\,have)))(w)]\ \}$

This single alternative and the prejacent are therefore Innocently Included – though inclusion of the alternative is vacuous, since it is already entailed by the prejacent.

The exhausitivity operator analysis excludes all higher/stronger alternatives, just as in standard analyses of scalar exclusives. In fact, Bar-Lev and Fox (2017) propose a nearly parallel analysis for *only*, differing only in proposing that the Innocent Inclusion portion of the denotation is presupposed. I have represented the Innocent Inclusion portion of the denotation as at-issue throughout, partially for simpler exposition and partly because in English the domain widening associated with the Innocent Inclusion portion of the denotation seems to be at-issue. It is possible to find the combination of scalar exclusive with universal quantifier under negation, and where this configuration occurs, it seems to be the domain-widened meaning that is negated:

(732) a. *Context: A sibling is complaining about her older sibling being given the job of packing for an outing. She tells her mother: He'll pack just everything again! She replies:*
Look, he didn't pack just everything. He only packed a few necessary things.

b. Money is not just everything.[27]

c. By first understanding yourself, you have a better idea of what is useful to you and what isn't, and from there you build on only what's relevant, not just everything.[28]

Note that negating the Innocent Inclusion component of the scalar exclusive's contribution also involves negating the prejacent, since the assertion of the prejacent takes place along with the assertion of other Innocently Includable alternatives. Empirically, this seems to be correct, as shown most clearly in (732a), where the follow-up sentence *He only packed a few necessary things* makes it clear that the prejacent with *every* is not presupposed to hold even of some non-widened domain.

Just also seems to behave as expected under this analysis when occurring with a canonical scalar exclusive contribution. Since both the Innocent Exclusion and Innocent Inclusion components are at-issue and appear as a conjunction, negation scoping over *just* should be able to negate either of the conjuncts. This appears to be correct. In (733a), negation targets the Innocent Exclusion component. In (733b), negation targets the Innocent Inclusion component; (733b) is not contradictory as would be expected if the prejacent were presupposed.[29]

(733) a. *Context: My co-worker is very generous. I forgot my wallet at home, so I couldn't pay for the parking meter. I ask him for two dollars for the meter.*
He didn't lend me **just** two dollars when I asked, he gave me ten so I could get coffee too!

b. *Context: My co-worker is quite stingy. I forgot my wallet at home, so I couldn't pay for the parking meter. I ask him for two dollars for the meter.*
He wouldn't/?didn't (even) lend me **just** two dollars when I asked, so I had to walk all the way to the bank!

Negation involves a bi-clausal construction in ʔayʔaǰuθəm (see Davis 2005b for discussion of Salish negation) complicating the investigation of parallel examples. The analysis would not change substantially if the Innocent Inclusion part of the contribution was not-at-issue in ʔayʔaǰuθəm, however.

10.8 Extending the analysis: *any*

This approach extends quite naturally to the analysis of Free Choice *any*. This is perhaps unsurprising as Bar-Lev and Fox's exhaustivity operator was originally proposed to handle Free Choice disjunction. The purpose of this chapter has been to extend its use to cases where domain alternatives are involved. Building on an

[27] Retrieved November 15, 2021 from https://www.assk.in/blog/why-going-for-a-career-in-the-banking-industry-can-be-the-best-decision-of-your-life/

[28] Retrieved November 15, 2021 https://medium.com/personal-growth/bruce-lee-how-to-think-like-nobody-else-f01ea7804eba

[29] As a direct minimal pair with (732a), *He didn't lend me just two dollars when I asked* (732b) is somewhat awkward. A possible explanation for the awkwardness might be the fact that the Innocent Inclusion component of the exclusive only contributes that the prejacent is true in these cases, and so there is not generally any reason not to use the plain prejacent under negation rather than the utterance with the scalar exclusive, unless highlighting that the prejacent is contrasted with alternatives, which may be why *even* improves the utterance: *He didn't even lend me just two dollars when I asked.* The sentence is also better with *wouldn't* instead of *didn't*, but I don't have an explanation for this contrast right now.

analysis of Free Choice *any* where it involves domain alternatives (Chierchia 2006), the analysis developed here is naturally extended to account for *any*.

According to Chierchia's analysis, *any* asserts that there is an entity in the domain *D* in some world *w'* that matches the description of the restrictor *P* in *w'* and for which the predicate *Q* holds in the evaluation world *w*. The alternatives involve all possible subdomains of *D* that stand a chance (have at least one entity matching the restrictor) (734b).

(734) a. $\text{any}_{\text{D}} = \lambda P\ \lambda Q\ \exists w'\ \exists x \in D_{w'}\ [P_{w'}(x) \wedge Q_w(x)]$

b. $\text{ALT}\ (\text{any}_{\text{D}}) = \{\lambda P\ \lambda Q\ \exists w'\ \exists x \in D'_{w'}\ [P_{w'}(x) \wedge Q_w(x)]\text{: } D' \subseteq D \wedge D' \cap \lambda x\ \exists w'[P_{w'}(x)] \neq \emptyset\}$

(Chierchia 2006: 562)

Applying the analysis to an example such as (735) (based on Chierchia 2006: 561), we get the denotation for the prejacent in (736a) and for the alternative propositions in (736b), where the alternatives involve specific subdomains of quantification.[30]

(735) Yesterday, I talked with (just) any student that came to see me.

(736) a. $\exists w'\ \exists x \in D_{w'}\ [student_{w'}(x) \wedge talked.with_w(I,x)]$
Abbreviated: some_{D}(student)(λx I talked.with x)

b. Potential alternative assertions: $\text{some}_{\text{D}_\text{i}}$(student)($\lambda$x I talked.with x), for any $\text{D}_\text{i} \subset \text{D}$

Chierchia (2006: 561) argues that because the speaker didn't choose a specific subset of the domain, the hearer assumes the speaker does not have evidence for a specific smaller domain; this results in the FC implicature that no entity that could count as a student in the context (and came to see the speaker) is excluded. Chierchia ultimately proposes a null anti-exhaustivity operator to derive this implicature.

While Bar-Lev and Fox (2017) do not examine FC indefinites, their analysis can be extended to account for these cases, which has the advantage of deriving the FC implicature with the independently motivated *EXH* operator. I show how this can be accomplished below.

Following Chierchia, we can represent the domain alternatives for an utterance such as (735) as a complete join semilattice, as in (737).

(737)

	D = {a,b,c}	
D1 = {a, b}	D2 = {b,c}	D3 = {a,c}
D4 = {a}	D5 = {b}	D6 = {c}

Given the alternative domains in (737), we can represent the alternatives for (735) as in (738) (this assumes there are only three students).

[30]Here I ignore the subtrigging relative clause for simplicity of exposition. Chierchia (2006: 564–565) proposes that the obligatoriness of such a clause arises because it anchors the reference of the DP to the real world, while the reference of the head noun is evaluated in a world that is a variable bound by existential closure.

(738) $\{ \exists x \in \{a,b,c\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{a,b\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{a,c\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{b,c\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{a\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{b\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{c\}[student(x) \wedge talked.with_w(I,x)] \}$

Based on this set of alternatives, the maximal sets of alternatives that can be negated consistently with the prejacent are those in (739).

(739) a. $\{ \exists x \in \{a,b\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{a\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{b\}[student(x) \wedge talked.with_w(I,x)] \}$

b. $\{ \exists x \in \{a,c\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{a\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{c\}[student(x) \wedge talked.with_w(I,x)] \}$

c. $\{ \exists x \in \{b,c\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{b\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{c\}[student(x) \wedge talked.with_w(I,x)] \}$

It is not possible to include every alternative in the same maximal set of negated alternatives without contradicting the existential claim in the prejacent. This means that there is no alternative belonging to every one of these sets, and therefore no Innocently Excludable alternatives. Since the alternatives are all consistent with each other, they form a single maximal set of alternatives that can be asserted consistently with the prejacent, and are therefore Innocently Includable:

(740) $\{ \exists x \in \{a,b,c\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{a,b\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{a,c\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{b,c\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{a\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{b\}[student(x) \wedge talked.with_w(I,x)],$
$\exists x \in \{c\}[student(x) \wedge talked.with_w(I,x)] \}$

Since these alternatives will all be asserted, this derives the quasi-universal reading of *any* without resorting to universal quantification, just as in Chierchia's (2006) analysis, but without requiring the anti-exhaustivity operator he adopts.

10.9 Conclusion

In this chapter, I argued that *ʔot* /ʔut/ is a scalar exclusive operator. I then proposed that the co-occurrence of scalar exclusives with universal quantifiers in ʔayʔaǰuθəm and English results in domain widening. I adopted

the semantics of Bar-Lev and Fox's (2017) exhaustivity operator for both *ʔot* /ʔut/ and *just*, so that they both rule out and rule in alternatives. When scalar alternatives are involved and the prejacent is not at the top of the scale, they exclude higher/stronger alternatives, which appear in every maximal set that can be negated consistently with the prejacent; this results in a canonical scalar exclusive reading. When domain alternatives are involved which neither entail nor are entailed by the prejacent, the scalar exclusives do not exclude the alternatives but include all alternatives that can occur in every maximal set that can be asserted consistently with the prejacent (and the negation of excluded alternatives); this results in domain widening. Finally, I extended the analysis to account for Free Choice *any*, building on the analysis proposed in Chierchia (2006).

This analysis predicts scalar exclusives to co-occur with universal quantifiers cross-linguistically to contribute domain widening. It also raises the possibility that scalar exclusives could have a similar contribution when associating with other lexical items picking out the top of a scale such as superlatives (*You're just the best!*) and perhaps the class of Extreme Degree Adjectives described in Morzycki (2012) (*It was just gigantic!*). Both of these lines of investigation are left for future research.

Chapter 11

Discourse particles

11.1 Introduction

In this chapter, I examine three clitics, *ʔit* /ʔəyt/, *ga*, and *χʷot* /x̆ʷət/, which I categorize as discourse particles (as well as touching on *gi*, which alternates with *ga* in imperatives). These clitics all occur at or near the end of the clitic string. They contribute meanings relating to discourse moves and discourse context. In particular, they convey information about whether the speaker considers the propositional content of the utterance to be in the common ground (*ʔit*) /ʔəyt/, how the speech act connects to preceding discourse (*ga*), and whether the speaker is committed to the truth of the utterance (*χʷot* /x̆ʷət/).

While I draw descriptive generalizations, I do not provide full formal analyses in this chapter. The contributions of discourse particles are difficult to determine even in well-studied languages such as German (e.g. Grosz 2020). The same is true in ʔayʔaǰuθəm, and the particles discussed in this chapter are the least well-understood of the elements discussed in this dissertation. My goal here is therefore to lay out the core empirical generalizations for each of these clitics and provide preliminary analyses, with more formal analyses left for future work.

Certain aspects of the meaning of these particles need further testing, such whether they provide at-issue or not-at-issue content. If they are not-at-issue, a further question concerns whether their contribution is presuppositional or use-conditional (see Grosz 2020 and references therein). However, in order to conduct tests for at-issueness and subtypes of not-at-issue content, it is necessary to first have a base characterization of their meaning (e.g., in order to tell whether it has been targeted in negation or projects in questions). The generalizations provided here are meant to lay the groundwork for this next stage of research.

These particles have not figured prominently in prior work. As noted in Section 1.5, Watanabe (2003: 509–531) provides a very useful list of clitics that includes the discourse particles along with examples, but writes that *ʔit* /ʔəyt/ is 'not well understood at all' (p. 513) and that the use of *ga* in declaratives 'is not clear' (p. 518). For *χʷot* /x̆ʷət/, he provides more information, noting that 'this clitic indicates that what is described by the clause is hypothetical, and hence often translatable as 'it seems that/like' and 'I think/guess that" (p. 529). Despite the seemingly epistemic nature of *χʷot* /x̆ʷət/ by this description, however, Watanabe does not discuss whether its distribution is similar to epistemic modals such as the inferential *c̓ɛ* /c̓a/ and the adverb *qʷayɩn* /qʷayin/ 'maybe' discussed in Chapter 6. J. Davis (2012b) provides discussion and analysis of *ga*, which I build on here, but though his characterization accurately identifies its 'softening' effect, his analysis does not make clearly testable predictions about its distribution.

11.2 Outline of chapter

In Section 11.3, I first discuss the morphosyntax of the discourse particles and the puzzles they raise for compositionality and word order. In Section 11.4, I then lay out some background on the discourse model I will be assuming. I then examine the contribution of *ʔit* /ʔəyt/ in Section 11.5, *ga* in Section 11.6, and *χʷot* /x̆ʷət/ in Section 11.7.

11.3 Morphosyntax of discourse particles and order of composition

Each of the discourse particles discussed here contributes information relating to the speech act. They should therefore compose at the speech act level, above all the other clitics (and all other clausal material). I argued in Chapter 2 that the linear order in the clitic string generally matches the clitics' syntactic height and order of semantic composition. According to this logic, the discourse particles should compose late in the derivation, and should therefore occur at the highest point in the tree, corresponding to initial positions in the clitic string.

This is not the case. The discourse particles are ordered at or near the end of the clitic string, despite conveying information that relates to the whole proposition, including other clitics with truth-conditional content. I show this below for *ga*, *ʔit* /ʔəyt/, and *χʷot* /x̆ʷət/ in turn.

ga has a linking function, often translated with *so* in English, that applies to the whole clause, including other clitics. This is illustrated in (741), where the utterance linked by *ga* to the preceding sentence is about a future event of going to the store. The future must therefore be part of the proposition that *ga* links to the preceding sentence.

(741) *Context: I've been having trouble finding my favourite brand of condensed milk since some of the stores stopped carrying it. Then Gail tells me she can sometimes find it at a little corner store. I tell you:*

tatawθiyəm	Gail	nɛstom k̓ʷa	[ʔə] šɛ xʷuxʷǰumayɛ	kʷ *milk*
ta∼taw-θiy-əm	Gail	niʔ-stu-m=k̓ʷa	[ʔə=]šə=xʷu<xʷ>ǰumaya<ʔ>	kʷ=*milk*
PROG∼tell-1SG.OBJ-PASS	Gail	be.there-CAUS-PASS=RPT	OBL=DET=store<DIM>	DET=milk

ʔətθ χaƛ̓.	hotθ**a ga**	k̓ʷʊt.
ʔətθ=x̆aƛ̓.	hu=tθ=**a**=**ga**	k̓ʷə[n]-t.
1SG.POSS=want	go=1SG.SBJ=FUT=DPRT	see-CTR

'Gail told me the little store has the milk I want, so I'm going to go see.' (sf | EP.2021/04/16)

Nevertheless, the discourse particle *ga* occurs fairly late in the clitic string, following the future clitic ((741) and (742)) but preceding *ʔot* /ʔut/, the scalar exclusive (742).

(742) *Context: Gloria looks at the clock and realizes that it's already 1 am. She had been planning to text Daniel about something but thinks he might be sleeping now.*

čɛtθ**a gut**	qʷeqʷaysxʷ	qəǰi səm	kʷi.
ča**ʔat**=tθ=**a**=**ga**=**ʔut**	qʷi∼qʷay-sxʷ	qəǰi=səm	kʷəǰ
then=1SG.SBJ=FUT=DPRT=EXCL	PROG∼talk-CAUS	still=FUT	break.light

'So, I'll just talk to him tomorrow.' (vf | EP.2020/09/18)

The discourse particle *ʔit* /ʔəyt/ marks the proposition as something the speaker thinks should be already known to the hearer and is often translated 'of course'. Like *ga*, *ʔit* /ʔəyt/'s contribution relates to the whole proposition including other clitics. In (743a), *qał* contributes quantification over past times (see Section 9.6.2) and is translated here as 'yet'. It forms part of the at-issue content marked with *ʔit* /ʔəyt/ as something the speaker thinks that should be known to the addressee. Similarly, in (743b), since the other characters are ruled out, the speaker marks the inference that the character is Roger as something that should already be obvious to the addressee.

(743) a. *Context: I'm making dinner with my friend. We put a roast in the oven not too long ago, but she's already checking it and says xʷaʔ qəł čɛχəs 'It's not cooked yet'. I respond:*

xʷaʔ **qəł ʔit**	čɛχəs.	χʷoχʷmot	ʔi	taʔat	čɛχ
xʷaʔ=**qał**=**ʔəyt**	čəx̌=as	x̌ʷux̌ʷ-mut	ʔiy	taʔat	čəx̌
NEG=NLQ=DPRT	get.cooked=3SBJV	long.time-INT	CONJ	then	get.cooked

'Of course it's not cooked yet! It will be a long time before it's cooked.' (sf | EP.2022/05/20)

b. *Context: In a guessing game (based on Guess Who) where the speaker is trying to guess which character the other player has, based on their characteristics. Having ruled out the other possibilities, the speaker says:*

hɛ **čɛ ʔit**	Roger.
hiɬ=**ča**=**ʔəyt**	Roger
COP=INFER=DPRT	Roger

'Then it must be Roger.' (vf | EP.2019/06/30)

Nevertheless, *ʔit* /ʔəyt/ is string final, occurring after negation-licensed *qał* (743a), as well as other clitics earlier in the string, such as the inferential (743b).[1]

χʷot /x̌ʷət/ indicates a lack of speaker commitment, often translated with 'seems like'. Like *ga* and *ʔit* /ʔəyt/, *χʷot* /x̌ʷət/ relates to at-issue content including other at-issue clitics. In (744), *ʔot* /ʔut/ contributes scalar exclusive semantics (see Section 10.4) to the at-issue content of the proposition (translated with 'just'). The lack of speaker commitment applies to the entire propositional content including the contribution of the scalar exclusive.

(744) *Context: I saw a dorsal fin of an orca, and I'm trying to figure out if it's with its pod. It is a distance away and I keep thinking maybe I see another fin but then concluding it is actually a wave. In the end I tell you:*

pɛpayɛ **ʔot χʷot**	tə nənqəm.
pipaya=**ʔut**=**x̌ʷət**	tə=nənqəm
one.person=EXCL=DPRT	DET=orca

'It seems like it's just on its own.' (sf | EP.2022/05/20)

The position of the discourse particle *χʷot* /x̌ʷət/ has not yet been fully determined, since I have not managed to find or elicit it co-occurring with either negation-licensed or past-perspective *qał*, or the discourse

[1] I have not determined whether *ʔit* /ʔəyt/ and *χʷot* /x̌ʷət/ can co-occur, and if so, in what order.

particle *ʔit* /ʔəyt/ so far. Since *χʷot* /x̌ʷət/ is the least frequently occurring and least understood clitic, it is difficult to know if this points to co-occurrence restrictions for these combinations of clitics or if contexts where they are felicitous in combination are just rare. *χʷot* /x̌ʷət/ follows both *ga* and the scalar exclusive *ʔot* /ʔut/, as shown in (744) above and (745) below.

(745) *Context: I go to get my camera for a family photo. I could swear I had left it in the other room, but when I go to get it, it's not there. I come back and say:*

χʷɛtč **ga χʷot**	kʷaʔtoɬ	θohna	ʔi	xʷukʷt.
x̌ʷit=č=**ga**=**x̌ʷət**	kʷəʔ-t-uɬ	θuhna	ʔiy	xʷukʷt
really=1SG.SBJ=DPRT=DPRT	put-CTR-PST	other.room	CONJ	not.exist

'I thought I put it in the other room, but it's not there.' (sf | EP.2022/02/04)

For now, I assume that *χʷot* /x̌ʷət/ occurs at the end of the clitic string, like *ʔit* /ʔəyt/.

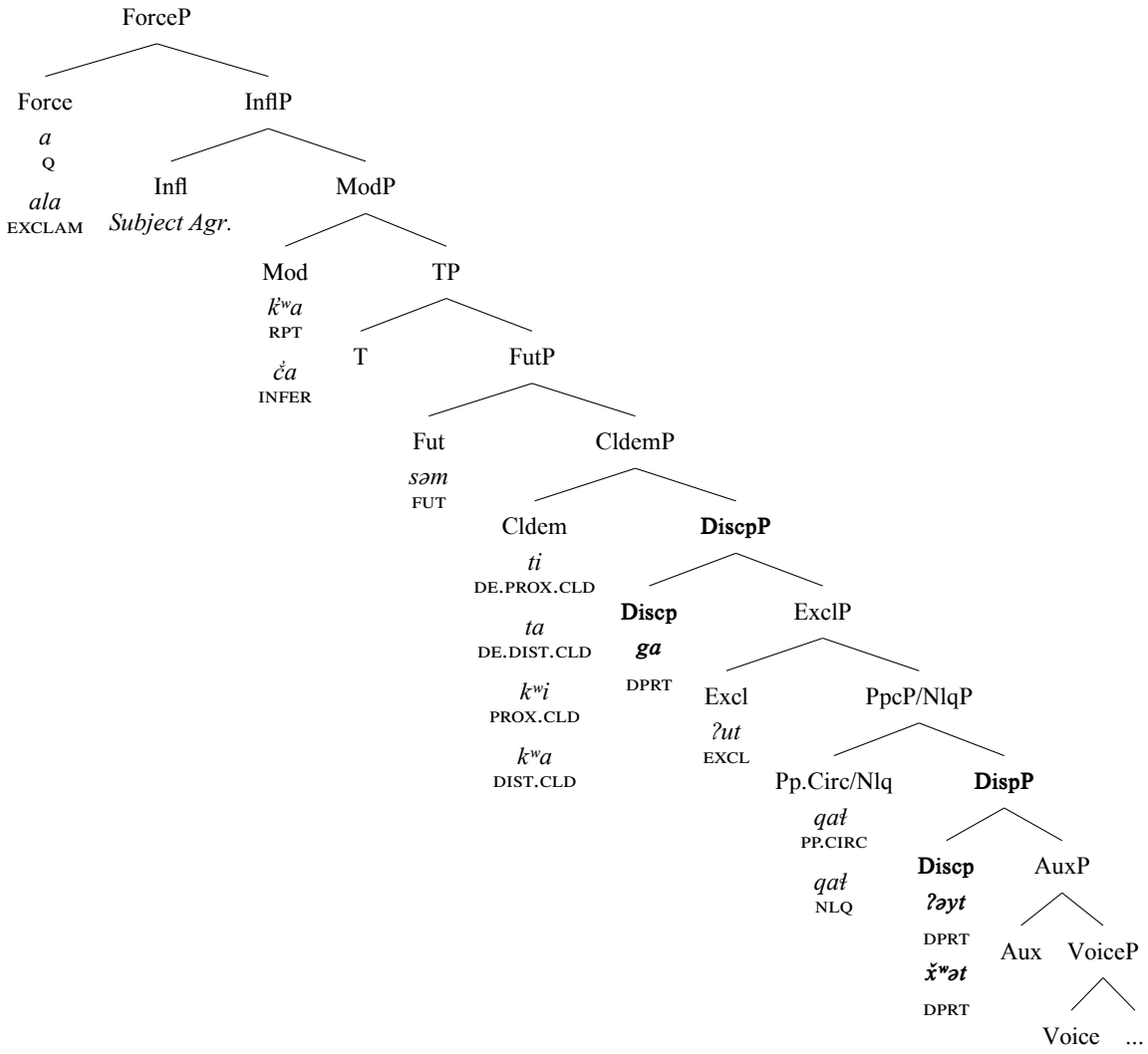
The positions of the discourse particles, at or near the end of the string, are illustrated in Table 11.1.

Table 11.1: Discourse particles in the clitic string

Force		Subject		EpstMod		Fut	ClDem		Other						
a	Q	č	1SG.SBJ	c̓a	INFER	səm/saʔ FUT	ti	CLD	**ga**	DPRT	ʔut EXCL	qaɬ	PP.CIRC	**ʔəyt**	DPRT
ala	EXCLAM	čxʷ	2SG.SBJ	k̓ʷa	RPT		ta	CLD	**gi**	DPRT		qaɬ	NLQ	**x̌ʷət**	DPRT
		št	1PL.SBJ				kʷi	CLD							
		čap	2PL.SBJ				kʷa	CLD							
		∅	3SBJ												

By default mapping from syntax to linear order, these linear positions in the string would correspond to low syntactic positions, as shown in (746).

(746)



Above, however, I showed that these clitics compose with propositions that include other clitics that occur higher in this tree.

For the other clitics, I have argued that the order of composition matches the height in the tree and maps to a left-to-right order (except where encliticization disrupts this). Under these assumptions, however, there is a mismatch between the discourse particles' syntactic position and the order in which the discourse particles compose relative to other clitics.

The fact that it is specifically the discourse particles which display this mismatch between order and height of composition seems significant. The discourse particles contribute only not-at-issue content, which is scopeless, and contribute meanings which are peripheral to the clause as a whole. The other clitics, with the exception of subject agreement, contribute at-issue content (sometimes accompanied by not-at-issue content) and take scope where they compose, in the positions where they are merged in the syntax.

11.3.1 Cross-Salishan evidence

Across Salish languages with second-position clitics, the order of force markers, modals, tense markers, and scalar exclusives relative to each other is quite stable (though several positions are sometimes collapsed into one): force markers > inferentials and reportatives > future and past markers > exclusive-type operators

(Davis 2005a).[2] The positions occupied by discourse particles differ between languages, however. The tables for a few of the better-described clitic strings are given below, with the discourse particles bolded for illustration; note that the categorization of certain particles in SENĆOŦEN (Saanich, Northern Straits Salish) and həńq̓əmiṅəm̓ (Musqueam) as discourse particles is my own, based on the descriptions of their functions found in Montler (1986) and Suttles (2004).[3,4]

Table 11.2: Discourse particles in SENĆOŦEN (Saanich, Northern Straits Salish)

Force		Modality		Tense		Sbj.Agr.	Varied	
ə	Q	**c̓ə?**	'evidential'	lə?	PST		**q̓ə?**	EMPH
čə	IMP	yəq	OPT	sə?	FUT		**kʷə?**	'informative'
		yəxʷ	INFER				**kʷəče**	'explanative'
							?ače	'request info.'
							helə	'2 pluralizer'
							?aḷ	EXCL

(based on Czaykowska-Higgins and Leonard 2015: 1732 and Montler 1986: 201)

Table 11.3: Discourse particles in həńq̓əmiṅəm̓ (Musqueam) (based on Suttles 2004: 368)

-əɬ	?ə	yəxʷ	Sbj.Agr.	c̓ə	ce?	?aḷ	**m̓ə**	**kʷə**	kʷɬ	wa?	?a?a
PST	Q	INFER		RPT	FUT	EXCL	CERT	'then/therefore'	'yet'	'presum.'	Q(emph.)
					?e	ɬə	**?ewəɬ**	c̓twa?	**q̓ə**		
					PL.IMP	IMP/OPT	REAS	'speculative'	EMPH		
						yeɬ		**θəɬ**			
						EXP		ADVER			

Table 11.4: Discourse particles in St'át'imcets (Lillooet) (based on Van Eijk 1997, H. Davis 2022)

Sbj.Agr.	aṅ	a	**xʷiɬ**	ha	**qa?**	kʷu?	k̓a	**maɬ**	**həm̓**	kəɬ	tu?	λ̓u?
	PERC.EVID	EXIS	TRSP	Q	ESTB	RPT	INFER	ADHORT	ANTI	FUT	'then'	EXCL
							ka	**wi?**		λ̓əɬ	*or*	*or*
							DEON	EMPH		'now, then'	λ̓u?	tu?
											EXCL	'then'

It is worth noting that the position of subject agreement clitics is also variable across languages, and these also do not contribute at-issue content (being semantically vacuous). This indicates a split between clitics with at-issue semantic content, which exhibit a linear order reflecting order of composition, and not-at-issue or semantically vacuous clitics, which do not.[5]

Of course, not-at-issue content standardly poses various challenges for compositionality, projecting through higher at-issue operators, for instance. Even so, there is no easy solution to the mismatch between linear order

[2]The phonological properties of individual clitics also sometimes disrupt this ordering in predictable ways. For instance, *-aṅ* 'perceived evidence evidential' in St'át'imcets differs from the other clitics in being vowel-initial, having the shape of a suffix (Matthewson et al. 2007: 248). It is likely for this reason that it occurs initially in the clitic string preceding the question clitic (see Table 11.4 below), despite the fact that it is a modal evidential, like the St'át'imcets reportative and inferential (Matthewson et al. 2007). The past tense clitic in həńq̓əmiṅəm̓ also exhibits this behaviour (see Table 11.3); Suttles (2004: 369) writes that 'phonologically [-əɬ] behaves like a suffix'.

[3]Henry Davis, p.c., 2022, provided the table showing the positions of the St'át'imcets discourse particles.

[4]Demonstratives can also encliticize in the final position of the clitic string in St'át'imcets.

[5]Thanks to Henry Davis, p.c., 2022 for pointing out these facts and their implications.

and level of composition posed by the ʔayʔaǰuθəm discourse particles. I do not attempt to solve this puzzle here, instead focussing on characterizing the meaning of each of these particles. I leave accounting for the relationship between linear order and semantic composition as a topic for future research.

11.4 Background on common ground management and speech acts

Since Stalnaker (1978) it has been common to model discourse using the notion of *common ground*. The common ground is the set of propositions that are believed to be true by all discourse participants. It represents a combination of shared background knowledge and propositions that have been agreed upon by the discourse participants in the preceding discourse. Different speech acts interact with the common ground in different ways.

I adopt Farkas and Bruce's (2010) model of discourse where the goal of the speech act participants is to increase the content in the common ground. In their model, both assertions and questions involve placing the content of the speech act on the 'Table'. The Table holds issues that need to be resolved. The goal of the speech act participants is therefore to clear all items from the Table, in a way that increases the content in the common ground.

In Farkas and Bruce's (2010) model, each discourse participant is also associated with a set of commitments: the propositions they have committed to in the course of the discourse which are not (yet) joint commitments (and therefore not in the common ground). Farkas and Bruce (2010) propose that assertions commit the speaker to the truth of the utterance (adding the propositional content to their set of commitments) and act as a proposal to update the common ground, placing the propositional content on the Table. The default move is for the addressee to affirm the assertion, which adds the proposition also to the addressee's commitments. At this point the propositional content of the assertion p will be added to the common ground. For example, in (747), discourse participant A commits to the proposition p 'Matthew is at work' and proposes to add it to the common ground. Discourse participant B confirms the propositional content, adding it also to their commitments. Since both participants' sets of commitments contain p at that point, the common ground is updated with p.

(747) A. Matthew is at work.

B. Ah, ok.

According to Farkas and Bruce, B's move to affirm A's assertion is the default response to an assertion, so it need not always be overtly marked or may be indicated only very subtly, through, for example, a head nod.

The addressee may also reject the assertion; the simplest such rejection involves asserting $\neg p$.

(748) A. Matthew is at work.

B. No, he's not.

This is a more marked move that puts the conversation 'in crisis' until one of the discourse participants retracts their commitment, or they agree to disagree. In the latter case, the first discourse participant will have p in the set of commitments they have made in the discourse, and the second discourse participant will have $\neg p$ in their set of commitments, but neither p nor $\neg p$ will be added to the common ground.

Still following Farkas and Bruce (2010), when a discourse participant A asks a polar question about *p*, the conversation is steered towards the resolution of the question through the assertion of either *p* or ¬*p*. In this case, A's discourse partner B can assert either *p* or ¬*p* in response without causing a conversational crisis.

(749) A. Is Matthew at work?

B. Yes, he is.

B'. No, he's not.

If A then affirms B's assertion, either *p* or ¬*p* (depending on which of them B asserted) will be added to the common ground.

For both assertions and questions, then, there are canonical ways to resolve the issue they raise. For assertions, the canonical resolution involves the addressee affirming the proposition so that it can be added to the common ground. For polar questions, the canonical resolution involves the addressee asserting one of the alternative answers. If the discourse partner (the original asker of the question) affirms the answer, it will be added to the common ground. When content is added to the common ground, it is removed from the Table. Issues are not always resolved as soon as they are raised, so there can be more than one item on the Table. In cases such as agreeing to disagree, as discussed above, items are removed from the Table without being added to the common ground.

Imperatives work a little differently from questions and assertions since the main goal of an imperative seems to be for the addressee(s) to perform some action, rather than increasing information in the common ground. There are varied accounts of how to model imperatives. Condoravdi and Lauer (2012) propose that uttering an imperative commits the speaker to a preference for *p*, where *p* is the proposition in the imperative utterance and involves the addressee performing some action, while Kaufmann (2012) proposes that imperatives are a special kind of modal claim, and Portner (2007) treats imperatives as adding to the addressee's 'To-do list'. I will not attempt to choose between these here, but simply model imperatives as involving a REQUEST speech act operator which does the work of creating an imperative from the prejacent proposition.

In the following section, I discuss *ʔit* /ʔəyt/, the discourse particle that makes the most direct reference to the common ground.

11.5 *ʔit* /ʔəyt/ and the common ground

In this section, I argue that *ʔit* /ʔəyt/ indicates that the speaker thinks the proposition should be already in the common ground. When using *ʔit* /ʔəyt/, the speaker seems to convey that the information expressed by the utterance should be known by the addressee. As such, it seems to convey something similar to English *of course* in exchanges like the following:

(750) A. Do you drink coffee?

B. **Of course** I do! Don't you remember?

Here, the use of *of course* seems to indicate that the addressee A should already know the content of B's answer – that is, 'that B drinks coffee' should be part of the common ground. *ʔit* /ʔəyt/ occurs in parallel

contexts:[6]

(751) a. *Context: I have a habit of going for a walk every morning. Today, it was pouring, so someone who knows my habits asks me:*

θohołačxʷ ʔɛmaš?
θu-h-uł=a=čxʷ ʔimaš
go-EPEN-PST=Q=2SG.SBJ walk
'Did you go for a walk?' (vf | EP.2021/10/02)

b. *I reply:*

ʔɛ, θohołč **ʔit**.
ʔi? θu-h-uł=č=**ʔəyt**
yes go-EPEN-PST=1SG.SBJ=DPRT
'Yes, of course I went.' (vf | EP.2021/10/02)

In order to analyze *ʔit* /ʔəyt/, I build on the analyses of German *ja* found in Lindner (1991), Zimmermann (2011), Grosz (2020), and most directly, Kratzer and Matthewson (2009) on German *ja* and St'át'imcets *qaʔ*. Both *ja* and *qaʔ* have similar distributions to *ʔit* /ʔəyt/ and can be used to indicate that a proposition is already in the common ground. Lindner (1991), Zimmermann (2011), and Grosz (2020) propose that the contribution of *ja* is to mark the proposition p as uncontroversial: that $\neg p$ is not under consideration. However, there is a difference between the behaviour of *ja* and the behaviour of *ʔit* /ʔəyt/: *ja* is dispreferred in answers to polar questions, since $\neg p$ will always be under consideration following a question concerning *whether p*. In contrast *ʔit* /ʔəyt/ often appears in the answers to polar questions, as seen in (751) above. I therefore analyze *ʔit* /ʔəyt/ as simply indicating that the speaker thinks the proposition should be already in the common ground. This is similar to Kratzer and Matthewson's (2009) proposal that *ja* and *qaʔ* indicate that the speaker considers the prejacent proposition to be an established fact.

(752) $ʔəyt(ASSERT(p))$ conveys: the speaker thinks p should already be in the common ground[7]

The contribution of *ʔit* /ʔəyt/ can have one of two effects. The speaker may be reminding the addressee or confirming for the addressee that p has already entered the common ground, or the speaker may be indicating that the addressee has sufficient information from prior discourse or the context to know p, even if it has not yet been agreed upon in prior discourse. I argue that *ʔit* /ʔəyt/ does not place restrictions directly on addressee knowledge, but rather conveys the speaker's beliefs regarding the status of the prejacent relative to the common ground. In this respect, my proposal follows Kratzer and Matthewson (2009), whose analysis of German *ja* and St'át'imcets *qaʔ* does not place restrictions directly on the common ground, but relays the speaker's beliefs about the embedded proposition. This fits with the generalization that Salish languages seem to lack restrictions on addressee knowledge (Matthewson 1998, 2008).

In what follows, I first examine evidence that suggests that *ʔit* /ʔəyt/ conveys that the proposition is already part of the common ground (Section 11.5.1). I then examine evidence that suggests that *ʔit* /ʔəyt/ does not

[6] *ʔit* has an allomorph *hit*; the distribution of the two allomorphs has not been fully determined.

[7] I have represented *ʔit* /ʔəyt/ as composing with a speech act of assertion here, but nothing would go wrong if it composed directly with the prejacent proposition p. The choice to have it compose at the level of the speech act is to be consistent with the how *ʔit* /ʔəyt/ composes with imperatives, discussed in Section 11.5.4.

place restrictions directly on addressee knowledge, but can be used to indicate that the addressee should be able to infer or verify *p* (Section 11.5.2). Finally, I propose an analysis and discuss how it accounts for the different uses of *ʔit* /ʔəyt/ (Section 11.5.3.)

11.5.1 *ʔit* /ʔəyt/ and familiar propositions

In this section, I examine the use of *ʔit* /ʔəyt/ to convey that the proposition is already familiar to the hearer. Conversely, I examine cases where *ʔit* /ʔəyt/ is infelicitous because the information conveyed by the proposition cannot be expected to be familiar to the hearer.

Examples (753)–(756) show *ʔit* /ʔəyt/ being used to indicate to the hearer that they should already know the information conveyed by the utterance – at least as far as the speaker is concerned (see also (751) above).

(753) a. *My husband offers me some licorice and I tell him:*

łaχsxʷčɛn.
łəx̌-sxʷ=čan
bad-CAUS=1SG.SBJ
'I don't like it.' (sf | EP.2021/09/18)

b. *He's surprised and says:*

oh, łaχsxʷalačxʷ?!
oh łəx̌-sxʷ=ala=čxʷ
oh bad-CAUS=EXCLAM=2SG.SBJ
'Oh, you don't like licorice?!' (vf | EP.2021/09/18)

c. *I tell him:*

łaχsxʷčɛn **ʔit**.	xʷaʔalačxʷ	toχʷnɛxʷaxʷ?
łəx̌-sxʷ=čan=**ʔəyt**	xʷaʔ=ala=čxʷ	təx̌ʷ-n<í>xʷ=axʷ?
bad-CAUS=1SG.SBJ=DPRT	NEG=EXCLAM=2SG.SBJ	KNOW-NCTR<STAT>=2SG.SBJ

'No, of course I don't like licorice! Don't you know that?'
(vf | EP.2021/09/18)

(754) a. *Context: It's a super hot day. Felipe and I have a habit of going to the lake when it's hot. He asks me if we're going to go to the lake today:*

θahaštəm	ʔəkʷ θaẏɛł	ʔəsṫᶿoḳʷ?
θu-h=a=št-əm	ʔə=kʷ=θaẏał	ʔəsṫᶿoḳʷ
go-EPEN=Q=1PL.SBJ=FUT	OBL=DET=lake	today

'Are we going to the lake today?' (vf | EP.2021/09/18)

b. *I tell him:*

θoštəm **ʔit**!	hanəm	ḳʷas!
θu=št=əm=**ʔəyt**	hanəm	ḳʷas
go=1PL.SBJ=FUT=DPRT	too.much	hot

'Of course we're going! It's too hot!' (vf | EP.2021/09/18)

(755) a. *Context: I go to the Pacific National Exhibition on the weekend, and when I get back my husband asks me:*

qaχa kʷ qaymɪxʷ?
qəx̌=a kʷ=qaymixʷ
lots=Q DET=person
'Were there a lot of people?'

b. ?ɛ, qa:::χ:::mot **?it** qaymɪxʷ. payɛ? ?ot qaχ qaymɪxʷ ?əɬ=χaχaɬnatəs.[8]
?i? qəx̌-mut=**?əyt** qaymixʷ paya?=?ut qəx̌ qaymixʷ ?əɬ=x̌ax̌aɬnat=as
yes lots-INT=DPRT people always=EXCL lots people COMP=Sunday=3SBJV
'Of course there were a lot of people. There's always a lot of people on Sunday.'
Consultant's comment: You're reaffirming that there is a lot, you should know it, there is a lot.
(sf | EP.2021/09/18)

(756) a. *My friend is going to have to move soon and asks me if I'll come help when she has to move:*

qʷolačxʷʊm čɛgatumoɬ kʷʊms tayqanom?
qʷəl̓=a=čxʷ=əm čag-at-umuɬ kʷ=əms=tayq-a-nu-m
come=Q=2SG.SBJ=FUT help-CTR-1PL.OBJ DET=1PL.POSS=move-EPEN-NCTR-PASS
'Are you going to come help us when we move?' (vf | EP.2021/09/18)

b. *I tell her:*

?ɛ, hotᶿəm **?it** čɛgatanapɛ.
?i?, hu=tᶿəm=**?əyt** čag-at-anapi
yes go=1SG.SBJ+FUT=DPRT help-CTR-2PL.OBJ
'Of course I'll come help you.' (vf | EP.2021/09/18)

These examples contrast with the following examples where there is no reason for the addressee to know the information conveyed in the speaker's answers. Here, use of *?it* /?əyt/ is marked, though judgements are not always very strong:

(757) a. *Context: A new co-worker asks me if I like black licorice as we're making small talk.*

?isxʷačxʷ kʷ ṗəθ *licorice*?
?əǰ-sxʷ=a=čxʷ kʷ=ṗəθ *licorice*
good-CAUS=Q=2SG.SBJ DET=black licorice
'Do you like black licorice?'

b. *I reply:*

xʷa?, ɬaχsxʷčɛn (#**?it**).
xʷa? ɬəx̌-sxʷ=čan=(#**?əyt**)
NEG bad-CAUS=1SG.SBJ=DPRT
'No, of course I don't like it.' (sf | EP.2021/09/24)

[8]Rhetorical lengthening on *qaχ* /qəx̌/ is indicated with ':::'.

(758) a. *Context: Someone is visiting my husband. I get home from a walk and am taking off my shoes. The visitor asks:*

θohoɬačxʷ ʔɛmaš?
θu-h-uɬ=a=čxʷ ʔimaš
go-EPEN-PST=Q=2SG.SBJ walk
'Did you go for a walk?'

b. *I reply:*

ʔʔɛ, θohoɬč **ʔit**.
ʔiʔ θu-h-uɬ=č=ʔəyt
yes go-EPEN-PST=1SG.SBJ=DPRT
'Yes, of course I went.' (sf | EP.2021/10/02)
Consultant's comment: I think that's more for someone that's more familiar with you, who knows that you always go for a walk.

(759) *Context: I've just moved to Arizona and you ask me about the weather.*

A: k̓ʷasa kʷʊθ nɛʔʔ
k̓ʷas=a kʷ=əθ=niʔ
hot=Q DET=2SG.POSS=be.there
'Is it hot where you are?' (vf | EP.2022/05/20)

B: xʷaʔ, c̓ɪc̓ɬ (#**ʔit**)!
xʷaʔ c̓ə∼c̓ɬ=(#**ʔəyt**)
NEG PROG∼rain=DPRT
'No, it's raining!' (sf | EP.2022/05/20)

ʔit /ʔəyt/ is also frequently used when the speaker is expressing agreement with something that the addressee has just said. A particularly common exchange involving *ʔit* /ʔəyt/ is shown in (760). Speaker A asks for confirmation of a proposition in the preceding discourse (*kʷaṅ* is a demonstrative that acts as a propositional anaphor, see Reisinger and Huijsmans 2021; Huijsmans and Reisinger 2022a). Speaker B answers using *ʔit* /ʔəyt/.

(760) *Context: Hoss explains to us that the Sechelt language is close, but not quite understandable. Then he confirms with you:*

A: nama kʷaṅʔ
nəm̓=a kʷaṅ
be.like=Q DEM
'Isn't that right?

B: naṁ **ʔit**.
nəm̓=**ʔəyt**
be.like=DPRT
'That's right.' (sf | FL&HT.2022/02/10)

ʔit /ʔəyt/ is also common in response to tag questions asking for confirmation:

(761) *Context: I want to make sure I have our plans straight for who is giving a ride to whom as we get ready to go to the beach.*

A: nɩgi səm θo ǰ̊oʔost Daniel, nama?
nəgi=səm θu ǰ̊uʔus-t Daniel nəṁ=a
2SG.IND.PRO=FUT go pick.up-CTR Daniel be.like=Q
'You're going to pick up Daniel, right?'

B: ʔɛʔ, hotᶿəm **ʔit**.
ʔiʔ, hu=tᶿ=əm=**ʔəyt**
yes go=1SG.SBJ=FUT=DPRT
'Yes, I'm going to. (sf | EP.2022/05/20)

(762) *Context: I'm confirming where a cultural event will happen tonight:*

A: hɛ səm šɛ čičuy ʔəms θo, nama?
hiɬ=səm šə=čəǰ∼čuǰ ʔəms=θu nəṁ=a
COP=FUT DET=PL∼child 1PL.POSS=go be.like=Q
'We're going to the čičuẏ,[9] right?'

B: hɛɬ **ʔit**.
hiɬ=**ʔəyt**
COP=DPRT
'Yes, that's right.' (vf | EP.2022/05/20)

(763) *Context: We're talking about a course that a friend of ours is in.*

A: hɛɬ Hoss ʔə titiwšɛmstanaq, nama?
hiɬ Hoss ʔə=ti∼tiwš-əm-st-anaq nəṁ=a
COP Hoss CLF.PRT=PROG∼teach-MD-CAUS-INDEF.OBJ be.like=Q
'It's Hoss who is teaching it, right?'

a: naṁ **ʔit**.
nəṁ=**ʔəyt**
be.like=DPRT
'Yes, that's right.' (sf | EP.2022/05/20)

Responses that are counter to the bias of a tag question are not generally felicitous with *ʔit* /ʔəyt/.

[9] *čičuẏ* /čəǰčuǰ/ is literally 'children', but here is referring to a place: the daycare building.

(764) *Context: I'm confirming where a cultural event will happen tonight:*

A: hɛ səm šɛ čičuy ʔəms θo, nama?
hiɬ=səm šə=čəǰ∼čuǰ ʔəms=θu nəṁ=a
COP=FUT DET=PL∼child 1PL.POSS=go be.like=Q
'We're going to the čičuẏ, right?'

B: xʷaʔ, hɛɬ (#**ʔit**) tə *gym* ʔəms θo.
xʷaʔ hiɬ=(#**ʔəyt**) tə=*gym* ʔəms=θu
NEG COP=DPRT DET=gym 1PL.POSS=go
'No, we're going to the gym.' (vf | EP.2022/05/20)

(765) *Context: We're talking about a course that a friend of ours is in.*

A: hɛɬ Hoss ʔə titiwšɛmstanaq, nama?
hiɬ Hoss ʔə=ti∼tiwš-əm-st-anaq nəṁ=a
COP Hoss CLF.PRT=PROG∼teach-MD-CAUS-INDEF.OBJ be.like=Q
'It's Hoss who is teaching it, right?'

a: xʷaʔ, hɛɬ (#**ʔit**) Charlie Bob.
xʷaʔ hiɬ=(#**ʔəyt**) Charlie Bob
NEG COP=DPRT Charlie Bob
'No, it's Charlie Bob.' (sf | EP.2022/05/20)

More generally, where the speaker is contradicting their discourse partner, *ʔit* /ʔəyt/ is disprefered:

(766) *Context: Daniel and I are discussing who was at the meeting last night. It was a big meeting and we weren't sitting together so we don't know who each other saw at the meeting.*

A. xʷaʔ nɛʔəsoɬ Gloria.
xʷaʔ niʔ=as-uɬ Gloria
NEG be.there=3SBJV-PST Gloria
'Gloria wasn't there.'

B. nɛʔoɬ (#**ʔit**).
niʔ-uɬ=(#**ʔəyt**)
be.there-PST=DPRT
'She was there.' (sf | EP.2022/07/08)

There is an exception to the infelicity of *ʔit* /ʔəyt/ in the case of disagreement, however, which is where the speaker has reason to think the addressee already knows the propositional content of the utterance marked with *ʔit* /ʔəyt/, despite asserting or implying something that contradicts it. This is illustrated in (767), which is parallel to the infelicitous case in (766) above, except that the speaker believes the hearer knows Gloria was at the meeting.

(767) *Context: Daniel and I are discussing who was at the meeting last night. I saw him talking to Gloria, so I'm surprised when he says she wasn't there, and I challenge this.*

A. xʷaʔ nɛʔəsoɬ Gloria.
xʷaʔ niʔ=as-uɬ Gloria
NEG be.there=3SBJV-PST Gloria
'Gloria wasn't there.'

B. nɛʔoɬ (**ʔit**). k̓ʷʊnɛθɛhoɬč, qʷɛqʷaysxʷoɬčxʷ.
niʔ-uɬ=(**ʔəyt**) k̓ʷən-í-θi-h-uɬ=č qʷi∼qʷay-sxʷ-uɬ=čxʷ
be.there-PST=DPRT see-STAT-2SG.OBJ-EPEN-PST=1SG.SBJ PROG∼talk-CAUS-PST=2SG.SBJ
'She was there. I saw you, you were talking to her!' (sf | EP.2022/07/08)

In all the felicitous cases we have seen so far – answers to questions to which (the speaker thinks) the addressee should already know the answer, answers to tag questions asking for confirmation, and agreeing with preceding utterances – *ʔit* /ʔəyt/ is plausibly analyzed as marking the propositional content of the utterance as already in the common ground; the cases where *ʔit* /ʔəyt/ can occur when disagreeing with a previous utterance are also consistent with this characterization. In the next section, I discuss examples where *ʔit* /ʔəyt/ is used despite the addressee not having prior knowledge of *p*.

11.5.2 *ʔit* /ʔəyt/ without prior addressee knowledge

ʔit /ʔəyt/ is sometimes used where the information conveyed by the utterance with *ʔit* /ʔəyt/ is not part of the common ground. For instance, it frequently co-occurs with the intensifying adverb *χʷɛt* /x̌ʷit/ 'really' regardless of preceding discourse context. In both (768a) and (768b), the speaker is conveying information that the addressee is not in a position to know.

(768) a. *Context: You're telling me about an old shelter that used to be up one of the inlets. You haven't been there for a long time, but you figure it would have fallen down by now. The last time you saw it, it really wasn't well maintained and looked unsafe.*

χʷoχʷoɬ ʔəɬ xʷaʔan qəɬ k̓ʷʊnʊxʷən šɪms ʔayɛʔoɬ.
x̌ʷux̌ʷ-uɬ ʔəɬ xʷaʔ=an=qəɬ k̓ʷən-əxʷ=an šə=ms=ʔayaʔ-uɬ
long.time-PST COMP NEG=1SG.SBJV=NLQ see-NCTR=1SG.SBJV DET=1PL.POSS=house-PST
χʷɛt **hit** ṗo:ṫθɛ́toɬ.
x̌ʷit=**ʔəyt** ṗuṫθ-ít-uɬ
really=DPRT lean.over-STAT-PST
'It's been a long time since I saw our old house where we used to stay. It was really leaning over.'
(vf | EP.2022/02/04)

b. *Context: I find my friend's work from a sewing class, left at the lodge for the next class, and it looks really in rough shape. Later I tell you about it:*

hɛhɛw c̓ɛ	łəχnɛsmot	šɛ k̓ɩpayɛs.	χʷɛt **hit**	či:qɛ́t	šɛ p̓ap̓ɛms.
hihiw=c̓a	łəx̌-nis-mut	šə=k̓əp-aya-s	x̌ʷit=**ʔəyt**	čiq-ít	šɛ=p̓ap̓-i-m-s.
really=INFER	bad-tooth-INT	DET=cut-INS-3POSS	really=DPRT	tatter-STAT	DET=WORK-STAT-MD-3POSS

'Her scissors must be really dull. Her work was really tattered.' (sf | EP.2022/07/08)

While the information that the house is really leaning or the work is really tattered is not part of the common ground in the examples in (768), it could be inferred from the preceding sentence and context.[10]

ʔit /ʔəyt/ also sometimes seems to be able to occur in answers to questions where the addressee could not already know the information conveyed by the proposition in the answer. This is the case in (769), for instance, where the addressee is not in the same location as the speaker and so does not have the same knowledge about the weather.

(769) *Context: We're talking on the phone. It rained in Vancouver this afternoon and I'm wondering if it rained in* ṭɩšosəm *too.*

A. c̓ɩc̓łoła kʷʊθ nɛ??
c̓ə∼čł-uł=a kʷ=əθ=niʔ
PROG∼rain-PST=Q DET=2SG.POSS=be.there
'Was it raining where you are?'

B. ʔɛ, c̓ɩc̓łoł **(ʔit)**.
ʔiʔ c̓ə∼čł-uł=**(ʔəyt)**
yes PROG∼rain-PST=DPRT
'Yes, it was raining.' (sf | EP.2022/04/23)

The fact that rain on the west coast is frequent and it is not uncommon for weather to be shared between the two locations (Vancouver and ṭɩšosəm, a place in Tla'amin territory) could allow the addressee to infer the answer, however. Note that (769) constrasts with (759), where the addressee would not be expected to be able to infer that it is raining; the latter is infelicitous with *ʔit* /ʔəyt/.

11.5.3 Analyzing *ʔit* /ʔəyt/

In light of the facts examined in the last two sections, I analyze *ʔit* /ʔəyt/ as conveying that, according to the speaker, the prejacent proposition should already be in the common ground. The analysis is repeated in (770) (from (752) above).

(770) *ʔəyt*$(ASSERT(p))$ conveys: the speaker thinks p should already be in the common ground

As previewed above, there are two effects that *ʔit* /ʔəyt/ can have: it can serve to remind or confirm for the addressee that the proposition p is in the common ground. It can also be used to indicate that, according

[10]Thanks to Henry Davis, p.c., 2022 for pointing this out to me.

to the speaker, the addressee has sufficient information to have added *p* into the common ground, given the discourse context.

This means that *ʔit* /ʔəyt/ is always felicitous where there is prior shared knowledge of the prejacent proposition and the speaker is reminding the addressee (e.g., (753)) or confirming this for the addressee (761)–(763). It is also felicitous in some cases where the addressee does not directly know the prejacent proposition, but the speaker believes the speaker has sufficient information available to infer it.

The contexts where the speaker could felicitously use *ʔit* /ʔəyt/ in the absence of addressee knowledge were cases like in (768a)–(768b), where the dull scissors and age of the house allow the addressee to infer the relevant propositions (that the work is tattered and that the house is leaning, respectively). In (769), the fact that rain on the west coast is frequent and it is not uncommon for weather to be shared between the two locations has a similar effect.

The analysis above also predicts the infelicity of *ʔit* /ʔəyt/ in disagreements: generally, the speaker knows the prejacent proposition *p* is not in the common ground, since the addressee is asserting $\neg p$, and knows that the addressee is not in a position to infer *p* when the addressee's discourse commitments contain $\neg p$. Similarly, *ʔit* /ʔəyt/ will not always be good in response to polar questions since these canonically indicate that neither *p* nor $\neg p$ are in the common ground. However, where the speaker is reminding the hearer that in fact *p* is already in the common ground, or is confirming this in answer to a tag question, *ʔit* /ʔəyt/ can be used. Both these cases require some background between the discourse participants, meaning that *ʔit* /ʔəyt/ is less likely to be accepted in an initial conversation between new acquaintences, as in (757)–(758) above.

To summarize, the speaker uses *ʔit* /ʔəyt/ to convey that the prejacent proposition *p* should be already in the common ground. These assertions are marked, since the speaker believes that *whether p* is established, but asserts *p* anyways.

Following Kratzer and Matthewson (2009), the analysis sketched here does not place requirements on the addressee's knowledge. In particular, I have analyzed *ʔit* /ʔəyt/ as conveying that the *speaker* thinks *p* should be in the common ground, rather than placing restrictions directly on the common ground, which would place restrictions on addressee knowledge. However, there is another possibility for the analysis of *ʔit* /ʔəyt/ that I have not yet addressed: it could add a presupposition that the addressee already knows *p*. If *ʔit* /ʔəyt/ conveys a presupposition, any use of *ʔit* /ʔəyt/ without prior addressee knowledge should be undefined. Presuppositions are sometimes accommodated, however, so a presuppositional analysis is not impossible, despite examples where *ʔit* /ʔəyt/ is used without the addressee having prior knowledge of the prejacent.

The status of *ʔit* /ʔəyt/ as conveying a presupposition or other type of not-at-issue content therefore hinges on whether *ʔit* /ʔəyt/ used in the absence of prior addressee knowledge should be analyzed in terms of accommodation. Given that *ʔit* /ʔəyt/ is frequently used where the speaker wants to indicate that the addressee *should* know something, when the context makes it clear that they do not know it or are not sure about it, I am inclined towards the approach I have taken here. This approach is also consistent with Kratzer and Matthewson's (2009) analysis of the St'át'imcets second-position clitic *qaʔ* as not placing restrictions on the common ground, as well as fitting the generalization that Salish languages do not seem to place restrictions on addressee knowledge (Matthewson 1998, 2005b, 2008). The question of whether *ʔit* /*ʔəyt* imposes common ground restrictions should be explored further in future research, however.

11.5.4 *ʔit* /ʔəyt/ and different types of speech acts

The cases I have examined so far have all involved *ʔit* /ʔəyt/ in declaratives; *ʔit* /ʔəyt/ is only rarely accepted in questions and the exact circumstances where it is acceptable are still under investigation. For instance, *ʔit* /ʔəyt/ is infelicitous in (771), where the question is likely expected and the answer to the question is familiar to the addressee. Neither of these factors seem to be relevant for the felicity of *ʔit* /ʔəyt/ in questions, however.

(771) *Context: It's getting really cold out and Felipe and I have been on the deck of the ferry for a while. I notice him starting to shiver and ask:*
ḉɛḉɩmačxʷ (#**ʔit**)?
ḉə∼ḉəm=a=čxʷ=(#**ʔəyt**)
PROG∼get.cold=Q=2SG.SBJ=DPRT
'Are you cold?' (sf | EP.2022/04/23)

In contrast, *ʔit* /ʔəyt/ is felicitous in (772) where the question itself serves to remind the addressee that he has prior knowledge of the answer to his own question.

(772) *Context: My brother asks me when my parents are getting back from holidays. He talks to them more often than I do since he lives nearby, and he's taking care of their plants.*

A.	hɛkʷsčɛ səm	qʷols	hɛwt	šɩms λ̓aχλ̓aχ?
	hiɬ+kʷ+s+ča=səm	qʷəl̓=s	hiwt	šə=ms=λ̓ax̌∼λ̓ax̌
	COP+COMP+NMLZ+when=FUT	come=3POSS	get.home	DET=1PL.POSS=PL∼old

'When will our parents get home?'

B.	xʷaʔačxʷ **ʔit**	yɛχataxʷ?
	xʷaʔ=a=čxʷ=**ʔəyt**	yax̌-at=axʷ
	NEG=Q=2SG.SBJ	remember-CTR=2SG.SBJV

'Don't you remember?' (sf | EP.2022/01/18)

ʔit /ʔəyt/ is found more frequently in imperatives. Here, *ʔit* /ʔəyt/ seems to be used when the speaker wants to convey that the addressee should already be aware that they should take the described action.

(773) *Context: Talking to someone who can't reach something that's too high on a shelf.*
ṭ̓ᶿukʷšɩnəmčxʷ **ʔit**.
ṭ̓ᶿukʷ-šin-əm=čxʷ=**ʔəyt**
step.up.on-foot-MD=2SG.SBJ=PRT
'Use a stool.' (sf | EP.2021/10/02)
Consultant's comment: It's almost like you're impatient with that person trying to reach something they can't reach, it doesn't make sense they can't figure it out.

(774) *Context: My friend has invited me over to harvest some cucumbers from his garden. I ask how many I can take. He replies:*

maʔamčxʷ **ʔit**	ʔəkʷ θuxʷɛns	kʷʊθ χaʎ̓.
məʔ-ʔəm=čxʷ=**ʔəyt**	ʔə=kʷ=θəxʷin-s	kʷ=əθ=ǎaʎ̓
get-ACT.INTR=2SG.SBJ=DPRT	OBL=DET=equal-3POSS	DET=2SG.POSS=want

'You take as many as you like.' (vf | EP.2021/10/15)

I will only sketch a preliminary account of imperatives here, and I will not attempt an analysis of questions where the distribution of *ʔit* /ʔəyt/ is not yet fully established. For imperatives, I extend the analysis proposed above for declaratives. I propose that *ʔit* /ʔəyt/ composes with the speech act, where the imperative force is encoded as a REQUEST operator. *ʔit* /ʔəyt/ conveys that the speaker thinks that the request should already be known to the addressee.

(775) $ʔəyt(REQUEST(p))$ conveys: the speaker thinks $REQUEST(p)$ should already be in the common ground (based on Grosz 2020: 2)

What it means for a request to be part of the common ground requires further exploration. If imperatives are really a modal claim (e.g. Kaufmann 2012) or commitment to a certain preference (e.g. Condoravdi and Lauer 2012), this may just be a parallel case to the propositional content of assertions entering the common ground. Alternately, $ʔəyt(REQUEST(p))$ could indicate that the speaker thinks the request should already have been added to the addressee's 'To do' list rather than the common ground (Portner 2007). The important point here is that under any of these approaches, it is possible to capture a version of the parallel between *ʔit* /ʔəyt/ in assertions and *ʔit* /ʔəyt/ in imperatives.

11.6 The linking clitic *ga* (and imperative marker *gi*)

The second discourse particle that I examine is *ga*; in this section, I also touch on *gi*, which can occur in place of *ga* in imperatives.[11] *ga* has two quite different uses, as noted in (Watanabe 2003) and J. Davis (2012b). Firstly, it occurs in imperatives and questions, seeming to mark the speech act as polite (J. Davis 2012b); and secondly, it occurs in declaratives, where its contribution is more difficult to pin down. For J. Davis (2012b), both uses are unified as having a rhetorical 'softening' effect. I will build on this intuition to argue for a unified analysis of *ga* as marking the speech act as *likely given the context* (following Reisinger and Huijsmans 2020): this has the effect of *linking* a declarative to preceding discourse, similar to English *so*, and marking a request or question as following from the context, and therefore as not abrupt or unreasonable. It is for this reason that I describe it as a linking clitic.

In what follows, I will first lay out the distribution of *ga* in Section 11.6.1. I then propose an analysis in Section 11.6.2, extending the analysis employed in Reisinger and Huijsmans (2020) for *ga* in declaratives to its use in imperatives and questions.

[11] The discourse particle *ga* is homophonous with a complementizer *ga* meaning 'if'. These appear to be accidental homophones and are marked by different cognate items in neighbouring Sechelt: *la* for the discourse particle and *we* for the complementizer (Beaumont 1985: 14, 28). They also have a different distributions, with the complementizer occurring clause initially, and the discourse particle occurring as a second-position clitic. I will only be concerned with the discourse particle *ga* here and will not discuss the complementizer.

11.6.1 The distribution of *ga* (and *gi*)

The most frequent use of *ga* is in imperatives, where it seems to be conventionalized as a marker of politeness. Typically, when *ga* is present, the second person subject does not occur in the imperatives (776a), but reappears when *ga* is not used (776b); however, both can also co-occur (776c).

(776) a. *Context: I see you are looking quite pale. I tell you to go to bed and rest.*

θo **ga** ʔaχɛθ. hɛhɛwčxʷ čɛ łaχɛyit. hɛhɛwčxʷ načus.
θu=**ga** ʔaǎiθ hihiw=čxʷ=ča łaǎayit hihiw=čxʷ nač-us
go=DPRT lie.down really=2SG.SBJ=INFER unwell really=2SG.SBJ different-face
'Go lie down. You must not be well. You're looking off.' (vf | EP.2020/12/11)

b. *Context: You were helping me with preparing my fish. There's still a few in the bucket. I tell you to take a fish home with you.*

ho**čxʷ** ǰusta?am ?əkʷ pa?a.
hu=**čxʷ** ǰu-st-a?am ?ə=kʷ=pa?a
go=2SG.SBJ go.home-CAUS-ACT.INTR OBL=DET=one
'Take one home!' (vf | EP.2020/08/11)

c. čiyɛt**čxʷ ga** Randolph!
čiy-it=**čxʷ**=**ga** Randolph
hear-CTR=DPRT Randolph
'Listen to Randolph!' (vf | FL.2022/03/31)

While imperatives are often accepted both with and without *ga*, use of *ga* seems to increase the politeness of the request (with tone of voice also playing a role in whether the imperative is interpreted as polite). Speakers often prefer imperatives to have *ga* when addressed to someone who is not familiar or someone to whom they would want to show respect. For instance, in (777), the worker is not someone who is familiar to the speaker and *ga* is preferred.

(777) *Context: I had a worker from the nation splitting wood for me all morning. I figure he must be hungry now and want to offer him some food.*

a. qʷa**ga** ?ɛłtən. kʷi mahyɛyɛtən.
qʷəl+**ga** ?iłtən kʷi mahyayatən
come+DPRT eat CLD lunchtime
'Come eat, it's lunchtime.' (sf | EP.2022/06/17)

b. ?qʷolčʊxʷ ?ɛłtən. kʷi mahyɛyɛtən.
qʷəl=čaxʷ ?iłtən kʷi mahyayatən
come=2SG.Sbj eat CLD lunchtime
'Come eat, it's lunchtime.' (sf | EP.2022/06/17)
Consultant's comment: [That's] if it's your husband or a family member you're talking to.'

In (778), the speaker is speaking to someone they respect in a formal setting. Here, again, *ga* is preferred.[12]

(778) *Context: An Elder has been asked to start a meeting and is waiting for the organizer to tell him when to begin. The organizer asks him to start.*

a. ƛ̓aʔayɪn **ga**.
ƛ̓aʔayin=**ga**
start=DPRT
'Please start.' (sf | EP.2022/07/08)

b. #ƛ̓aʔayɪnčxʷ.
ƛ̓aʔayin=čxʷ
start=2SG.SBJ
'Please start.' (sf | EP.2022/07/08)

ga is also used in imperatives when talking to children, as part of modelling how to behave politely.

(779) *Context: My daughter starts shouting in the library:*

a. t̓osos **ga**!
tus∼us=**ga**
quiet∼COS=DPRT
'Please quieten down!' (vf | EP.2022/06/17)

b. #t̓ososčxʷ!
tus∼us=čxʷ
quiet∼COS=2SG.SBJ
'Please quieten down!' (vf | EP.2022/06/17)

In imperatives, *ga* alternates with the clitic *gi* which seems to be used for an even more deferential request:[13]

(780) a. χanaθ {**gi** / **ga**} tə ƛ̓aɬəm.
χan-aθ={**gi** / **ga**} tə=ƛ̓aɬəm
give-CTR;1SG.OBJ=DPRT DET=salt
'Please pass the salt.'
Consultant's comment: [With *gi*] is a more polite way of asking. (sf | EP.2021/03/14)

[12]The stronger preference for *ga* in (778) compared to (777) may be due to the different nature of the request. In (777), the speaker is inviting the addressee and so offering something to him, whereas in (778), the speaker needs the addressee to do something for them. This requires further investigation.

[13]J. Davis (2012b) states that *gi* is used for emphatic imperatives and so is not considered polite, while Watanabe (2003: 519) writes that *gi* is 'perhaps more forceful' than *ga*. To me, *gi* has been explained to be an even softer version of *ga*. I have found that intonation plays a large role in how imperatives are interpreted, however, and both imperatives with *gi* and with *ga* can be considered more or less polite depending on the tone of voice. This may be the reason for our different impressions regarding which is considered more polite. It is also possible that different dialects of the language or generations of speakers have slightly different uses for these two particles.

b. *Context: Telling a youth to help an Elder.*

ho {**gi** / **ga**} c̓̌εgat.
hu={**gi** / **ga**} c̓̌ag-at
go=DPRT help-CTR
'You go help her.'
Consultant's comment: [With *gi*] it's a nicer way of saying to people 'would you please go help'.
(vf | EP.2021/05/29)

c. θo **gi** maʔamθ qaẏε.
θu=**gi** məʔ-ʔəm-θ qaẏa
go=DPRT get-INDIR-CTR+1SG.OBJwater
'Please go get me some water.'
Consultant's comment: [*θo gi*] is almost like saying 'please go and get...'. (vf | EP.2022/02/25)

Note that *ga* and *gi* cannot co-occur in imperatives despite having slightly different contributions:

(781) *Context: I had a worker from the nation splitting wood for me all morning. I figure he must be hungry now and want to offer him some food.*

a. *qʷa**ga gi** ʔεɬtən. kʷi mahyεyεtən.
qʷəl+**ga**=**gi** ʔiɬtən kʷi mahyayatən
come+DPRT=DPRT eat CLD lunchtime
'Come eat, it's lunchtime.' (sf | EP.2022/07/08)

b. *qʷa**gi ga** ʔεɬtən. kʷi mahyεyεtən.
qʷəl+**gi**=**ga** ʔiɬtən kʷi mahyayatən
come+DPRT=DPRT eat CLD lunchtime
'Come eat, it's lunchtime.' (sf | EP.2022/07/08)

ga also frequently occurs in questions, where it also seems to have a politeness or 'softening' effect, as also noted by J. Davis (2012b). It is preferred in contexts where the speaker wants to show deference to someone they respect, as in (782).

(782) *Context: I'm asking a respected Elder about some old pictures I found. I think she might know who is in them. I show her one and ask:*

gεt #(**ga**) tεʔεʔ
gat=#(**ga**) tiʔi
who=DPRT DEM
'Who is this?' (sf | EP.2022/06/10)

It is also preferred when asking questions to someone who is a stranger, as in (783).

(783) *Context: At a store, I want to inquire from one of the workers about something that doesn't have a price tag.*

k̓ʷɛnos #(**ga**)	tɛʔɛʔ
k̓ʷin-us=#(**ga**)	tiʔi
how.much-round=DPRT	DEM

'How much is this?' (vf | EP.2022/06/17)

The other use of *ga* is in declaratives, where it seems to perform a linking function, expressing that the proposition follows from the preceding discourse. In this use, it is frequently translated with 'so'.

(784) *Context: I've been having trouble finding my favourite brand of condensed milk since some of the stores stopped carrying it. Then Gail tells me she can sometimes find it at a little corner store. I tell you:*

tatawθiyəm	Gail	nɛstom k̓ʷa	[ʔə] šɛ xʷuxʷǰumayɛ	kʷ *milk*
ta∼taw-θiy-əm	Gail	niʔ-stu-m=k̓ʷa	[ʔə=]šə=xʷu<xʷ>ǰumaya<ʔ>	kʷ=*milk*
PROG∼tell-1SG.OBJ-PASS	Gail	be.there-CAUS-PASS=RPT	OBL=DET=store<DIM>	DET=milk

ʔətᶿ χaƛ̓.	hotᶿa **ga**	k̓ʷʊt.
ʔətᶿ=ǎƛ̓.	hu=tᶿ=a=**ga**	k̓ʷə[n]-t.
1SG.POSS=want	go=1SG.SBJ=FUT=DPRT	see-CTR

'Gail told me the little store has the milk I want, so I'm going to go see.' (sf | EP.2021/04/16)

(785) *Context: Felipe was supposed to be meeting his friend by Science World to go for walk but his friend didn't show up.*

łaq̓łaq̓am k̓ʷa	nɛʔ	Felipe.	xʷukʷt	θo	təs	šɛ qəms.	qʷol̓ ta **ga**
łəq̓∼łaʔq̓-əm=k̓ʷa	niʔ	Felipe	xʷukʷt	θu	təs	šə qəm-s	qʷəl̓=ta=**ga**
PL∼wait-MD=RPT	be.there	Felipe	not.exist	go	arrive	DET=friend-3POSS	come=CLD=DPRT

hɛwt.
hiwt
get.home

'Felipe waited and waited. His friend never arrived, so he's come home.' (sf | EP.2022/04/22)

(786) *Context: From a storyboard. Daniel is writing a letter when Laura asks to borrow his pen.*[14]

gayɛtəs	Daniel	[ga] yɛq̓ašɛs	namamens.	'ƛ̓ɛčɛn səm	χəpǰiš.'
gay-at-as	Daniel	[ga=]yəq̓-aš=as	nam-amin-s	ƛ̓i=čan=səm	x̌əpǰ-iš
ask-CTR-3ERG	Daniel	COMP=use-TR-3SBJV	write-INS-3POSS	quick=1SG.SBJ=FUT	return-TR

χanatoǰɛtəm **ga**	Daniel.
x̌an-at-oǰa-t-əm **ga**	Daniel
give-CTR-hand-CTR-PASS=DPRT	Daniel

'She asked Daniel if she could use his pencil. "I'll bring it right back." So, Daniel handed it to her.' (vf | BW.2020/08/12)

(787) *Context: Felipe has some seeds out to sprout. After a few days a few have sprouted and are getting big enough to plant. He buys a pot and some soil. Our roommate sees the new pot, so I explain:*

ti	qʷol	ƛiči̓osəm.	k̓ʷaniš k̓ʷa **ga**	ʔə tə k̓ʷɛhɛt	tih	nəpamɛn.
ti	qʷəl̓	ƛiči̓-us-əm	k̓ʷaṅ-iš=k̓ʷa=**ga**	ʔə=tə=k̓ʷih-ít	tih	nəp-amin
CLD	come	sprout-face-MD	transfer=RPT=DPRT	OBL=DET=increase-STAT	big	put.in-INS

'They've started to grow so he's going to plant them in a bigger pot.' (vf | EP.2021/05/07)

In combination with the clefting predicate *hɛɬ* /hiɬ/, *ga* is also used to link a proposition to a preceding sentence containing the explanation or rationale for the proposition; these cases are translated either with 'so' or 'that's why'. In this use, I assume that the rationale is picked up from preceding discourse by a clefted null *pro*, while the nominalized remnant is the proposition explained by the clefted rationale.

(788) *Context: I was invited to a meeting in Campbell River, but I had no means to get there. Luckily for me, Freddie is going.*

qəɬč	xʷaʔ	θahanoɬ	ʔi	θo k̓ʷa	Freddie.	hɛ sa **ga**	*pro*
qəɬ=č	xʷaʔ	θu-h=an-uɬ	ʔiy	θu=k̓ʷa	Freddie	hiɬ=səm=**ga**	*pro*
PP.CIRC=1SG.SBJ	NEG	go-EPEN=1SG.SBJV-PST	CONJ	go=RPT	Freddie	COP=FUT=DPRT	*pro*

[$_{CP}$tθ ʔowuɬ].
[$_{CP}$tθ=ʔuwuɬ]
1SG.POSS=get.aboard

'I wasn't going to go but Freddie is going so I'll get a ride.' (vf | EP.2022/03/12)

(789) *Context: I dropped the remote yesterday, and it broke, but I forgot to tell Felipe. He tries to use it, and it doesn't work, so he asks:*

A. čɩm̓ tɛʔɛ? łaχłaχaw.
čəm̓ tiʔi łəx̌łəx̌aw
how/why DEM ruined
'What's up with this? It's not working.'

B. kʷaʔaxʷoɬč sǰɛsoɬ. hɛ č̓ɛ **ga** [$_{CP}$łaχłaχaws].
kʷaʔ-əxʷ-uɬ=č sǰasuɬ hi=č̓a=**ga** [$_{CP}$łəx̌łəx̌aw-s]
put-NCTR-PST=1SG.SBJ yesterday COP=INFER=DPRT ruin-3POSS
'I dropped it yesterday. That's why it is not working.' (vf | EP.2021/10/22)

[14]This is from a storyboard 'Where did Bruno go?' by Gloria Mellesmoen.

(790) *Context: Watching someone weaving.*

čɛt c̓ot	λ̓ɛλ̓ayɪn	θiθa.	xʷaʔ c̓ɛ	toχʷnɛxʷəs	yɛyɛθots.
ča?at=c̓a+?ut	λ̓<iλ̓>?ayin	θəẏθa.	xʷaʔ=c̓a	təx̌ʷ-n<i>xʷ=as	ya∼ya-θut=s
now=INFER+EXCL	start<DIM>	DEM	NEG=INFER	know-NCTR<STAT>=3SBJV	PROG∼do-CTR;REFL=3POSS

hɛ **ga**	[$_{CP}$kʷ ẗaqsɛms].
hi=**ga**	[$_{CP}$kʷ ẗaqs-im=s]
COP=DPRT	DET=slow-MD=3POSS

'She must be just starting. She doesn't know what she's doing. That's why she's slow.'

(vf | EP.2019/07/01)

(791) *Context: I know Daniel was over on the island. In the evening I hear on the radio that the ferries had been cancelled and then the next morning that they are running again. I know that means Daniel will be heading back to the mainland on the morning ferry. I tell Gloria:*[15]

nɛʔ	təqosɛtoɬ	[ʔə] kʷ K'ómoks.	sa**ga**kʷi	čɛʔɛt	qʷoqʷol.	/ səmkʷa**ga**
niʔ	təq-us-ít-uɬ	[ʔə=]kʷ=K'ómoks	sa=**ga**=kʷi	ča?at	qʷə∼qʷəẗ	/ səm=kʷa=**ga**
be.there	close-face-STAT-PST	OBL=DET=K'ómoks	FUT=DPRT=CLD	now	PROG∼come	/ FUT=CLD=DPRT

čɛt	qʷoqʷol.
ča?at	qʷə∼qʷəẗ
now	PROG∼com

'He got stuck in Comox. So he'll be coming now.' (vf | EP.2021/03/05)

11.6.2 Analysis of *ga* (and *gi*)

J. Davis (2012b) proposes that the uses of *ga* in imperatives, questions, and declaratives have a unified rhetorical force of softening or 'nonconfrontation'. I build on this intuition here, adopting the analysis of *ga* in Reisinger and Huijsmans (2020) as a starting point. Under their analysis, which focuses on *ga* in declaratives, *ga* marks the proposition as likely given the preceding discourse: that is, there is some salient true proposition ψ in the discourse context that makes the utterance of ϕ likely. In the most extreme cases, there will be a causal relationship between ψ and ϕ, as in e.g., (789) above, but the relationship need not be so direct, as in e.g., (788). Here, I slightly modify the denotation from Reisinger and Huijsmans, so that it is the *assertion* of ϕ (by one of the discourse participants) that is more likely given a salient ψ in the context.[16,17]

(792) *ga*(ASSERT(ϕ)) conveys: there is a salient proposition $\psi \in C$, such that ψ =1 and ASSERT(ϕ) is likely given ψ. (adapted from Reisinger and Huijsmans 2020)

[15] Two orderings for *səm*, *kʷi/kʷa*, and *ga* were volunteered and so both are included.

[16] Further work should examine whether it is possible to further restrict the relation between the salient ψ in the context C and the prejacent proposition ϕ. While a causal relationship is too strong, it may be possible to posit that ψ provides a *reason* for ϕ to be the case. This requires further investigation.

[17] In Reisinger and Huijsmans (2020) the salient proposition ψ is represented as within the common ground, but I use context here, since I show below (see (803)) that the addressee does not always need to have access to the speaker's reason for uttering ϕ.

Having *ga* compose at the level of the speech act allows for *ga* to compose with imperatives and questions, as discussed below.

This analysis predicts that *ga* should not be felicitous in an assertion that does not follow straightforwardly from the salient preceding context. This is a correct prediction. In (793), for instance, the preceding discourse suggests that it may not be worthwhile for the speaker to make the trip to the store, but the speaker is going anyways. Here, *ga* is infelicitous; this case contrasts with (784) above, where the speaker also expresses intent to go to the store, but the proposition follows straightfowardly from the preceding discourse.

(793) *Context: There was a case sale on my favourite brand of condensed milk. I don't get around to going until several days have passed and I suspect they're sold out, but I think I'll go check anyways.*

a. qʷayɩn ʔukʷanom.[18] #hotᶿa **ga** kʷʊt.
qʷayin ʔukʷ-a-nu-m hu=tᶿ=a=**ga** kʷə[n]-t
maybe all-ʔ-NCTR-PASS go=1SG.SBJ=FUT=DPRT see-CTR
'I think they'll be out, but I'm going to see anyways.' (sf | EP.2021/04/16)

b. qʷayɩn ʔukʷanom. hotᶿəmt kʷʊt.
qʷayin ʔukʷ-a-nu-m hu=tᶿ=əm=ʔut kʷə[n]-t
maybe all-ʔ-NCTR-PASS go=1SG.SBJ=FUT=EXCL see-CTR
'I think they'll be out, but I'll just go see anyways.' (sf | EP.2021/04/16)

Similarly, in (794), Felipe's coming home does not follow from his being at the party only a little while, so *ga* is not felicitous in the assertion *qʷol hɛwt* 'he came home'; this case contrasts with (785) above where Felipe's coming home follows from the fact that he waited a long time without his friend showing up.

(794) *Context: Felipe was at a birthday party for his cousin last night. He was having a really good time, but he came home before too late because he had to go to work early this morning. You ask me:*

A: hohoɬa Felipe ʔəkʷ *party* snanatoɬ?
hu-h-uɬ=a Felipe ʔə=kʷ=*party* snanat-uɬ
go-EPEN-PST=Q Felipe OBL=DET=part evening-PST
'Did Felipe go to the party last night?'

B: ʔɛʔ, θohoɬ ʔit. namaɬ ʔot nɛʔ ʔi qʷol (#**ga**) hɛwt. qəǰimot kʷi, kʷa
ʔiʔ θu-h-uɬ=ʔəyt namaɬ=ʔut niʔ ʔiy qʷəl̓=(#**ga**) hiwt qəǰi-mut kʷi kʷa
yes go-EPEN=DPRT little=EXCL be.there CONJ come(#=DPRT) get.home still-INT early CLD
θo ṗaṗɛm sṫᶿokʷ.
θu ṗaṗi-m sṫᶿukʷ
go work-MD today
'Yes, he went. He only stayed a little while and then he came home. He went to work early this morning.' (sf | EP.2022/05/20)

[18]The [a] in this word seems to be a linking vowel preceding the transtivizer, but linking vowels do not usually appear before the noncontrol transitivizer and vowel insertion here is also not motivated phonologically.

ga also cannot occur in the proposition that acts as the reason, rather than the proposition that follows from the preceding reason. In (795a), for instance, *ga* is infelicitous in the clause stating that the food is ready, which is the reason for the speaker going home. It is felicitous in (795b), in the clause stating that the speaker is going home, which has the precedding clause as its reason.

(795) Context: Felipe texted to say he was making a mac and cheese for tonight. An hour or so later, I figure dinner will be ready and I'd better get home. I tell you:

a. hotᶿəm ǰu. səmkʷi (#**ga**) hoːǰít kʷʊms ʔɛɬtən.
hu=tᶿ=əm ǰu səm=kʷi=(#**ga**) huǰ-ít kʷ=əms=ʔiɬtən
go=1SG.SBJ=FUT home FUT=CLD=DPRT finish-STAT DET=1PL.POSS=food
'I'm going to head home. Our food will be ready.' (sf | EP.2022/05/06)

b. səmkʷi c̓̌ɛχ kʷukʷs Felipe. hotᶿa **ga** ǰu.
səm=kʷi=c̓̌əx̌ kʷukʷ-s Felipe hu=tᶿ=a=**ga** ǰu
FUT=CLD=get.cooked cooking-3POSS Felipe go=1SG.SBJ=FUT=DPRT home
'Felipe's cooking will be ready, so I'm going to head home.' (sf | EP.2022/08/20)

For declaratives, then, the analysis seems to accurately predict the distribution of *ga*. I turn next to cases of *ga* in imperatives and questions.

Given the apparently different contribution of *ga* in imperatives and questions, it is tempting to consider whether the two uses could involve two different (homophonous) lexical items. Such a move does not seem well-motivated, however. Cross-Salishan evidence argues against this: the cognate Sechelt particle *la* also occurs in both imperatives and declaratives:

(796) **Imperative**
ts'ékw-ús-em-**la**!
wipe-face-MD=DPRT
'Wipe your face!' (Beaumont 2011: 531)

(797) **Declarative**
sép'-t-úlh-chan. nílh-**la** ʔiy ch'asx̱-ém-mit-ts-as.
hit-CTR-PST-1SG.SBJ COP-DPRT CONJ scare-MD-INDIR+CTR-1SG.OBJ-3ERG
'I hit him. That's why he's scared of me.' (Beaumont 2011: 528)

Since a single lexical item in each language does the same type of work, a unified analysis seems desirable.

I propose that *ga* found in imperatives and questions encodes that the imperative or question is likely given some salient proposition in the context. Once again, I adopt a simple representation of imperatives where they introduce an imperative operator in the form of a REQUEST predicate. I then represent *ga* in imperatives as follows:

(798) *ga*(REQUEST(ϕ)) conveys: there is a salient proposition $\psi \in cg$, such that ψ=1 and REQUEST(ϕ) is likely given ψ.

In (777), for instance, the fact that it is lunchtime would be salient in the context, even preceding the speaker mentioning this; this gives the speaker reason to ask the addressee to come eat. More generally, it can be seen as marking requests as reasonable, in the sense of having a rationale, and conveying politeness in this way. This use seems to be quite conventionalized given *ga*'s relative frequency in imperatives compared to declaratives or questions.

I propose an analysis for questions involving a question operator Q. *ga* marks the question as a likely speech act given some salient ψ in the context.

(799) *ga*(Q(ϕ)) conveys: there is a salient proposition $\psi \in C$, such that ψ=1 and Q(ϕ) is likely given ψ.

In this way, *ga* marks questions as motivated by the context, not abrupt or unreasonable. For instance, in a question like (800) (repeated from (782) above), the context involves the speaker sharing a picture with an addressee who is likely to know individuals in the picture. Both of these aspects of the context motivate the question, making it reaonable in the context. In (800) (repeated from (783) above), the question is reasonable given that I am a customer at a store holding an item, and the addressee is someone who works there.

(800) *Context: I'm asking a respected Elder about some old pictures I found. I think she might know who is in them. I show her one and ask:*

gɛt ?(**ga**) tɛʔɛʔ
gat=?(**ga**) tiʔi
who=DPRT DEM
'Who is this?' (sf | EP.2022/06/10)

(801) *Context: At a store, I want to inquire from one of the workers about something that doesn't have a price tag.*

k̓ʷɛnos ?(**ga**) tɛʔɛʔ
k̓ʷin-us=?(**ga**) tiʔi
how.much-round=DPRT DEM
'How much is this?' (vf | EP.2022/06/17)

Restrictions on the use of *ga* in questions are still under investigation. *ga* does not seem to be felicitous in questions that are very urgent, for instance.

(802) a. *Context: Felipe and I are hiking and see something very big moving the bush, but we can't quite see what it is. I say to Felipe:*

tam c̓ɛ (#**ga**) kʷšiṅʔ!
tam=c̓a=(#**ga**) kʷšiṅ
what=INFER=DPRT DEM
'What is that?!' (sf | EP.2022/06/10)

Consultant's comment: [with *tam c̓ɛ ga kʷšiṅʔ*] You're not really scared or frightened, you hear a noise and wonder, what could that be?

While the context presumably licenses *ga* in these cases, the speaker does not have the intention of conveying politeness or reasonableness, which may be why it is infelicitous to use it. If the account I have proposed for *ga* is on track, this suggests that the contribution of *ga* is not presuppositional – it is not necessary to use it whenever its felicity conditions are met (if it were a presupposition, not using it when its felicity conditions were met would violate Maximize Presupposition, Heim 1991).

I have not been able to find places where *ga* is ruled out in questions because they are asked out-of-the-blue as far as the addressee is concerned. In (803), the speaker has a reason for asking the question, but it is not known to the addressee.

(803) *Context: My husband and I are sitting reading, and then I come across a name that is sort of familiar in my book, so out of the blue I ask him* (*thinking it might be his aunt's name*)*:*

tam (**ga**) kʷ nans ʔəθ čɛpθʔ
tam=(**ga**) kʷ=nan-s ʔəθ=čapθ
what=DPRT DET=name-3POSS 2SG.POSS=aunt/uncle
'What is your aunt's name?' (sf | EP.2022/06/17)

It is for this reason that I have not represented *ga* as placing restrictions on the common ground, but rather as indicating that there is a salient reason for the speech act in the *context*. This allows for the reason to be contextually salient to the speaker but not the addressee.

Before closing this section, I return to the particle *gi*, which can occur instead of *ga* in imperatives. Unlike *ga*, *gi* seems to be generally fixed to imperative contexts. I have never come across it in questions and when I have suggested it in questions it has been rejected (*ga* can optionally be used in these cases instead):

(804) a. *Context: I see a young person that looks familiar at a gathering and I'm trying to place her.*

gɛt {**ga** / ***gi**} kʷʊθ tanʔ
gat={**ga** / ***gi**} kʷ=əθ=tan
who=DPRT DET=2SG.POSS=mother
'Who is your mother?' (sf | EP.2022/05/20)

b. *Context: When my husband gets home from the store, I ask him:*

tam {**ga** / ***gi**} kʷʊθ ʔuqʔ
tam={**ga** / ***gi**} kʷ=əθ=ʔuq
what=DPRT DET=2SG.POSS=buy
'What did you buy?' (sf | EP.2022/05/20)

It also does not show up in declaratives and has been rejected when I have suggested it in parallel contexts to *ga*.

(805) hɛ {**ga** / ***gi**} ʔətᶿ čɛgat.
hiɬ={**ga** / ***gi**} ʔətᶿ=čag-at
COP=DPRT 1SG.POSS=help-CTR
'That's why I helped him.' (sf | EP.2018/04/08)

(806) *Context: I've been having trouble finding my favourite brand of condensed milk since some of the stores stopped carrying it. Then Gail tells me she can sometimes find it at a little corner store. I tell you:*

tatawθiyəm	Gail	nɛstom k̓ʷa	šɛ xʷuxʷǰumayɛ	kʷ *milk*
ta∼taw-θiy-əm	Gail	niʔ-stu-m=k̓ʷa	šə=xʷu<xʷ>ǰumaya<ʔ>	kʷ=*milk*
PROG∼tell-1SG.OBJ-PASS	Gail	be.there-CAUS-PASS=RPT	DET=store<DIM>	DET=milk

ʔətᶿ χaƛ̓.	hotᶿa (***gi**)	k̓ʷʊt.
ʔətᶿ=ǎaƛ̓.	hu=tᶿ=a=(***gi**)	k̓ʷə[n]-t.
1SG.POSS=want	go=1SG.SBJ=FUT=DPRT	see-CTR

'Gail told me the little store has the milk I want, so I'm going to go see.' (cf.(784))

(sf | EP.2021/04/16)

gi therefore seems to be an operator that selects only for imperatives. Whether this is a lexical specification or whether this is due to the contribution of *gi* giving rise indirectly to a more restricted distribution remains to be seen. There does seem to be a contrast in meaning between *gi* and *ga*, given that speakers have an intuition that they are different (see discussion of *gi* and *ga* in imperatives found in Section 11.6.1 above), but a subtle one. Both are used to indicate politeness, but *gi* is considered to indicate a greater degree of politeness. For now, I simply analyze *gi* as a politeness marker in imperatives and leave the graded politeness represented by *gi* and *ga* to future work.

In summary, I have suggested a unified analysis of *ga* where it indicates that the embedded speech act (assertion, imperative, or question) is likely given some salient true proposition in the context. In declaratives, this has a linking effect. In imperatives and questions, this has an effect of marking the speech act as following from the context and therefore not abrupt or unreasonable; it is interpreted as a politeness marker in these cases. The particle *gi* can occur in place of *ga* in imperatives, but does not occur in declaratives or questions. It seems to convey only politeness, though its contribution needs further investigation.

11.7 Marking epistemic uncertainty with *χʷot* /x̌ʷət/

The final discourse particle I examine in this chapter is *χʷot* /x̌ʷət/. I discuss the basic contribution of *χʷot* /x̌ʷət/ (Section 11.7.1), provide a preliminary analaysis (Section 11.7.2), and then discuss its use in optatives (Section 11.7.3). I propose an analysis where the basic contribution of *χʷot* /x̌ʷət/ is to indicate reduced speaker commitment to the truth of the prejacent. In optatives, I suggest that it is an optativity cue (Grosz 2014).

11.7.1 The contribution of *χʷot* /x̌ʷət/

Watanabe (2003: 529, 2016: 321) describes *χʷot* /x̌ʷət/ as indicating that the content of a clause is hypothetical and notes that it can often be translated with 'it seems that' or 'I think that'. It is used when the speaker is not entirely sure of their memory of past events or when current evidence contradicts what they thought they remembered:

(807) *Context: My friend asks me if our street, 'Triumph St.', used to be called 'Charles St.' I seem to remember hearing that from one of the neighbours, but can't quite recall.*

tatč **χʷot** čʸiyɩtoɬ.
ta?at=č=**x̌ʷət** čʸiy-it-uɬ
HAB=1SG.SBJ=DPRT hear-CTR-PST
'Maybe I heard that.' (vf | EP.2022/05/06)

(808) ṭʸeṭʸeyɩtč šɛtʸ namosamɛn. kʷa?toɬčɛn **χʷot** ?əkʷ θohna
ṭʸi∼ṭʸiy-it=č šə=tʸ=nam-us-amin kʷə?-t-uɬ=čan=**x̌ʷət** ?ə=kʷ=θuhna
PROG∼search-CTR=1SG.SBJ DET=1SG.POSS=write-face-INS put-CTR-PST=1SG.SBJ=DPRT OBL=DET=other.room
?i xʷukʷt nɛ?.
?iy xʷukʷt ni?
CONJ not.exist be.there
'I'm searching for my camera. I thought I put it in the other room, but it's not there.' (vf | EP.2022/05/06)

(809) *Context: Excerpted from a conversation between two speakers.*[19]

a. tatčxʷ **χʷot** čʸiyɩtoɬ...
ta?at=čxʷ=**x̌ʷu?t** čʸiy-i-t-uɬ...
HAB=2SG.SBJ=DPRT hear-STAT-CTR-PST
'I think I used to hear about ...'

b. χʷotč ga **χʷot** tat čʸiyɩtoɬ čɩni ?ajǔ.
x̌ət=č=ga=**x̌u?t** ta?at čʸiy-i-t-uɬ čəni=?ajǔ
really=1SG.SBJ=DPRT HAB hear-STAT-CTR-PST 1SG.IND.PRO=also
'It seems like I used to hear it.' (Watanabe 2016: 322)

χʷot /x̌ʷət/ is also used when the speaker does not feel that their evidence for the proposition is reliable or is not sure how to interpret it:

(810) *Context* (*volunteered*)*: We see a boat far out in the water and are trying to figure out which direction it is going.*

qʷoqʷoḷ **χʷot**.
qʷə∼qʷəḷ=**x̌ʷət**
PROG∼come=DPRT
'It seems like it is coming.' (sf | EP.2021/01/28)

[19] I have added an orthographic line and slightly adapted the glossing to be consistent with what I use here, but I have left the underlying forms and morpheme breaks as in the original analysis. Watanabe has the underlying form of *χʷot* /x̌ʷət/ as *χʷu?t*, but the speakers I work with seem to have a version of this lexical item with a simpler syllable structure; our different transcriptions may be due to language shift or interspeaker variation. Beaumont (2011) proposes that the cognate particle in Sechelt is a reduced form of the stative predicate *stéx̱wít* 'really'. ?ay?ajuθəm *χʷot* /x̌ʷət/ may therefore be grammaticized from the ?ay?ajuθəm cognate *toχʷét* /təx̌ʷít/ 'be correct, right'. If this diachronic trajectory is correct, this would be another reason to expect the underlying form to be *x̌ʷət*, but of course this is only speculation at this point.

(811) a. *Context: We're at the airport to meet Daniel. I thought I saw him at the other end of the room and say:*

hɛɬ **χʷot** Daniel tə nɛʔ [ʔə] taʔa.
hiɬ=**x̌ʷət** Daniel tə=niʔ [ʔə=]taʔa
COP=DPRT Daniel DET=be.there [OBL=]DEM
'It looks like Daniel over there.'

b. *...but when we make our way over, we don't see him anywhere. I say to you:*

hɛɬ **χʷot** Daniel šɛ nɛʔoɬ ʔə taʔa. kʷʊnəs čɛmšɪnʔ
hiɬ=**x̌ʷət** Daniel šə=niʔ-uɬ ʔə=taʔa kʷən=as čəṁ-šən
COP=DPRT Daniel DET=be.there-PST OBL=DEM AUX=3SBJV how/why-foot
'It seemed like it was him... I wonder where he went?' (vf | EP.2022/05/06)

(812) *Context: We were in a meeting with Gloria who seemed distracted and kept glancing at her phone. After, I ask you:*

čɪm c̓ɛ Gloria? hɛhɛw **χʷot** nac̓igən
čəṁ=c̓a Gloria hihiw=**x̌ʷət** nac̓-igan
how/why=INFER Gloria really=DPRT different-inner.being
'What's up with Gloria? She seems like her mind is somewhere else.' (vf | EP.2022/05/06)

(813) *Context: Felipe thought that Daniel looked pale and unwell at a meeting. He told me after:*

hɛhɛw łaχayɪtumiš Daniel. kʷukʷtəm **χʷot**.
hihiw łaxayit-umiš Daniel kʷə∼kʷt-əm=**x̌ʷət**
really sick-appearance Daniel PROG∼sick-MD=DPRT
'Daniel looked unwell. It seemed like he was sick.' (sf | EP.2022/05/17)

Unlike epistemic modals such as the inferential *c̓ɛ* /c̓a/ and adverb *qʷayɪn* /qʷayin/ 'maybe' (discussed in Chapter 6), *χʷot* /x̌ʷət/ does not seem to be used for reasoning based on indirect evidence; many of the cases above rather seem to involve unreliable *direct* evidence (visual evidence of the eventuality described by the prejacent or the speaker's own memories).[20] *χʷot* /x̌ʷət/ has never been volunteered in place of *c̓ɛ* /c̓a/ or *qʷayɪn* /qʷayin/ (or the future *səm*) in contexts where the speaker is making an inference. When suggested

[20]There does not seem to be a direct evidence requirement associated with *χʷot* /x̌ʷət/, however, since it is also compatible with cases like (i) (parallel to (810) but with only indirect evidence):

(i) *Context: I hear a plane, and I'm trying to figure out if it is coming towards us or going away from us, but I can't see where it is. I say to you:*

qʷoqʷoḷ **χʷot**.
qʷə∼qʷəḷ=**x̌ʷət**
PROG∼come=DPRT
'It seems like it is coming.' (sf | EP.2022/08/20)

in these contexts, as in (814)–(815), it was considered infelicitous. *qʷayın* /qʷayin/ ‘maybe’ is used for weak modal claims instead.

(814) *Context: The Tom and Mittens storyboard* (*Rolka and Cable 2014*). *Tom is looking for the cat Mittens. Mittens has run into a room with three containers, a red one, a yellow one and a blue one. He could be in any of three containers. Tom is wondering if he’s in the red one.*

a. #hɛɬ **χʷot** tə ṭaṭᵊɛm kʷ nɛʔs kʷayít.
hiɬ=**x̌ʷət** tə=ṭaṭᵊ-im kʷ=niʔ=s kʷay-ít
COP=DPRT DET=red-MD DET=be.there=3POSS hide-STAT
‘It might be hiding in the red one.’
Consultant’s comment: You don’t use *hɛɬ χʷot* [here]. (sf | EP.2022/05/17)

b. **qʷayın** hɛɬ tə ṭaṭᵊɛm kʷ nɛʔs kʷayít.
qʷayın hiɬ tə=ṭaṭᵊ-im kʷ=niʔ=s kʷay-ít
maybe COP DET=red-MD DET=be.there=3POSS hide-STAT
‘It might be hiding in the red one.’ (vf | EP.2022/05/17)

(815) *Context: Freddie’s car is in his driveway, but when I knock he doesn’t answer. I say to Gloria who is with me:*

a. #ƛ̓ičt̓ **χʷot**, kʷʊnəs ʔaǰu xʷukʷt ʔamot.
ƛ̓<i>č̓t=**x̌ʷət** kʷən=as ʔaǰu xʷukʷt ʔamut
fall.asleep<STAT>=DPRT AUX=3SBJV also not.exist be.home
‘Maybe he’s sleeping, or maybe he’s not home.’ (sf | EP.2022/05/17)

b. **qʷayın** ƛ̓ičt̓, kʷʊnəs ʔaǰu xʷukʷt ʔamot.
qʷayin ƛ̓<i>č̓t kʷən=as ʔaǰu xʷukʷt ʔamut
maybe fall.asleep<STAT> AUX=3SBJV also not.exist be.home
‘Maybe he’s sleeping, or maybe he’s not home.’ (vf | EP.2022/05/17)

χʷot /x̌ʷət/ also cannot be used for strong epistemic modal claims; *č̓ɛ* /č̓a/ must be used instead.

(816) *Context: The Tom and Mittens storyboard* (*Rolka and Cable 2014*). *Tom is looking for the cat Mittens. Mittens has run into a room with three containers, a red one, a yellow one and a blue one. Tom has checked that the cat is not in the red container or the yellow container. There’s only the blue container left, so the cat must be in that one.*

a. #hɛɬ **χʷot** tə kʷʊsɛm kʷ nɛs kʷayít.
hiɬ=**x̌ʷət** tə=kʷəsim kʷ=niʔ=s kʷay-ít
COP=DPRT DET=blue-MD DET=3POSS hide-STAT
‘It must be hiding in the blue one.’ (sf | EP.2022/05/27)

b. hɛɬ **c̓ɛ** tə kʷʊsɛm kʷ nɛs kʷayít.
hiɬ=**c̓a** tə=kʷəsim kʷ=niʔ=s kʷay-ít
COP=INFER DET=blue-MD DET=3POSS hide-STAT
'It must be hiding in the blue one.' (sf | EP.2022/05/27)

I have elicited one example of *χʷot* /x̌ʷət/ co-occurring with *qʷayɪn* /qʷayin/, though another speaker did not accept this combination when I suggested it.

(817) *Context: I look at the window in the morning and see a mid-sized four-legged creature walking around my apple tree. It's a little foggy outside, but it looks like a bear cub. I tell you: I think there's a bear cub in our backyard.*
hanəm t̓ᶿəmt̓ᶿəmqʷoyɪm. xʷač haysan k̓ʷʊnɛt. **qʷayɪn χʷot** mɛmχaɬ.
hanəm t̓ᶿəmt̓ᶿəmqʷuy-əm xʷaʔ=č hays=an k̓ʷən-í-t **qʷayin=x̌ʷət** mi<m>x̌aɬ
too.much foggy-MD NEG=1SG.SBJ really=1SG.SBJV see-STAT-CTR maybe=DPRT bear<DIM>
'It's too foggy. I can't really see it. I think it's a bear cub.' (vf | BW.2020/09/22)

Judgements of responses to utterances with *χʷot* /x̌ʷət/ also suggest that *χʷot* /x̌ʷət/ does not contribute a weak modal claim analoguous to epistemic *might*. If *χʷot* /x̌ʷət/ were a weak epistemic modal, the following exchanges should have been odd, as they are in English. The first weak modal claim about *p* in each exchange still allows for the possibility that ¬*p*, so disagreeing to say that there is a possibility of ¬*p* does not really make sense. The ʔayʔaǰuθəm versions with *χʷot* /x̌ʷət/ were judged perfectly felicitous, however.

(818) *Context: We're looking at a boat far off on the water.*

A. qʷoqʷol̓ **χʷot**.
qʷə∼qʷəl̓=**x̌ʷət**
PROG∼come=DPRT
'It might be coming.' (sf | EP.2022/05/17)

B. xʷaʔ, hoθo **χʷot**.
xʷaʔ hu∼θo=**x̌ʷət**
NEG PROG∼go=DPRT
'# No, it might be going.' (sf | EP.2022/05/17)

(819) *Context: Gloria and I are looking at an old newspaper clipping with a grainy picture, trying to figure out who it might be. I say:*

A. hɛɬ **χʷot** Freddie
hiɬ=**x̌ʷət** Freddie
COP=DPRT Freddie
'It might be Freddie.' (sf | EP.2022/05/17)

B. qʷayɪn xʷaʔ, xʷa **χʷot** hiyəs.
qʷayin xʷaʔ xʷaʔ=**x̌ʷət** hiy+as
maybe NEG NEG=DPRT COP+3SBJV
'?Maybe not, it might not be him.' (sf | EP.2022/05/17)

For a modal claim, the speaker must be committed at least to the possibility of the prejacent proposition. An utterance with *χʷot* /x̌ʷət/ does not require the speaker to be committed even to the possibility of the prejacent, however. This is shown in (820), where coordinating a proposition embedded under *χʷot* /x̌ʷət/ with its opposite or its negation is not contradictory.

(820) *Context: I had been thinking the airplane was coming towards us based on the sound, but then I see that it is going the other way when it comes out from the clouds.*
qʷoqʷoɬšɪn **χʷot** ʔi hoθošina k̓ʷʊt.
qʷə∼qʷəl̓-šən=**x̌ʷət** ʔi hu∼θu-šən=ala=k̓ʷa=ʔut
PROG∼come=DPRT-foot=DPRT CONJ PROG∼go-foot=EXCLAM=RPT=EXCL
'#It might be coming, but it turns out it's going!' (sf | EP.2022/05/27)

(821) *Context: We're at an airport to meet Daniel, and I thought I saw him – it was a tall guy with a baseball cap and a beaver t-shirt, just like Daniel. I pull you along, but when we get close, the guy turns towards us, and it's not Daniel. I tell you:*
hɛɬ **χʷot** Daniel ʔi xʷaʔak̓ʷʊt hiyəs.
hiɬ=**x̌ʷət** Daniel ʔiy xʷaʔ=ala=k̓ʷa=ʔut hiɬ+as
COP=DPRT Daniel CONJ NEG=EXCLAM=RPT=EXCL COP=3SBJV
'#It might be Daniel but it turns out it's not him!' (sf | EP.2022/05/27)

It does not seem to be possible to embed *χʷot* /x̌ʷət/ in a question, so it may also be sensitive to speech act type in a way that we would not expect for a modal (cf. the behaviour of *c̓ɛ* /c̓a/ in Chapter 6).

(822) *Context: You and I are looking out at a boat on the water and I'm trying to figure out which direction it is headed. I ask you:*
*qʷoqʷola **χʷot**?
qʷə∼qʷəl̓=a=**x̌ʷət**
PROG∼come=Q=DPRT
'Might it be coming?' (sf | EP.2022/05/17)

(823) *Context: We were in a meeting with Daniel, and I thought he wasn't looking well. After, I say to you:*
*kʷukʷtəma **χʷot**?
kʷə∼kʷt-əm=a=**x̌ʷət**
PROG∼sick-MD=Q=DPRT
'Did he seem sick?' (sf | EP.2022/05/17)

11.7.2 Preliminary analysis

The analysis proposed here is (even) more tentative than the analyses proposed for the previous two discourse particles. Of the German discourse particles, it most resembles *wohl*, which also contributes something along the lines of epistemic uncertainty (Zimmermann 2011; Grosz 2020; Eckhardt 2020), but *wohl* can be used for inferences (Eckhardt 2020). The contributions of *wohl* and *χʷot* /x̌ʷət/ therefore seem distinct.

I propose that *χʷot* /x̌ʷət/ conveys reduced speaker commitment. In Farkas and Bruce's (2010) model, as sketched at the beginning of this chapter, this can be accomplished through the speaker placing the prejacent proposition p on the table without adding it to their own list of commitments.[21,22] This would raise the issue of *whether p* without committing the speaker to p, as for polar questions (as discussed in Section 11.4).

Since an utterance with *χʷot* /x̌ʷət/ is a declarative, only the denotation of the prejacent p is presumably placed on the Table, however, not the set $\{p, \neg p\}$, as with a polar question. As a result, the default response would be the acceptance of p, rather than assertion of either p or $\neg p$. If the addressee does not accept p, this would not result in the speaker and addressee having conflicting commitments, unlike for a regular declarative.

Whether these predictions about default discourse moves are correct still requires investigation. In particular, this approach predicts that the addressee's acceptance of an utterance with *χʷot* /x̌ʷət/ commits the addressee to the prejacent p, not just its possibility. If this turns out to be too strong a commitment, this may point to *χʷot* /x̌ʷət/ having modal content (so that the addressee's acceptance results only in a commitment to the possibility of p) as well as conveying lack of speaker commitment. This is a matter for future research.

For now, I represent *χʷot* /x̌ʷət/ as in (824):

(824) *x̌ʷət*(ASSERT(ϕ)) conveys: the speaker is not committed to the truth of ϕ.

This representation captures the fact that a speaker can use *χʷot* /x̌ʷət/ without committing to the truth of the prejacent, and also predicts that *χʷot* /x̌ʷət/ will not be used in inferences based on indirect evidence when an epistemic modal can be used instead, since it has a much weaker contribution than an epistemic modal (even than a possibility modal); it does allow for *χʷot* /x̌ʷət/ to co-occur with epistemic modals if the speaker wishes to convey that they are not fully committed to the truth of an inference made with an epistemic modal. Whether this is a correct prediction is still under investigation (see (817) above). If *χʷot* /x̌ʷət/ selects specifically for assertions, the representation above can also capture its absence in questions (and likely imperatives, although this has not been fully explored).

11.7.3 *χʷot* /x̌ʷət/ in optatives

There is another use of *χʷot* /x̌ʷət/: in optative constructions. In these cases, *χʷot* /x̌ʷət/ occurs in a matrix clause with subjunctive subject agreement. Subjunctive subject agreement typically appears in subordinate subjunctive clauses, but in this construction subjunctive subject agreement appears despite the clause not being subordinated. Watanabe (2016) analyzes this construction as a case of insubordination: that is, as a subordinate clause appearing without a subordinating predicate and associated with a conventionalized

[21] This also resembles part of Faller's (2004) proposal for the reportative in Cuzco Quechua, which she analyzes as altering the illocutionary force from assertion to presentation, which does not require the speaker to commit to the truth of the embedded proposition.

[22] Another possibility is that an utterance with *χʷot* /x̌ʷət/ conveys that the speaker has a bias towards the propositional content of utterance, without committing the speaker to the propositional content. An utterance with *χʷot* /x̌ʷət/ would then resemble a tag question, which also conveys bias (see e.g., Farkas and Roelofsen 2017), but with the discourse effect of a declarative.

meaning. Notice that there is no predicate meaning ‘wish’ or ‘hope’ in the examples despite the translations, and the wishes are always speaker-oriented regardless of the subject of the clause.

(825) čɩɬəs **χʷot**.
ččəɬ=as=**x̌ʷət**
rain=3SBJV=DPRT
‘I hope it rains.’ (vf | EP.2018/08/05)

(826) qʷolas **χʷot** χanaθiyəm kʷ mɛmaẇ.
qʷəl̓=as=**x̌ʷət** χan-aθiy-əm kʷ=mimaẇ
come=3SBJV=DPRT give-1SG.OBJ-PASS DET=cat
‘I hope I get given a cat.’ (vf | MH.2018/08/08)

(827) ɬukʼʷan **χʷot**.
ɬukʼʷ=an=**x̌ʷət**
rain=1SG.SBJV=DPRT
‘I wish I could fly.’ (vf | EP.2018/08/05)

(828) qʷoqʷoləs **χʷot**.
qʷə∼qʷəl̓=as=**x̌ʷət**
PROG∼come=2SBJV=DPRT
‘I hope she’s coming.’ (vf | EP.2021/11/20)

(829) *Context: Your friend wasn’t at the soccer game but she would have enjoyed it.*
kʼʷʊnɛ́taxʷ **χʷot**. hɛhɛw tihnotawɬmot.
kʼʷən-í-t=axʷ=**x̌ʷət**. hihiw tihnu-t-awɬ-mut.
see-STAT-CTR=2SG.SBJV=DPRT really challenge-CTR-RECP-INT
‘You should have seen it. It was a really tight game.’ (vf | EP.2019/06/29)

The preceding examples appear similar to optative constructions in languages like English or German, which also use subordinate clause morphology without an embedding predicate:

(830) a. If only I had brought an umbrella!
Paraphrase: ‘I wish I had brought an umbrella.’

b. Wenn ich nur die Zeit zurückdrehen könnte!
if I only the time turn.back could
Literally: ‘If only I could turn back time!’
Paraphrase: ‘I wish I could turn back time.’ (Reisinger and Huijsmans 2020: 188)

Similar optative constructions with the subjunctive are common in Central and Northern Interior Salish languages (Henry Davis, p.c., 2022). Matthewson (2010a) analyzes such a construction in St'át'imcets, for instance, where the subjunctive occurs in an unembedded clause with the deontic modal *ka*.

(831) guy't=**ás**=**ka** ti=sk'uk'wm'it=ha.
sleep=3SBJV=DEON DET=child=EXIS
'I hope the child sleeps.' (Matthewson 2010a: 70)

Under Matthewson's analysis, the meaning of the St'át'imcets optative arises through the meaning of the deontic modal plus the subjunctive. The deontic modal contributes the speaker's desire and the subjunctive restricts the modal force of the c-commanding modal, so that it must be weaker than pure necessity. She proposes that the subjunctive always occurs in the scope of a c-commanding modal with the effect of restricting the modal force.

If the ʔayʔaǰuθəm optative construction were compositionally parallel to its St'át'imcets counterpart, *χʷot* /x̌ʷət/ would be a circumstantial modal contributing the bouletic flavour. *χʷot* /x̌ʷət/ cannot be used on its own to express wishes, however:[23]

(832) *Context: Gloria isn't feeling well, but she has to teach a class tonight. I say to you:*

a. #ʔɛǰɩm **χʷot**.
ʔiǰ-əm=**x̌ʷət**
get.better-MD=DPRT
Intended interpretation: 'I hope she gets better.'
Actual interpretation: 'She seems better.'
Consultant's comment: What you're saying is, she's looking better, I think she's getting better.

b. ʔɛǰɩmas **χʷot**.
ʔiǰ-əm=as=**x̌ʷət**
get.better-MD=3SBJV=DPRT
'I hope she gets better.' (sf | EP.2021/11/26,EP.2022/08/20)

(833) qʷoqʷoḷ̇ **χʷot**.
qʷə∼qʷəḷ̇=**x̌ʷət**
PROG∼come=DPRT
Intended interpretation: 'I hope she's coming.' (cf. (828))
Actual interpretation: 'It seems like she's coming.' (vf/sf | EP.2021/11/20)

Intead, these sentences must be interpreted with *χʷot* /x̌ʷət/ conveying lack of speaker commitment, as discussed above. The ʔayʔaǰuθəm optative therefore seems to resemble German and English optatives where none of the (overt) components on their own expresses desire.

Since *χʷot* /x̌ʷət/ does not seem to be contributing circumstantial modality to the optative construction, another possibility is that it is an optativity cue (following Grosz 2014). Discourse particles are common in

[23] St'át'imcets *ka* is interpreted as deontic on its own (Rullmann et al. 2008; Matthewson 2010a). I have not yet explicitly tested *χʷot* /x̌ʷət/ in deontic contexts, but it is never volunteered with a deontic interpretation.

optative constructions in languages such as German, but Grosz (2014) notes the difficulty in determining the contribution of discourse particles in optative constructions, despite their semi-obligatoriness. He proposes that the role of discourse particles in optatives is to help disambiguate the utterance in favor of an optative reading. This can occur where canonical uses of the utterance (in this case as a subjunctive subordinate clause) would not be able to host the discourse particle in question. It is certainly possible that *χʷot* /x̌ʷət/ is playing this role: it cannot occur in subordinate clauses with parallel content to the optative matrix clauses in which it occurs (it is possible that *χʷot* /x̌ʷət/ is disallowed in subordinate clauses altogether, but this is still under investigation). In (834), for instance, *χʷot* /x̌ʷət/ can be used with the subjunctive to express a wish (834a), but while the same wish can be expressed as a clausal complement of *ʔimot* /ʔəǰmut/ 'very good' (834c), the complement clause cannot contain *χʷot* /x̌ʷət/ (834b).

(834) *Context: We're hoping Daniel will come to a meeting because he has expertise that none of the rest of us have. I say to you:*

a. qʷoləs **χʷot**.
qʷəl̓=as=**x̌ʷət**
come=3SBJV=DPRT
'I hope he comes.' (vf | EP.2022/05/17)

b. *ʔimot ga qʷoləs **χʷot**.
ʔəǰ-mut ga=qʷəl̓=as=**x̌ʷət**
good-INT COMP=come=3SBJV=DPRT
'It would be very good if he comes.' (sf | EP.2022/05/17)

c. ʔimot ga qʷoləs səm təs.
ʔəǰ-mut ga=qʷəl̓=as=səm təs
good-INT COMP=come=3SBJV=FUT arrive
'It would be very good if he comes.' (vf | EP.2022/05/17)

The following is a similar case. The subordinate subjunctive complement of *ʔimot* /ʔəǰmut/ 'very good' expresses something desired by the speaker but *χʷot* is not grammatical in the subordinate clause.

(835) *Context: After two long years of COVID we're really wishing to get together for a family gathering.*

ʔimot ga qʷolat (*χʷot) q̓atθ̓.
ʔəǰ-mut ga=qʷəl̓=at=(*x̌ʷət) q̓atθ̓
good-INT COMP=come=1PL.SBJV=DPRT gather
'It would be good if we all get together.' (sf | EP.2022/05/20)

The use of *χʷot* /x̌ʷət/ may therefore be a cue that the clause it appears in, though bearing subordinate clause morphology, should not be interpreted as a subordinate clause. Further work is needed to determine the contribution of the subjunctive in these constructions, however, and whether the combination of *χʷot* /x̌ʷət/ plus the subjunctive could derive the meaning of these clauses compositionally, as in Matthewson (2010a).

11.8 Conclusion

In this chapter, I have examined three discourse particles *ʔit* /ʔəyt/, *ga*, and *χʷot* /x̌ʷət/, as well as touching on *gi* and its distribution relative to *ga*. I proposed that *ʔit* /ʔəyt/ conveys that the speaker thinks the propositional content of the utterance should be in the common ground. I proposed that *ga* indicates that the speech act is considered to follow from the salient discourse context, acting as a linking particle in declaratives and marking requests and imperatives as reasonable given the context. Finally, I examined *χʷot* /x̌ʷət/ and proposed that it conveys reduced speaker commitment to the propositional content of the utterance. I also suggested that it serves as an optatitivity cue, where it occurs in optative constructions together with the subjunctive, along the lines proposed in Grosz (2014). While the analyses proposed in this chapter capture important generalizations, they are all preliminary (particularly the analysis of *χʷot* /x̌ʷət/) and should serve as hypotheses to be tested in future research.

Chapter 12

Conclusion

In this dissertation, I have provided a comprehensive analysis of the structure and meaning of the second-position clitics in ʔayʔaǰuθəm. I have tackled their syntax and morphology in Part I, and their semantics and pragmatics in the remaining chapters.

12.1 Chapter-by-chapter summary of findings

In Chapter 2, I argued for a morphological account of clitic placement and developed a model driven by an enclitic feature at the point of linearization. I showed that this model accounts for otherwise puzzling behaviour of 2PCs in coordinate structures, as well as correctly predicting multiple 2PCs in a clause to behave as a unit: a clitic string. I also argued against a syntactic account of 2PC placement (as in e.g., Jelinek 1996 for Lummi, Progovac 1996 for Serbo-Croatian), given that this would involve movement violating the Coordinate Structure Constraint.

In Chapter 3, I showed that the morphological model of clitic placement I have proposed also successfully accounts for a range of allomorphy facts triggered by adjacency between the clitics and their host. I argued that these allomorphy facts could not be accounted for in the phonology without giving up important assumptions about modularity. These facts therefore also provide evidence for a morphological account of clitic placement, with clitic placement preceding choice of allomorph (and therefore preceding phonology, in contrast to, e.g., Radanović-Kocić 1996 for Serbo-Croatian, Chung 2003 for Chamorro, Huijsmans 2015 for SENĆOŦEN). In developing an account of allomorph selection, I adopted a two-step model of lexical insertion (from Svenonius 2012; Bye and Svenonius 2012), and proposed that linearization occurs between the two steps.

In Chapter 4, I examined the subject agreement clitics, proposing formal mechanisms for the analysis of subject agreement (building on H. Davis 1999; 2000b). I also proposed a solution for the occurrence of subject agreement clitics on every conjunct even in cases of low coordination, suggesting that duplication of subject agreement arises as a linearization strategy.

In Part II, I examined a set of modal and evidential clitics. I first examined the inferential and reportative clitics in Chapter 6. I argued that these clitics are epistemic modals, providing additional cross-linguistic evidence that the categories of evidentiality and epistemic modality overlap (following e.g., Izvorski 1997; Matthewson, Rullmann, and H. Davis 2007; Peterson 2010a; Tan Almazán 2019, among others). I also argued that the inferential and reportative are both strong modals that take only present temporal perspective, in contrast to their St'át'imcets counterparts (e.g., Matthewson et al. 2007; Rullmann and Matthewson 2018).

In Chapter 7, I introduced a new category: the clausal demonstratives (building on Huijsmans and Reisinger 2021a,b). I argued that these encode spatio-temporal deictic and evidential information through relations between situations and, in the case of the direct evidence clausal demonstratives, the speaker's perceptual trace. I also argued that the evidential clausal demonstratives are not modal, providing evidence that the categories of evidentiality and epistemic modality are not equivalent (contra Matthewson 2012).

In Chapter 8, I examined the use of the future clitic for inferences about past and present eventualities, and proposed a unified analysis for these cases and those the future is used to make a claim about future eventualities. I proposed that the future combines the semantics of a strong modal with prospective aspect, and also places a presupposition on the timing of the evidence for the modal claim. I extended this analysis to English *will* to account for its parallel uses.

In Chapter 9, I examined the contribution of two homophonous clitics *qaɬ*. I argued that one is a circumstantial modal that acts as the past perspective counterpart of the future clitic, and the other, which only occurs with negated propositions, is a universal quantifier over past times.

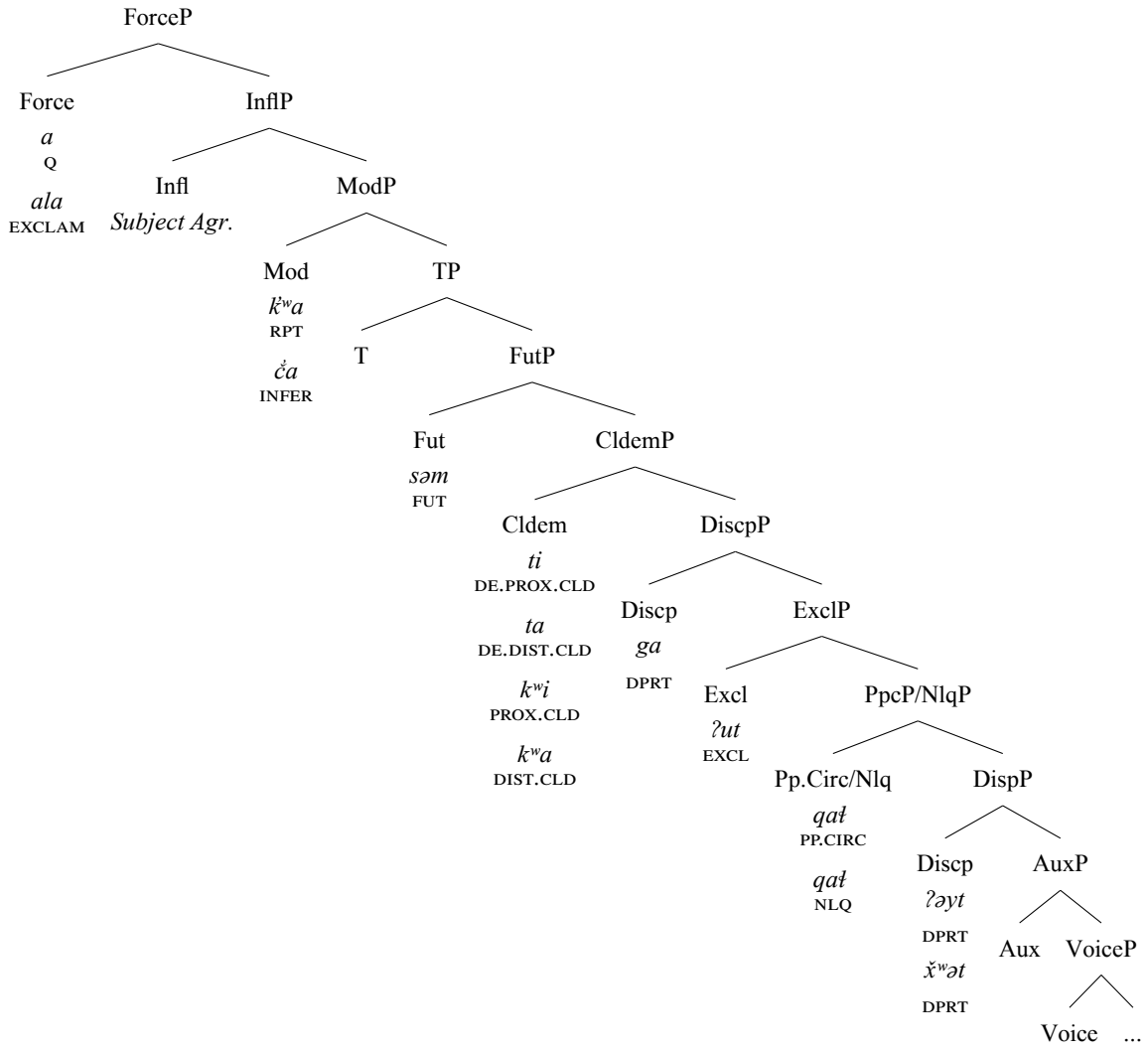
In Part III, I examined a set of discourse-sensitive clitics. I examined the scalar exclusive clitic *ʔot* /ʔut/ in Chapter 10. I argued that it contributes the semantics of Bar Lev and Fox's (2017) exhaustivity operator. I showed how this analysis could capture both its standard use as scalar exclusive ruling out higher/stronger alternatives, and its effect of domain widening when associating with a focused universal quantifier. I extended the account to the English scalar exclusive *just* when associated with the universal quantifier *every*.

Finally, in Chapter 11, I provided preliminary analyses for four discourse particles. I argued that the discourse particle *ʔit* /ʔəyt/ conveys that the speaker thinks the propositional content of the utterance should already be part of the common ground (building on Kratzer and Matthewson's 2009 anlaysis of German *ja* and St'át'imcets *qaʔ*). I argued that the discourse particle *ga* indicates that the utterance is likely, given salient information in the context. I also touched on *gi*, which alternates with *ga* in imperatives and conveys politeness. Finally, I argued that the discourse particle *χʷot* /x̌ʷət/ conveys reduced speaker commitment to the propositional content of the utterance.

12.2 Syntax, composition, and linearization

In the course of this dissertation, I have argued that the clitics are generated syntactically and compose semantically above the verb phrase, drawing especially on evidence from coordination (Chapter 2). I also argued that for the clitics with at-issue content, their linear position within the clitic string reflects their scope. I discussed the inferential scoping over the future (Section 6.9.3 and Section 8.7), the future scoping over the clausal demonstratives (Section 8.6.1), the question clitic scoping over the future, and the inferential scoping over the scalar exclusive and negation-licensed *qaɬ* (Section 2.4.3). While I have not examined every pairing of clitics, the overall scopal relations that emerge are: Force > Modal Evidential > Future > CLD , and at least Modal Evidential > Scalar Exclusive and *qaɬ* (I have not fully explored the relationship between CLDs and *ʔot* /ʔut/ and *qaɬ*). This order also matches the linear order in which these clitics occur in the clitic string. Assuming that linear order maps to syntactic height, the resulting tree for the clitics is as in (836) (seen in previous chapters, most recently as (746)).

(836)



The clitics with at-issue content exhibit a correspondence between linear order, syntactic height, and order of composition.

Subject agreement does not have semantic content, but I provided syntactic evidence for the height of subject agreement in Section 4.5. The discourse particles, however, do not fit the mapping between order of composition, linear order and syntactic height, as discussed in Section 11.3. I also showed that a similar picture emerges when examining other Salish language with second-position clitics, where clitics corresponding to ʔayʔaǰuθəm clitics with at-issue content occur in a relatively stable order cross-linguistically, but both discourse particles and subject agreement vary in position. Accounting for the discourse particles' mapping between linear order, syntax, and composition therefore has implications beyond ʔayʔaǰuθəm.

12.3 Future research

A work of this breadth cannot help but raise many more questions for future work. The linearization of the discourse particles and how this relates to the overall architecture of the mapping between hierarchical structure and linear order remains an open question, as discussed above. The semantics of perspective shift, the conditions on when it can occur, and its effect on the interpretation of the reportative is another area in need of further investigation. The semantic analyses of the discourse particles provided here all also raise

questions for future work. I hope that this dissertation will provide the groundwork for further investigation of these topics in ʔayʔaǰuθəm and other Salish languages, as well as contributing to investigations of 2PCs further afield.

Bibliography

Abusch, D. (2012). Circumstantial and temporal dependence in counterfactual modals. *Natural Language Semantics*, (20):273–297.

Aikhenvald, A. (2004). *Evidentiality*. Oxford University Press, Oxford.

Aikhenvald, A. (2007). Information source and evidentiality: What can we conclude? *Rivista di Linguistica*, 19:209–227.

Alonso-Ovalle, L. (2005). Distributing the disjuncts over the modal space. In Bateman, L. and Ussery, C., editors, *North East Linguistic Society* (*NELS*) *35*, pages 1–12.

Anand, P. and Hacquard, V. (2013). Epistemics and attitudes. *Semantics and Pragmatics*, 6:1–59.

AnderBois, S. (2014). On the exceptional status of reportative evidentials. In Snider, T., D'Antonio, S., and Weigand, M., editors, *Proceedings of Semantics and Linguistic Theory* (*SALT*) *24*, pages 234–254, Washington, DC. Linguistic Society of America.

Anderson, S. (1992). *A-morphous morphology*. Cambridge University Press, Cambridge.

Andreotti, B. (2018a). Interpreting derived stative predicates: Evidence from ʔayʔaǰuθəm. Master's thesis, University of British Columbia, Vancouver, BC.

Andreotti, B. (2018b). Observations about ʔayʔaǰuθəm intransitive verb roots. In Matthewson, L., Guntly, E., Huijsmans, M., and Rochemont, M., editors, *Wa7 xweysás i nqwal'utteníha i ucwalmícwa: He loves the people's languages. Essays in honour of Henry Davis.* UBCOPL 6, Vancouver, BC.

Arkoh, R. and Matthewson, L. (2013). A familiar definite article in Akan. *Lingua*, 123:1–30.

Baker, M. (1985). The mirror principle and morphosyntactic explanation. *Linguistic Inquiry*, 16:373–415.

Bar-el, L. (2005). *Aspectual distinctions in Sḵwx̱wúmesh*. PhD thesis, University of British Columbia, Vancouver, BC.

Bar-el, L., Davis, H., and Matthewson, L. (2005). On non-culminating accomplishments. In Bateman, L. and Ussery, C., editors, *Proceedings of the North Eastern Linguistics Society* (*Vol. 35*), University of Massachusetts, Amherst. GLSA Publications.

Bar-Lev, M. and Fox, D. (2017). Universal Free Choice and Innocent Inclusion. In Burgdorf, D., Collard, J., Maspong, S., and Stefánsdóttir, B., editors, *Proceedings of SALT 27*, pages 96–115.

Beaumont, R. (1985). *she shashishalhem: The Sechelt Language.* Theytus Books, Penticton.

Beaumont, R. (2011). *Sechelt dictionary*. Sechelt Indian Band, Sechelt.

Beaver, D. I. and Clark, B. Z. (2008). *Sense and sensitivity: How focus determines meaning.* Wiley-Blackwell, Chichester.

Beaver, D. I. and Condoravdi, C. (2003). A uniform analysis of *before* and *after*. In Young, R. and Zhou, Y., editors, *Proceedings of SALT 13*, pages 37–54.

Béjar, S. (2003). *Phi-syntax: A theory of agreement*. PhD thesis, University of Toronto.

Béjar, S. and Rezac, M. (2003). Person licensing and the derivation of PCC effects. In Perez-Leroux, A. and Yves, R., editors, *Romance linguistics: Theory and acquisition*, pages 49–62. John Benjamins, Amsterdam.

Béjar, S. and Rezac, M. (2009). Cyclic agree. *Linguistic Inquiry*, 40:35–73.

Beltrama, A. (2016). Exploring metalinguistic intensification: The case of extreme degree modifiers. In Hammerly, C. and Prickett, B., editors, *Proceedings of NELS 46, vol. 1*, pages 79–92.

Bennett, M. and Partee, B. (1978). *Toward the logic of tense and aspect in English*. Indiana University Linguistics Club, Bloomington.

Berman, S. (1987). Situation-based semantics for adverbs of quantification. In Blevins, J. and Vainikka, A., editors, *Issues in Semantics* (*University of Massachusetts Occasional Papers in Linguistics, Volume 12*), pages 45–68. Graduate Linguistics Student Association (GSLA), Amherst, MA.

Bermúdez-Otero, R. (2012). The architecture of the grammar and the division of labour in exponence. In Trommer, J., editor, *The morphology and phonology of exponence*, pages 8–83. Oxford University Press, Oxford, UK.

Bhadra, D. (2020). The semantics of evidentials in questions. *Journal of Semantics*, 37:367–423.

Bhatt, R. and Pancheva, R. (2005). Aspect: An overview. Handout for LSA 130: The syntax and semantics of aspect. Retrieved Aug. 13, 2022 from http://web.mit.edu/rbhatt/www/lsa130/l1.pdf.

Bjorkman, B. (2016). Go get, come see. motion verbs, morphological restrictions, and syncretism. *Natural Language and Linguistic Theory*, 34:53–91.

Blake, S. (1992). Two aspects of Sliammon (łáʔamɩnqən) phonology: Glide/obstruent alternation and vowel length.

Blake, S. (1997). Another look at passives in Sliammon (Salish). In *International conference on Salish and Neighbouring Languages* (*ICSNL*) *32*, pages 86–143.

Blake, S. (2000). *On the distribution and representation of schwa in Sliammon* (*Salish*)*: Descriptive and theoretical perspectives*. PhD thesis, University of British Columbia.

Blake, S. and Shahin, K. (2008). On the phonetics of schwa in Sliammon (M. Comox Salish): Implications for the representations of Salish vowels. *Canadian Acoustics*, 36:42–43.

Bobaljik, J. (2001). A-chains at the PF interface: Copies and 'covert' movement. *Natural Language and Linguistic Theory*, (20):197–267.

Bochnak, M. (2016). Past time reference in a language with optional tense. *Linguistics and Philosophy*, 39:247–294.

Bochnak, M. R. (2015a). Underspecified modality in Washo. In Weber, N. and Chen, S., editors, *Proceedings of the Eighteenth and Nineteenth Workshop on Structure and Constituency in the Languages of the Americas*, pages 3–17, Amherst, MA. UBCWPL.

Bochnak, M. R. (2015b). Variable force modality in Washo. In Bui, T. and Özyıldız, D., editors, *Proceedings of the Forty-fifth Annual Meeting of the North East Linguistic Society* (*NELS 45*), pages 105–114, Amherst, MA. GLSA.

Bolinger, D. (1968). Post-posed main phrases: An English rule for the Romance subjunctive. *Canadian Journal of Linguistics*, 14:3–30.

Bonet, E., Lloret, M.-R., and Mascaró, J. (2007). Allomorph selection and lexical preferences: Two case studies. *Lingua*, 117:903–927.

Bošković, Ž. (2001). *On the nature of the syntax-phonology interface: Cliticization and related phenomena*. Elsevier, Oxford.

Brisson, C. (2003). Plurals, all, and the nonuniformity of collective predication. *Linguistics and Philosophy*, 26:129–184.

Brody, M. (2000). Mirror theory: Syntactic representation in perfect syntax. *Linguistic Inquiry*, 31:29–56.

Brugman, C. and Macaulay, M. (2015). Characterizing evidentiality. *Linguistic Typology*, 19(2):201–237.

Burton, S. (1997). Past tense on nouns as death, destruction and loss. In Kusumoto, K., editor, *Proceedings of NELS 27*, pages 65–77, University of Massachusetts, Amherst. GLSA.

Burton, S. and Matthewson, L. (2015). Targeted construction storyboards in semantic fieldwork. In Bochnak, M. and Matthewson, L., editors, *Methologies in Semantic Fieldwork*, pages 135–156. Oxford University Press, Oxford.

Bye, P. and Svenonius, P. (2010). Exponence, phonology, and non-concatenative morphology. Ms., University of Tromsø/CASTL.

Bye, P. and Svenonius, P. (2012). Non-concatenative morphology as epiphenonemon. In Trommer, J., editor, *The morphology and phonology of exponence*, pages 427–495. Oxford University Press, Oxford.

Cable, S. (2008). Evidentiality and modality in St'át'imcets: Matthewson, davis & rullmann (2008). Handout for Theoretical Perspectives on Languages of the Pacific Northwest, Proseminar on Semantic Theory, UMass Amherst.

Cable, S. (2013). Beyond the past, present, and future: towards the semantics of 'graded tense' in Gĩkũyũ. *Natural Language Semantics*, 21:219–276.

Cable, S. (2020). Two paths to habituality: The semantics of 'habitual mode' in Tlingit (and simple present in English). Retrieved Feb. 11, 2022 from https://semanticsarchive.net/Archive/2VkZjM5O/Two_Path_Habituality.pdf.

Caldecott, M. (2009). *Non-exhaustive parsing: Phonetic and phonological evidence from St'át'imcets*. PhD thesis, University of British Columbia.

Caldecott, M. and Mellesmoen, G. (2018). A preliminary look at glottalized resonants in ʔayʔaǰuθəm: Not a piece of caique. In Matthewson, L., Guntly, E., Huijsmans, M., and Rochemont, M., editors, *Wa7 xweysás i nqwal'utteníha i ucwalmícwa: He loves the people's languages: Essays in honour of Henry Davis*, pages 693–710. UBCOPL, Vancouver.

Chen, S., Hohaus, V., Laturnus, R., Louie, M., Matthewson, L., Rullmann, H., Simchen, O., Turner, C. K., and Klok, J. V. (2017). Past possibility cross-linguistically: Evidence from 12 languages. In Arregui, A., Rivero, M.-L., and Salanova, A., editors, *Modality across syntactic categories*, pages 236–87. Oxford University Press, Oxford.

Chierchia, G. (2006). Broaden your views: Implicatures of domain widening and the "logicality" of language. *Linguistic Inquiry*, 37.4:535–590.

Chomsky, N. (1995). *The Minimalist Program*. MIT Press, Cambridge.

Chomsky, N. (2000). Minimalist inquiries: The framework. In Martin, R., Michaels, D., and Uriagereka, J., editors, *In Step by step: Essays onMinimalist syntax in honor of Howard Lasnik*, pages 89–155. MIT Press, Cambridge, MA.

Chomsky, N. (2001). Derivation by phase. In Kenstowicz, M., editor, *Ken Hale: A life in language*, pages 1–52. MIT Press, Cambridge, MA.

Chomsky, N. (2004). Beyond explanatory adequacy. In Belletti, A., editor, *Structures and beyond: The cartography of syntactic structures*, pages 104–131. Oxford University Press, Oxford.

Chomsky, N. (2013). The problems of projection. *Lingua*, pages 33–49.

Chung, K.-S. (2007). Spatial deictic tense and evidentials in Korean. *Natural Language Semantics*, 15:187–219.

Chung, S. (2003). The syntax and prosody of weak pronouns in Chamorro. *Linguistic Inquiry*, 34:547–599.

Condoravdi, C. (2002). Temporal interpretation of modals: Modals for the present and the past. In Beaver, D., Casillas Martinez, L., Clark, B., and Kaufmann, S., editors, *The construction of meaning*, pages 59–88. CSLI Publications, Stanford.

Condoravdi, C. and Lauer, S. (2012). Imperatives: Meaning and illocutionary force. In Piñón, C., editor, *Empirical Issues in Syntax and Semantics*, volume 9, pages 37–58. Colloque de syntaxe et sémantique à Paris.

Copley, B. (2002). *The semantics of the future*. PhD thesis, MIT.

Coppock, E. and Beaver, D. I. (2014). Principles of the exclusive muddle. *Journal of Semantics*, 31:323–362.

Czaykowska-Higgins, E. (2019). A preliminary description of particle distributions in Nxa?amxčín Salish. In Matthewson, L., Guntly, E., Huijsmans, M., and Rochemont, M., editors, *Wa7 xweysás i nqwal'utteníha i ucwalmícwa: He loves the people's languages. Essays in honour of Henry Davis*, pages 553–570. UBCOPL 6, Vancouver, BC.

Czaykowska-Higgins, E. and Leonard, J. (2015). Northern Straits Salish. In Alexiadou, A. and Kiss, T., editors, *Handbook of contemporary syntax*, pages 1726–1764. Mouton de Gruyter, New York.

Davis, C. and Hara, Y. (2014). Evidentiality as a causal relation: a case study from Japanese *yooda*. *Empirical Issues in Syntax and Semantics*, 10:179–196.

Davis, H. (1994). Tali-ho! In *Papers for the 29th International Conference on Salish and Neighbouring Languages*, pages 117–144.

Davis, H. (1997). Deep unaccusativity and zero syntax in St'át'imcets. In Mendikoetxea, A. and Uribe-Etxebarria, M., editors, *Theoretical issues at the morphology-syntax interface*, pages 55–96. Bilbao: Supplements of the International Journal of Basque Linguistics and Philology.

Davis, H. (1999). Subject inflection in Salish. Ms., University of British Columbia.

Davis, H. (2000a). Coordination and constituency in St'át'imcets. In *Papers for the 35th International Conference on Salish and Neighbouring Languages*, pages 49–78, Vancouver. UBCWPL.

Davis, H. (2000b). Remarks on Proto-Salish subject inflection. *International Journal of American Linguistics*, 66:499–520.

Davis, H. (2001). On negation in Salish. In *Precedings of the 26th International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 55–90.

Davis, H. (2005a). Clitics II. Salish Syntax class handout, University of British Columbia.

Davis, H. (2005b). On the syntax and semantics of negation in Salish. *International Journal of American Linguistics*, 71:1–55.

Davis, H. (2007). Prosody-focus dissociation and its consequences: The case of Salish. Paper presented November 10, 2007, Nagoya, Japan.

Davis, H. (2010). A unified analysis of relative clauses in St'át'imcets. *Northwest Journal of Linguistics*, 4:1–43.

Davis, H. (2012a). Two types of discourse configurationality in languages of the Pacific Northwest. Handout for Workshop on Structure and Constituency in Languages of the Americas (WSCLA) 17.

Davis, H. (2013). St'at'imcets and the nonexistence of T-S-V-O languages. Ms., University of British Columbia.

Davis, H. (2019). Salish languages. In *The Routledge Handbook of North American Languages*, pages 452–472. Routledge, New York.

Davis, H. (2022). Teaching grammar of St'át'imcets. Ms., University of British Columbia.

Davis, H., Griffin, L., Huijsmans, M., and Mellesmoen, G. (2020a). Extracting possessors in ʔayʔaǰuθəm (and beyond). In Reisinger, D., Green, H., Huijsmans, M., Mellesmoen, G., and Trotter, B., editors, *Precedings of the International Conference on Salish and Neighbouring Languages 55*, pages 87–106.

Davis, H. and Huijsmans, M. (2017). Changes in the alignment of arguments in transitive clauses in ʔayʔaǰuθəm (Comox-Sliammon). In Anghelescu, A., Fry, M., Huijsmans, M., and Reisinger, D., editors, *Precedings of the International Conference on Salish and Neighbouring Languages 52*, pages 13–46.

Davis, H. and Huijsmans, M. (2021). Clitics and coordination in two Salish languages. Poster presented at WCCFL 39, University of Arizona.

Davis, H. and Huijsmans, M. (2022). Clitics and coordination in two Salish languages. In *To appear in Proceedings of WCCFL 39*.

Davis, H., Huijsmans, M., and Mellesmoen, G. (2020b). Statives in ʔayʔaǰuθəm and St'át'imcets. In Reisinger, D., Green, H., Huijsmans, M., Mellesmoen, G., and Trotter, B., editors, *Precedings of the International Conference on Salish and Neighbouring Languages 55*, pages 107–132.

Davis, H., Lai, I.-J., and Matthewson, L. (1997). Cedar roots and singing detectives: attributive modification in Salish and English. In *Papers for the 27th International Conference on Salish and Neighbouring Languages*, pages 291–316.

Davis, H. and Matthewson, L. (1999). On the functional determination of lexical categories. *Revue Quebecoise de Linguistique*, 27:29–69.

Davis, H. and Matthewson, L. (2009). Issues in Salish syntax and semantics. *Language and Linguistics Compass*, 3/4:1097–1166.

Davis, H. and Matthewson, L. (2022). St'át'imcets frustratives as not-at-issue modals. *Linguistics*, 60(5):1337 – 1397.

Davis, H., Matthewson, L., and Rullmann, H. (2009). Out of control marking as circumstantial modality in St'át'imcets. In *Cross-linguistic semantics of tense, aspect and modality*, pages 205–244. John Benjamins, Amsterdam.

Davis, H., Matthewson, L., and Shank, S. (2004). Cleft vs. nominal predicates in two Salish languages. In Gerdts, D. and Matthewson, L., editors, *Studies in Salish linguistics in honor of Dale Kinkade*, pages 100–117. University of Montana Occasional Papers in Linguistics, Missoula.

Davis, H. and Mellesmoen, G. (2019). Degree constructions in two Salish languages. In Reisinger, D. and Mellesmoen, G., editors, *International Conference on Salish and Neighbouring Languages 54*, page 24–52.

Davis, J. (1970). Some phonological rules in Mainland Comox. Master's thesis, University of Victoria.

Davis, J. (1971). Four forms of the verb in Sliammon. In *Papers for the 6th International Conference on Salish Languages*, pages 1–9.

Davis, J. (1973). Permutations of a Sliammon sentence. In *Papers for the 8th International Conference on Salish Languages*, pages 1–9.

Davis, J. (1978). Pronominal paradigms in Sliammon. In *Papers for the 13th International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 210–238.

Davis, J. (1980). The passive in Sliammon. *Berkeley Linguistics Society*, 6:278–286.

Davis, J. (2012b). Two particles "ga" in Mainland Comox. In Dunham, J., Lyon, J., and Weber, N., editors, *Papers for the 48th International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 34–48. UBCWPL 32.

Davis, J. (2020). The expression of collective in Mainland Comox. In Reisinger, D., Green, H., Huijsmans, M., Mellesmoen, G., and Trotter., B., editors, *Papers for the 55th International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 143–150. UBCWPL.

De Haan, F. (1999). Evidentiality and epistemic modality: Setting boundaries. *Southwest Journal of Linguistics*, 18(1):83–101.

Deal, A. R. (2011). Modals without scales. *Language*, 87(3):559—585.

DeLancey, S. (2001). The mirative and evidentiality. *Journal of Pragmantics*, 33:369–382.

Demirdache, H. and Matthewson, L. (1995). On the universality of syntactic categories. In *Proceeedings of NELS 25*, pages 79–93, Amherst, MA. GLSA.

Deo, A. (2009). Unifying the imperfective and the progressive: partitions as quantificational domains. *Linguistics and Philosophy*, 34:475–521.

Despić, M. (2017). Suspended morphology in Serbian: Clitics vs. affixes. *Glossa: A Journal of General Linguistics*, 2:12.

Dowty, D. (1979). *Word meaning and Montague grammar*. Reidel, Dordrecht.

Dowty, D. (1986). The effects of aspectual class on the temporal structure of discourse: Semantics or pragmatics? *Linguistics and Philosophy*, 9:37–61.

Eckhardt, R. (2020). Conjectural questions: The case of German verb-final *wohl* questions. *Semantics and pragmantics*, 13.

Elbourne, P. (2005). *Situations and Individuals*. The MIT Press, Cambridge/Mass:.

Elfner, E. (2012). *Syntax-prosody interactions in Irish*. PhD thesis, University of Massachusetts at Amherst.

Embick, D. and Izvorski, R. (1998). Participle-auxiliary word orders in Slavic. In Browne, W., Kondrashova, N., and Zec, D., editors, *Annual Workshop on Formal Approaches to Slavic Linguistics: The Cornell Meeting, 1995*, pages 210–239. Michigan Slavic Publications, Ann Arbor.

Embick, D. and Noyer, R. (2001). Movement operations after syntax. *Linguistic Inquiry*, 32.

Faller, M. (2002). *Semantics and pragmatics of evidentials in Cuzco Quechua*. PhD thesis, Stanford University, Stanford, CA.

Faller, M. (2004). The deictic core of 'non-experienced' past in Cuzco Quechua. *Journal of Semantics*, 21:45–85.

Faller, M. (2014). Do speech act evidentials embed after all? Paper presented at the Workshop on the Semantics of Embedding and the Syntax of the Left Periphery, University of Oxford, 2 September. https://www.academia.edu/8202259/Do_speech_act_evidentials_embed_after_all (accessed 28 February 2022).

Farkas, D. and Bruce, K. (2010). On reacting to assertions and polar questions. *Journal of Semantics*, 27:81–118.

Farkas, D. and Roelofsen, F. (2017). The division of labor in the interpretation of declaratives and interrogatives. *Journal of Semantics*, 34:237–289.

Fox, D. (2007). Free choice and the theory of scalar implicatures. In Sauerland, U. and Stateva, P., editors, *Presupposition and Implicature in Compositional Semantics*, pages 71–120. Palgrave MacMillan, London.

Franks, S. and Progovac, L. (1994). On the placement of Serbo-Croatian clitics. In *Indiana Linguistics Studies 7: Pro-ceedings of the 9th Biennial Conference on Balkan and South Slavic Linguistics, Literature and Folklore*, pages 69–78, Bloomington. Indiana University Linguistics Club.

Garrett, E. (2001). *Evidentiality and assertion in Tibetan*. PhD thesis, University of California, Los Angeles, Los Angeles, CA.

Gerdts, D. (1988). *Object and absolutive in Halkomelem Salish*. Routledge, New York.

Gerdts, D. (2010). Agreement in Halkomelem complex auxiliaries. In *Proceedings of the International Conference on Salish and Neighbouring Languages 45*, pages 175–189, Vancouver. UBCWPL.

Gerdts, D. and Hukari, T. (2003). The expression of NPs in Halkomelem texts. In *Papers for the 38th International Conference on Salish and Neighbouring Languages* (*ICSNL*), page 91–126.

Gerdts, D. B. and Werle, A. (2014). Halkomelem clitic types. *Morphology*, 24(3):245–281.

Giannakidou, A. and Mari, A. (2018). A unified analysis of the future as epistemic modality the view from Greek and Italian. *Natural Language and Linguistic Theory*, 36(1):85–129.

Gillon, C. (2006). *The semantics of determiners: Domain restriction in Sḵwx̱wú7mesh*. PhD thesis, University of British Columbia, Vancouver, BC.

Glougie, J. (2016). *The semantics and pragmatics of English evidential expressions: the expression of evidentiality in police interviews*. PhD thesis, University of British Columbia, Vancouver, BC.

Goodall, G. (2017). Coordination in syntax. In *Oxford Research Encyclopedia of Linguistics*. Oxford University Press.

Grice, H. (1975). Logic and conversation. In Cole, P. and Morgan, J., editors, *Syntax and Semantics*, pages 43–58.

Griffin, L. (2019). There and back again: *qəǰi* in ʔayʔaǰuθəm. In Reisinger, D. and Mellesmoen, G., editors, *International Conference on Salish and Neighbouring Languages 54*, page 86–100.

Grosz, P. (2011). *On the grammar of optative constructions*. PhD thesis, MIT, Cambridge.

Grosz, P. (2014). Optative markers as communicative cues. *Natural language semantics*, 22:89–115.

Grosz, P. (2020). Discourse particles. In Gutzmann, D., Matthewson, L., Meier, C., Rullmann, H., and Zimmerman, T., editors, *The Wiley Blackwell companion to semantics*. Wiley-Blackwell, Malden.

Grubic, M. and Renans, A. (2016). Definiteness marking on VPs/TPs in Ga and Ngamo. In *The Semantics of African, Asian and Austronesian Languages* (*TripleA*) *3*, pages 1–15.

Hacquard, V. (2006). *Aspects of modality*. PhD thesis, Massachusetts Institute of Technology, Cambridge, MA.

Hagège, C. (1981). Le Comox Lhaamen de Columbie Britannique: Présentation d'une langue Amérindienne. *Amérindia. Revue d'Ethnolinguistique Amérindienne, numéro special 2.*

Halle, M. and Marantz, A. (1993). Distributed morphology and the pieces of inflection. In Hale, K. and Keyser, S. J., editors, *The view from building 20: Essays in linguistics in honor of Sylvain Bromberger*, pages 111–176. MIT Press.

Halpern, A. (1992). *On the placement and morphology of clitics*. CSLI Publications, Stanford, California.

Hamblin, C. (1973). Questions in Montague grammar. *Foundations of Language*, 10:41–53.

Harley, H. and Ritter, E. (2004). Person and number in pronouns: A feature geometric anaysis. *Language*, 78:482–526.

Harris, H. (1977). *A grammatical sketch of Comox*. PhD thesis, University of Kansas.

Harris, J. and Potts, C. (2009). Perspective-shifting with appositives and expressives. *Linguistics and Philosophy*, 32:523–552.

Hayes, B. (1989). Compensatory lengthening in moraic phonology. *Linguistic Inquiry*, 20.

Heim, I. (1982). *The semantics of definite and indefinite noun phrases*. PhD thesis, University of Massachusetts, Amherst, Massachusetts.

Heim, I. (1990). E-type pronouns and donkey anaphora. *Linguistics and Philosophy*, 13:137–78.

Heim, I. (1991). Artikel und Definitheit. In von Stechow, A. and Wunderlich, D., editors, *Semantics: An international handbook of contemporary research*, pages 487–535. De Gruyter, Berlin.

Heim, I. and Kratzer, A. (1998). *Semantics in Generative Grammar*. Blackwell, Malden.

Henderson, R. (2017). Swarms: Spatiotemporal grouping across domains. *Natural language and linguistic theory*, 35:161–203.

Heycock, C. (2006). Embedded root phenomena. In Everaert, M. and van Riemsdijk, H., editors, *The Blackwell companion to syntax, Vol. II*, pages 174–209. Blackwell, Oxford.

Hirayama, Y. and Matthewson, L. (2022). Evidential-temporal interactions do not (always) come for free. *Journal of Pragmatics*, 193:173–188.

Hooper, J. and Thompson, S. (1973). On the applicability of root transformations. *Linguistic Inquiry*, 4:465–497.

Huijsmans, M. (2015). Linearization and prosodic phrasing: The case of SENĆOŦEN second-position clitics. Master's thesis, UVIC, BC.

Huijsmans, M. (2022). Analyzing ʔayʔaǰuθəm evidentials: Evidence for epistemic modality. In *Modality in underdescribed languages: A methodological perspective*. Mouton de Gruyter, Berlin.

Huijsmans, M. and Mellesmoen, G. (2021a). How to distribute events: ʔayʔaǰuθəm pluractionals. *International Journal of American Linguistics*, 87:339–368.

Huijsmans, M. and Mellesmoen, G. (2021b). An overview of control and non-control in ʔayʔaǰuθəm (Comox-Sliammon). In Reisinger, D., Green, H., Griffin, L., Huijsmans, M., Mellesmoen, G., and Trotter, B., editors, *Proceedings of the 56th International Conference on Salish and Neighbouring Languages*, pages 84–110, Vancouver. UBCWPL.

Huijsmans, M., Mellesmoen, G., and Urbanczyk, S. (2018a). To copy or not to copy, that is the question: Regarding consonant-vowel interactions in ʔayʔaǰuθəm imperfective reduplication. In Matthewson, L., Guntly, E., Huijsmans, M., and Rochemont, M., editors, *Wa7 xweysás i nqwal'utteníha i ucwalmícwa: He loves the people's languages. Essays in honour of Henry Davis.* UBCOPL, Vancouver, BC.

Huijsmans, M. and Murray, S. (2020). Evidentials and modals. In *Routledge Handbook of North American Languages*. Routledge, New York.

Huijsmans, M. and Reisinger, D. (2018). Clausal demonstratives in ʔayʔaǰuθəm (Comox-Sliammon). In Huijsmans, M., Lo, R., Reisinger, D., and Tkachman, O., editors, *Papers for the 53rd International Conference on Salish and Neighbouring Languages*, pages 9–24, Vancouver. UBCWPL.

Huijsmans, M. and Reisinger, D. (2021a). Deixis meets evidentiality: Clausal demonstratives in ʔayʔaǰuθəm. In Reisinger, D. and Huijsmans, M., editors, *Proceedings of the West Coast Conference on Formal Linguistics 38*, pages 152–159, Somerville. Cascadilla Proceedings Project.

Huijsmans, M. and Reisinger, D. (2021b). Modal versus deictic evidentials in ʔayʔaǰuθəm (Comox-Sliammon). In Dreier, N., Kwon, C., Darnell, T., and Starr, J., editors, *Proceedings of Semantics and Linguistic Theory 31*, pages 629–646.

Huijsmans, M. and Reisinger, D. (2022a). Demonstratives in ʔayʔaǰuθəm: Managing joint attention through gesture and salience. In *Proceedings of Sinn und Bedeutung 26*.

Huijsmans, M. and Reisinger, D. (2022b). ʔayʔaǰuθəm determiners for women, animals, and small things. In Song, Y., editor, *To appear in Proceedings of Semantics of Under-Represented Languages of the Americas* (*SULA*) *11*.

Huijsmans, M., Reisinger, D., Lo, R., and Xu, K. (2018b). A preliminary look at determiners in ʔayʔaǰuθəm. In Matthewson, L., Guntly, E., Huijsmans, M., and Rochemont, M., editors, *Wa7 xweysás i nqwal'utteníha i ucwalmícwa: He loves the people's languages. Essays in honour of Henry Davis*, pages 329–340. UBCOPL 6, Vancouver, BC.

Huijsmans, M., Reisinger, D., and Matthewson, L. (2020). Evidential determiners in ʔayʔaǰuθəm. In Reisinger, D. K. E., Green, H., Huijsmans, M., Mellesmoen, G., and Trotter, B., editors, *Papers for the 55th International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 165–182, Vancouver. UBCWPL.

Iatridou, S., Anagnostopoulou, E., and Izvorski, R. (2001). Observations on the form and meaning of the perfect. In Kenstowicz, M., editor, *Ken Hale: A life in language*, pages 189–238. MIT Press, Cambridge, MA.

Ippolito, M. (2003). Presuppositions and implicatures in counterfactuals. *Natural Language Semantics*, 11:145–186.

Ippolito, M. and Farkas, D. (2019). Epistemic stance without epistemic modals: the case of the presumptive future. In Blake, K., Davis, F., Lamp, K., and Rhyne, J., editors, *Proceedings of Semantics and Linguistic Theory* (*SALT*) *29*, pages 459–476.

Izvorski, R. (1997). The present perfect as an epistemic modal. In Lawson, A., editor, *Proceedings from Semantics and Linguistic Theory VII*, pages 222–239, Ithaca, NY. Cornell University.

Jacobs, P. (2011). *Control in Sḵwx̱wúmesh*. PhD thesis, University of British Columbia, Vancouver.

Jelinek, E. (1996). Definiteness and second position clitics in Straits Salish. In Halpern, A. and Zwicky, A., editors, *Approaching second: Second-position clitics and related phenomena*, pages 271–198. CSLI Publications.

Jelinek, E. (1998). Wh-clefts in Lummi. In *Papers for the 33rd International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 257–265, Seattle. University of Washington.

Kadmon, N. and Landman, F. (1993). Any. *Linguistics and Philosophy*, 16.4:353–422.

Kalsang, J., Speas, M., and de Villiers, J. (2013). Direct evidentials, case, tense and aspect in Tibetan: evidence for a general theory of the semantics of evidential. *Natural Language and Linguistic Theory*, 31:517–561.

Kamp, H. (1974). Free choice permission. *Proceedings of the Aristotelian Society*, 74:57–74. doi:10.1093/aristotelian/74.1.57.

Kaufman, D. (2010). *The morphosyntax of Tagalog clitics: A typologically driven approach*. PhD thesis, Cornell University.

Kaufmann, M. (2012). *Interpreting imperatives*. Springer, Dordrecht.

Kayne, R. (1994). *The antisymmetry of syntax*. Cambridge University Press, Cambridge.

Kinkade, M. (1989). When patients are topics: Topic maintenance in North American Indian languages. In *Papers for the 24th International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 1–41.

Kinkade, M. (1990). Topic object marking in Salish languages. *International Journal of American Linguistics*, 56:341–360.

Kinkade, M. (2001). Proto-Salish irrealis. In *Papers for the 36th International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 198–200, Vancouver. UBCWPL.

Klein, W. (1994). *Time in language*. Routledge, London.

Koch, K. (2008). *Intonation and Focus in Nłeʔkepmxcin* (*Thompson River Salish*). PhD thesis, UBC, BC.

Koch, K. and Zimmermann, M. (2010). Focus sensitive operators in Nłeʔkepmxcin (Thompson River Salish). In Prinzhorn, M., Schmitt, V., and Zobel, S., editors, *Proceedings of Sinn und Bedeutung 14*, pages 237–255.

Koev, T. (2017). Evidentiality, learning events and spatiotemporal distance: The view from Bulgarian. *Journal of Semantics*, 34:1–41.

Korotkova, N. (2016). *Heterogeneity and uniformity in the evidential domain*. PhD thesis, University of California, Los Angeles, Los Angeles, CA.

Kratzer, A. (1977). What 'must'and 'can' must and can mean. *Linguistics and Philosophy*, 1:6337–355.

Kratzer, A. (1981). The notional category of modality. In Eikmeyer, H. J. and Rieser, H., editors, *Worlds, Worlds, and Contexts*, pages 38–74. de Gruyter, Berlin and New York.

Kratzer, A. (1986). Conditionals. In Farley, A., Farley, P., and McCollough, K., editors, *Papers from the parasession on pragmatics and grammatical theory*, pages 115–135. Chicago Linguistics Society, Chicago.

Kratzer, A. (1991). Modality. In von Stechow, A. and Wunderlich, D., editors, *Semantics: An international handbook of contemporary research*, pages 639–650. de Gruyter, Berlin.

Kratzer, A. (1998). Scope or pseudo-scope: Are there wide-scope indefinites? In Rothstein, S., editor, *Events in grammar*, pages 163–196. Kluwer, Dordrecht.

Kratzer, A. (2000). Building statives. In Conathan, L., Good, J., Kavitskaya, D., Wulf, A., and Yu, A., editors, *Proceedings of the Twenty-Sixth Annual Meeting of the Berkeley Linguistics Society: General Session and Parasession on Aspect*, page 385–399. Berkeley Linguistics Society, Berkeley, CA.

Kratzer, A. (2003). A note on choice functions in context. Ms., University of Massachusetts at Amherst.

Kratzer, A. (2012). *Modals and conditionals*. Oxford University Press, Oxford & New York.

Kratzer, A. (2020). Situations in natural language semantics. In Zalta, E. N., editor, *The Stanford Encyclopedia of Philosophy*. URL = <https://plato.stanford.edu/archives/fall2020/entries/situations-semantics/>.

Kratzer, A. and Matthewson, L. (2009). Anatomy of two discourse particles. Handout for SULA 5. Harvard/MIT.

Krifka, M. (1989). Nominal reference, temporal constitution and quantification in event semantics. In Bartsch, R., van Benthem, J., and van Emde Boas, P., editors, *Semantics and contextual expression*, page 75–115. Foris, Dordrecht, Netherlands.

Krifka, M. (1998). The origins of telicity. In Rothstein, S., editor, *Events and grammar*, pages 197–235. Kluwer, Dordrecht, Netherlands.

Krifka, M. (2014). Embedding illocutionary acts. In Roeper, T. and Speas, M., editors, *Recursion: Complexity in cognition*, pages 59–87. Springer.

Kroeber, P. (1988). Inceptive reduplication in Comox and Interior Salishan. *International Journal of American Linguistics*, 54:141–167.

Kroeber, P. (1999). *The Salish language family: Reconstructing syntax*. University of Nebraska Press, Lincoln.

Kroeber, P. (2002). Lexical clitics in two Salish languages. Ms. for talk given at the 37th International Conference of Salish and Neighbouring Languages.

Kuipers, A. (1967). *Squamish Language*. Mouton, The Hague.

Kush, D. (2011). Height-relative determination of (non-root) modal flavor: Evidence from Hindi. In Ashton, N., Chereches, A., and Lutz, D., editors, *Proceedings of SALT 21*, pages 413–425.

Lefebvre, C. (1992). AGR in languages without person and number agreement: The case of the clausal determiner in Haitian and Fon. *Canadian Journal of Linguistics*, 37:137–156.

Lefebvre, C. (1998). Multifunctionality and variation among grammars: The case of the determiner in Haitian and Fongbe. *Journal of Pidgin and Creole Languages*, 13:93–150.

Legate, J. (2008). Warlpiri and the theory of second position clitics. *Natural Language and Linguistic Theory*, 26:3–60.

Lindner, K. (1991). 'wir sind ja doch alte Bekannte.' the use of German *ja* and *doch* as modal particles. In Abraham, W., editor, *Discourse particles*, pages 163–201. John Benjamins, Amsterdam.

Link, G. (1983). The logical analysis of plurals and mass terms: A lattice-theoretical approach. In *Meaning, Use, and Interpretation of Language*, pages 302–323. Mouton de Gruyter, Berlin.

Link, G. (1998). *Algebraic semantics in language and philosophy*. CSLI Publications, Stanford, CA.

Littell, P., Matthewson, L., and Peterson, T. (2010). On the semantics of conjectural questions. In Peterson, T. and Sauerland, U., editors, *Evidence from evidentials*, pages 89–104. UBCWPL, Vancouver.

Lo, R.-H. and Reisinger, D. (2019). Exploring the status of degrees in ʔayʔaǰuθəm. In *Proceedings of SULA 10*, page 117–132, Amherst. GLSA Publications.

Lyon, J. (2013). *Predication and equation in Okanagan Salish: The syntax and semantics of determiner phrases*. PhD thesis, UBC, Vancouver.

Lyon, J. (2015). Okanagan determiner phrases and domain restriction. *International Journal of American Linguistics*, 81(2):187–219.

Lyon, J. and Czaykowska-Higgins, E. (2020). Orbital clitics in Nxaʔamxčín. In Reisinger, D., Green, H., Huijsmans, M., Mellesmoen, G., and Trotter, B., editors, *Proceedings of the Fifty-fifth International Conference on Salish and Neighbouring Languages*, Vancouver. UBCWPL.

Mandelkern, M. (2017). *Coordination in conversation*. PhD thesis, MIT, Cambridge.

Mandelkern, M. (2019). What 'must' adds. *Linguistics and Philosophy*, 42:225–266.

Marantz, A. (1988). Clitics, morphological merger, and the mapping to phonological structure. In Hammond, M. and Noonan, M., editors, *Theoretical morphology*, pages 253–271. Academic Press, Inc, San Diego.

Mari, A. (2018). The French future: Evidentiality and incremental information. In Foolen, A., Mulder, G., and de Hoop, H., editors, *Evidence for evidentiality*, pages 199–228. John Benjamins, Amsterdam/Philadelphia.

Mascaró, J. (1996). External allomorphy and contractions in Romance. *Probus*, 8(2):181–206.

Matthewson, L. (1996). *Determiner systems and quantificational strategies: Evidence from Salish*. PhD thesis, UBC, Vancouver.

Matthewson, L. (1998). *Determiner systems and quantificational strategies: Evidence from Salish*. Holland Academic Graphics, The Hague.

Matthewson, L. (1999). On the interpretation of wide-scope indefinites. *Natural Language Semantics*, 7:79–134.

Matthewson, L. (2001). Quantification and the nature of cross-linguistic variation. *Natural Language Semantics*, 9:145–189.

Matthewson, L. (2004). On the methodology of semantic fieldwork. *International Journal of American Linguistics*, 70:369–415.

Matthewson, L. (2005a). On the absence of tense on determiners. *Lingua*, 115:1697–1735.

Matthewson, L. (2005b). Presuppositions and cross-linguistic variation. In Davis, C., Deal, A., and Zabbal, Y., editors, *Proceedings of the 36th Annual Meeting of the North East Linguistics Society*, pages 63–76, Amherst. GLSA.

Matthewson, L. (2005c). *When I was small - I wan kwikws*. UBC Press, Vancouver, British Columbia.

Matthewson, L. (2006). Temporal semantics in a superficially tenseless language. *Linguistics and Philosophy*, 29:673–713.

Matthewson, L. (2008). Pronouns, presuppositions, and cross-linguistic variation. In Friedman, T. and Ito, S., editors, *Proceedings of Semantics and Linguistic Theory* (*SALT*) *18*, pages 527–550.

Matthewson, L. (2010a). Cross-linguistic variation in modality systems: The role of mood. *Semantics and pragmatics*, 3:1–74.

Matthewson, L. (2010b). Evidential restrictions on epistemic modals. Presentation given at the Workshop on Epistemic Indefinites, University of Göttingen, June 11, 2010. Slides retrieved May 23, 2020 from http://www.engl-ling.uni-goettingen.de/epistemic/Program_files/Matthewson%20Goettingen.pdf.

Matthewson, L. (2012). Evidence about evidentials: Where fieldwork meets theory. In Stolterfoht, B. and Featherston, S., editors, *Empirical approaches to linguistic theory: Studies in meaning and structure*, pages 85–114. de Gruyter, Berlin.

Matthewson, L. (2013). Gitksan modals. *International Journal of American Linguistics*, 79:349–94.

Matthewson, L. (2015). Evidential restrictions on epistemic modals. In Alonso-Ovalle, L. and Menéndez-Benito, P., editors, *Epistemic indefinites: Exploring modality beyond the verbal domain*, pages 141–160. Oxford University Press, Oxford.

Matthewson, L. (2016). Modality. In Aloni, M. and Dekker, P., editors, *The Cambridge handbook of formal semantics*, pages 525–559. Cambridge University Press, Cambridge.

Matthewson, L. (2022). Semantic fieldwork: How experimental should we be? *Semantic Fieldwork Methods*.

Matthewson, L., Rullmann, H., and Davis, H. (2007). Evidentials as epistemic modals: Evidence from St'át'imcets. In Craenenbroeck, J. V., editor, *Linguistic variation yearbook 2007*, volume 7, pages 201–254. John Benjamins, Amsterdam.

McCready, E. (2007). Context shift in questions and elsewhere. In McNally, L. and Puig-Waldmüller, E., editors, *Proceedings of Sinn und Bedeutung 11*, pages 433–447.

McCready, E. and Ogata, N. (2007). Evidentiality, modality and probability. *Linguistics and Philosophy*, 30:147–206.

McGinnis, M. (2005). On markedness asymmetries in person and number. *Language*, 81:699–718.

Mellesmoen, G. (2017a). All the small things: Diminutive reduplication as infixation in ʔayʔaǰuθəm. In Anghelescu, A., Fry, M., Huijsmans, M., and Reisinger, D., editors, *International Conference on Salish and Neighbouring Languages 52*, pages 151–169.

Mellesmoen, G. (2017b). Overt third person object agreement in ʔayʔaǰuθəm. In Anghelescu, A., Fry, M., Huijsmans, M., and Reisinger, D., editors, *Papers for the 52nd International Conference on Salish and Neighbouring Languages*, pages 176–197. UBCWPL.

Mellesmoen, G. (2018a). A one (morpheme) by one (morpheme) approach to *paʔapyaʔ*: *-Vʔ-* as a temporal pluractional in infix in Comox-Sliammon. In Huijsmans, M., Lo, R., Tkachman, O., and Reisinger, D., editors, *Papers for the 53rd International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 143–160, Vancouver. UBCWPL.

Mellesmoen, G. (2018b). Sonorant voicing ([SV]) in Comox-Sliammon. In Huijsmans, M., Lo, R., Tkachman, O., and Reisinger, D., editors, *Papers for the 53rd International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 143–160, Vancouver. UBCWPL.

Mellesmoen, G. (2020). A reanalysis of CV- reduplication in Comox-Sliammon. *Working Papers of the Linguistics Circle of Victoria*, 30:1–10.

Mellesmoen, G. and Andreotti, B. (2017). Result state holds! Stative aspect and non-control morphology in ʔayʔaǰuθəm. In Anghelescu, A., Fry, M., Huijsmans, M., and Reisinger, D., editors, *Papers for the 52nd International Conference on Salish and Neighbouring Languages*, pages 176–197, Vancouver. UBCWPL.

Mellesmoen, G. and Babel, M. (2020). Acoustically distinct and perceptually ambiguous: ʔayʔaǰuθəm (Salish) fricatives. *Journal of the Acoustical Society of America*, 147:2959–2973.

Mellesmoen, G., Davis, H., and Matthewson, L. (2020). Decomposing distributive numerals in ʔayʔaǰuθəm (Comox-Sliammon Salish). In Franke, M., Kompa, N., Liu, M., Mueller, J., and Schwab, J., editors, *Proceedings of Sinn und Bedeutung 24*, pages 72–98.

Mellesmoen, G. and Huijsmans, M. (2019a). The relationship between pronunciation and orthography: Using acoustic analysis as a practical illustration of ʔayʔaǰuθəm (Comox-Sliammon) vowel quality. In Calhoun, S., Escudero, P., Tabain, M., and Warren, P., editors, *Proceedings of the 19th International Congress of Phonetic Sciences*, pages 979–983.

Mellesmoen, G. and Huijsmans, M. (2019b). Stative allomorphy and raised pitch in ʔayʔaǰuθəm. In Reisinger, D. and Mellesmoen, G., editors, *Papers for the 54th International Conference on Salish and Neighbouring Languages* (*ICSNL*), pages 139–162, Vancouver. UBCWPL.

Mellesmoen, G. and Huijsmans, M. (2019c). Types of pluractionality and plurality across domains in ʔayʔaǰuθəm. In Davis, K. B. F., Lamp, K., and Rhyne, J., editors, *Proceedings of Semantics and Linguistic Theory 29*, pages 103–116.

Menendez-Benito, P. (2005). *The grammar of choice*. PhD thesis, University of Massachusetts at Amherst, Amherst, Mass.

Menzies, S. (2012). Nsyilxcen modality: Semantic analysis of epistemic modality. Master's thesis, University of British Columbia.

Mihoc, T., Bhadra, D., and Fălăuş, A. (2019). Epistemic modals, deduction, and factivity: New insights from the epistemic future. In Blake, K., Davis, F., Lamp, K., and Rhyne, J., editors, *Proceedings of Semantics and Linguistic Theory* (*SALT*) *29*, pages 351–370.

Montler, T. (1986). *An outline of the morphology and phonology of Saanich, Northern Straits Salish. Occasional Papers in Linguistics No. 4.* Linguistics Laboratory, University of Montana, Missoula.

Morzycki, M. (2012). Adjectival extremeness: Degree modification and contextually restricted scales. *Natural Language and Linguistic Theory*, 30:567–609.

Mucha, A. (2015). *Temporal interpretation and cross-linguistic variation: A formal semantic analysis of temporal and aspectual reference in Hausa and Medumba*. PhD thesis, University of Potsdam, Potsdam.

Murray, S. (2010). *Evidentiality and the structure of speech acts*. PhD thesis, Rutgers University, New Brunswick, NJ.

Nevins, A. (2012). Haplological dissimilation at distinct stages of exponence. In Trommer, J., editor, *The morphology and phonology of exponence*, pages 84–116. Oxford University Press, Oxford.

Oliver, B. (2021). A preliminary account of circumstantial *xwent* in Secwepemctsín. In Reisinger, D., Green, H., Griffin, L., Huijsmans, M., Mellesmoen, G., and Trotter, B., editors, *Papers for the 56th International Conference on Salish and Neighbouring Languages*, pages 294–304, Vancouver. UBCWPL.

Oliver, B. (2022). A analysis of circumstantial *xwent* in Secwepemctsín. Ms., University of British Columbia.

Palmer, F. (2001). Cambridge University Press, Cambridge.

Papafragou, A. (2000). *Modality: Issues in the Semantics-Pragmatics Interface*. Elsevier, Amsterdam.

Papafragou, A. (2006). Epistemic modality and truth conditions. *Lingua*, 116:1688–1702.

Partee, B. (1995). Quantificational structures and compositionality. In Bach, E., Jelinek, E., Kratzer, A., and Partee, B., editors, *Quantification in Natural Language*. Kluwer, Dordrecht.

Peterson, T. (2010a). *Epistemic modality and evidentiality in Gitksan at the semantics-pragmatics interface*. PhD thesis, University of British Columbia, Vancouver, BC.

Peterson, T. (2010b). Examining the mirative and nonliteral uses of evidentials. In Peterson, T. and Sauerland, U., editors, *Evidence from Evidentials*, volume 28, pages 129—159. University of British Columbia Working Papers in Linguistics, Vancouver, Canada.

Peterson, T. (2012). The role of the ordering source in Gitksan epistemic modals. In *Proceedings of Semantics of Under-Represented Languages in the Americas 6*, Amherst. GLSA.

Peterson, T. (2018). Evidentiality and epistemic modality in Gitksan. In Aikhenvald, A. Y., editor, *The Oxford Handbook of Evidentiality*. Oxford University Press.

Portner, P. (2007). Imperatives and modals. *Natural language semantics*, 15:351–383.

Potts, C. (2005). *The logic of conventional implicatures*. Oxford University Press, Oxford.

Preminger, O. (2009). Breaking agreements: Distinguishing agreement and clitic doubling by their failures. *Linguistic Inquiry*, 40:619–666.

Preminger, O. (2011). Asymmetries between person and number in syntax: a commentary on Baker's SCOPA. *Natural Language and Linguistic Theory*, 29:917–937.

Preminger, O. (2014). *Agreement and its failures*. MIT Press, Cambridge.

Progovac, L. (1996). Clitics in Serbian/Croatian: Comp as the second position. In Halpern, A. and Zwicky, A., editors, *Approaching second: Second-position clitics and related phenomena*, pages 411–428. CSLI Publications.

Radanović-Kocić, V. (1996). The placement in Serbo-Croatian clitics: A prosodic approach. In *Approaching Second: Second-position clitics and related phenonemon*, pages 429–446. CSLI Publications, Stanford, California.

Reichenbach, H. (1947). *Elements of symbolic logic*. UC Press, Berkeley.

Reinhart, T. (1997). Quantifier scope: how labor is divided between QR and choice functions. *Linguistics and Philosophy*, 20:335–397.

Reis Silva, A. and Matthewson, L. (2007). An instantaneous present tense in blackfoot. In Deal, A., editor, *Proceedings of Semantics of Underrepresented Languages of the Americas* (*SULA*) *4*, pages 197–213, Amherst. GLSA.

Reisinger, D. (2018). Modality in Comox-Sliammon. In Huijsmans, M., Lo, R., Reisinger, D., and Tkachman, O., editors, *Papers for the 53rd International Conference on Salish and Neighbouring Languages*, pages 197–227, Vancouver. UBCWPL.

Reisinger, D. and Huijsmans, M. (2020). *ǰaqaʔ*: A generalized exclamation operator in ʔayʔaǰuθəm. In Franke, M., Kompa, N., Liu, M., Mueller, J., and Schwab, J., editors, *Proceedings of Sinn und Bedeutung 24*, pages 183–200.

Reisinger, D. and Huijsmans, M. (2021). Demonstratives in ʔayʔaǰuθəm. In Reisinger, D., Green, H., Griffin, L., Huijsmans, M., Mellesmoen, G., and Trotter, B., editors, *Proceedings of 56th International Conference on Salish and Neighbouring Languages*, pages 305–375, Vancouver. UBCWPL.

Reisinger, D., Huijsmans, M., and Matthewson, L. (2021). Evidentials in the nominal domain: A Speasian analysis of ʔaʔaǰuθəm determiners. In Grosz, P., Martí, L., Pearson, H., Sudo, Y., and Zobel, S., editors, *Proceedings of Sinn und Bedeutung* (*SUB*) *25*, pages 751–768. University of Konstanz.

Renans, A. (2016). A cross-categorial definite determiner: Evidence from Ga (Kwa). In *Proceedings of SALT 26*, pages 23–42.

Renans, A. (2021). Definite descriptions of events: Progressive interpretation in Ga (Kwa). *Linguistics and Philosophy*, 44:237–279.

Rett, J. and Murray, S. E. (2013). A semantic account of mirative evidentials. In Snider, T., editor, *Semantics and Linguistic Theory* (*SALT*), volume 23, pages 453–472, Ithaca, NY. CLC Publications.

Roberts, T. (2000). *Clitics and agreement*. PhD thesis, MIT, Massachussets.

Rolka, M. and Cable, S. (2014). Tom and Mittens. Totem Field Storyboards. http://www.totemfieldstoryboards.org (accessed 27 April 2020).

Rooth, M. (1996). Focus. In Lappin, S., editor, *The Handbook of Contemporary Semantic Theory*, pages 271–298. Blackwell, Oxford.

Rooth, M. E. (1985). *Association with focus*. PhD thesis, UMass Amherst, Massachusetts.

Ross, J. (1967). *Contraints on variables in syntax*. Indiana Linguistics Club, Bloomington.

Rullmann, H. and Matthewson, L. (2018). Towards a theory of modal temporal interaction. *Language*, 94:281 – 331.

Rullmann, H., Matthewson, L., and Davis, H. (2008). Modals as distributive indefinites. *Natural Language Semantics*, 16(4):317–357.

Sapir, E. (1915). Noun reduplication in Comox. *Geological Survey, Memoir 63, Anthropological Series, no. 5*.

Schütze, C. (1994). Serbo-Croatian second position clitic placement and the phonology-syntax interface. In *MIT Working Papers in Linguistics*, pages 373–473. MITWPL, Cambridge, Massachusetts.

Schwarz, F. (2009). *Two types of definites in natural language*. PhD thesis, University of Massachusetts at Amherst, Amherst, Massachusetts.

Selkirk, E. (2009). On clause and intonational phrase in Japanese: The syntactic grounding of prosodic constituent structure. *Gengo Kenkyu*, 136:35–73.

Selkirk, E. (2011). The syntax-phonology interface. In Goldsmith, J., Riggle, J., and Yu, A., editors, *In The handbook of phonological theory: Second edition*, pages 435–484. Blackwell, Malden, MA and Oxford, UK.

Shank, S. (2004). *Domain widening*. PhD thesis, UBC, Vancouver.

Simeonova, V. (2020). *The Syntax and semantics of light attitudes*. PhD thesis, University of Ottawa, Ottawa.

Smirnova, A. (2011). *Evidentiality and mood: Grammatical expressions of epistemic modality in Bulgarian*. PhD thesis, The Ohio State University.

Smirnova, A. (2013). Evidentiality in Bulgarian: Temporality, epistemic modality, and information source. *Journal of Semantics*, 30:479–532.

Speas, M. (2010). Evidentials as generalized functional heads. In Di Sciullo, A. and Hill, V., editors, *Edges, heads, and projections: Interface properties*, pages 127–150. John Benjamins, Amsterdam.

Stalnaker, R. (1973). Presuppositions. *Journal of Philosophical Logic*, 2:447–457.

Stalnaker, R. (1978). Assertion. In Cole, P., editor, *Syntax and semantics*, volume 9, pages 315–332. Academic Press, New York.

Suttles, W. (2004). *Musqueam reference grammar*. UBC Press, Vancouver.

Svenonius, P. (2012). Spanning. CASTL, University of Tromsø. Retrieved from https://ling.auf.net/lingbuzz/001501.

Szabolcsi, A. (2010). *Quantification*. Cambridge University Press, Cambridge.

Szabolcsi, A. (2011). Scope and binding. In *Semantics: An international handbook of natural language meaning*, pages 1605–1641. Berlin: de Gruyter.

Tan Almazán, J. (2019). *Evidentiality in Tagalog*. PhD thesis, Universidad Autónoma de Madrid, Madrid.

Thomas, G. (2013). Circumstantial modality and the diversity condition. In Etxeberria, U., Fălăuş, A., Irurtzun, A., and Leferman, B., editors, *Proceedings of Sinn und Bedeutung 18*, pages 433–450.

Thompson, J. (2012). *Syntactic nominalization in Halkomelem Salish*. PhD thesis, University of British Columbia, Vancouver.

Tonhauser, J. (2007). Nominal tense? The meaning of Guaraní nominal temporal markers. *Language*, 83:831–869.

Tonhauser, J., Beaver, D., Roberts, C., and Simons, M. (2013). Toward a taxonomy of projective content. *Language*, 89:66–109.

Toorsarvandani, M. (2021). Encoding time in a tenseless language: The view from Zapotec. In Reisinger, D. and Huijsmans, M., editors, *Proceedings of the West Coast Conference on Formal Linguistics 37*, pages 21–41.

Truth and Reconcilition Commission of Canada (2015). *Honouring the truth, reconciling for the future: Summary of the final report of the Truth and Reconciliation Commission of Canada*. Truth and Reconciliation Commission of Canada.

Tunstall, S. (1998). *The interpretation of quantifiers: semantics and processing*. PhD thesis, University of Massachusetts at Amherst, Amherst.

Van Eijk, J. (1997). *The Lillooet language: phonology, morphology, syntax*. UBC Press, Vancouver.

Vander Klok, J. (2013). Bill vs. the weather. Totem Field Storyboards . Retrieved from http://www.totemfieldstoryboards.org on Apr. 22, 2022.

von Fintel, K. (1994). *Restrictions on quantifier domains*. PhD thesis, UMass Amherst, Massachusetts.

von Fintel, K. (2004). Would you believe it? The king of France is back! Presuppositions and truth-value intuitions. In Reimer, M. and Bezuidenhout, A., editors, *Descriptions and Beyond*, page 269–296. Oxford University Press, Oxford.

von Fintel, K. and Gillies, A. (2007). An opinionated guide to epistemic modality. In Gendler, T. and Hawthorne, J., editors, *Oxford Studies in Epistemology: Volume 2*, pages 32–62. Oxford University Press, Oxford.

von Fintel, K. and Gillies, A. S. (2010). Must . . . stay . . . strong! *Natural Language Semantics*, 18(4):351–383.

Wackernagel, J. (1892). Uber ein Gesetz der indogermanischen Wortstellung. *Indogermanische Forschungen*, 1:333–436.

Watanabe, H. (1994). A report on Sliammon (Mainland Comox) phonology and reduplication.

Watanabe, H. (2000). *A Morphological Description of Sliammon, Mainland Comox Salish*. PhD thesis, Kyoto University.

Watanabe, H. (2003). *A morphological description of Sliammon, Mainland Comox Salish, with a sketch of syntax*. ELPR Publications Series AZ-040. Osaka Gakuin University, Osaka.

Watanabe, H. (2016). On identifying an aspectual suffix in Sliammon. In *Proceedings of SSILA 2016*.

Watanabe, H. (2020). A Sliammon text: "When coming out of the woods", as told by Mary George. *Northern Language Studies*, 10:275–294.

Werner, T. (2003). *Deducing the future and distinguishing the past: Temporal interpretation in modal sentences in English*. PhD thesis, Rutgers University, New Brunswick, New Jersey.

Wiegand, M. (2018). Exclusive morphosemantics: *Just* and covert quantification. In *Proceedings of the 35th West Coast Conference on Formal Linguistics*, pages 419–429, Somerville, MA. Cascadilla Proceedings Project.

Willett, T. (1998). A cross-linguistic survey of the grammaticalization of evidentiality. *Studies in Language*, 12:51–97.

Wiltschko, M. (2003). On the interpretability of tense on d and its consequences for case theory. *Lingua*, 113:659–696.

Winans, L. (2016). *Inferences of will*. PhD thesis, University of California, Los Angeles.

Winter, Y. (1997). Choice functions and the scopal semantics of indefinites. *Linguistics and Philosophy*, 20:399–467.

Zimmermann, M. (2011). Discourse particles. In Portner, P., Maienborn, C., and von Heusinger, K., editors, *Handbook of semantics*, pages 2012–2038. Mouton de Gruyter, Berlin.

Zwicky, A. (1977). *On clitics*. Indiana University Linguistics Club, Bloomington.

Zwicky, A. and Pullum, G. (1983). Cliticization vs. inflection: English *n't*. *Language*, 59:502–513.