A temporal grammar of Kanien'kéha

Aspects and Consequences

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Abstract

This thesis investigates the temporal grammar of Kanien'kéha, a Northern Iroquoian language. I explore three domains of the verb and show how each contributes to its overall temporal interpretation. The tripartite analysis focuses on the lexical properties of (possibly complex) verb roots, viewpoint aspectual inflection, and optional tense. As such, this thesis provides an explicit treatment of the temporal semantics in Kanien'kéha and introduces several novel descriptive generalizations regarding Kanien'kéha specifically. The three central findings of this thesis are as follows:

First, I argue that the class of event verb roots is minimally differentiated with respect to their boundedness: telic verb roots specify a result state, atelic verb roots do not. As a result of this lexical specification, these properties are crucially not affected by the presence or absence of arguments.

Second, I show that the telicity of the verb root affects how on-going interpretations are derived. The two imperfective aspects, the Stative and Habitual, are interpreted, respectively, as perfects and habituals for all verb types. However, for atelic verbs, the Stative aspect also has a on-going reading; for telic verbs, on-going readings use the Habitual. I argue that the perfect and habitual meanings are the basic contributions of these aspects and derive the on-going episodic interpretations from this. I show the explicit composition for the Stative, and establish the key empirical properties for the Habitual. The on-going readings available with each aspect, then, are semantically distinct.

Third, I argue that Kanien'kéha is an optional tense language, containing two optional past tense suffixes. By looking at cessation inferences that arise with these suffixes, I argue that the bare (morphologically tenseless) clauses contain two covert tenses, strict Past and Present.

More broadly, this thesis provides, through targeted linguistic elicitation, crucial empirical documentation for a number of phenomena that have eluded previous descriptions of Kanien'kéha. For linguists working on both temporal semantics and the Iroquoian languages, I provide details of how telicity and event homogeneity are implicated in the interpretation of the aspects. Beyond the theoretical implications of these findings, this work aims to provide a set of reliable diagnostics which elucidate the often opaque interpretations of the aspectual system for all those engaged in language revitalization, both learners and teachers.

Abrégé

Cette thèse présente une étude sur la grammaire temporelle du kanien'kéha, une langue iroquoienne du nord. J'explore trois domaines du verbe et montre comment chacun contribue à son interprétation temporelle globale. L'analyse tripartite se concentre sur les propriétés lexicales des racines verbales (possiblement complexes), sur la flexion aspectuelle du point de vue et sur le temps grammatical optionnel. En tant que telle, cette thèse fournit un traitement explicite de la sémantique temporelle en kanien'kéha et introduit plusieurs nouvelles généralisations descriptives propre à cette langue. Les trois principaux résultats de cette thèse sont les suivants :

Premièrement, je soutiens que la classe des racines des verbes d'événement est peu différenciée en ce qui concerne leur délimitation : les racines des verbes téliques spécifient un état de résultat, les racines des verbes atéliques ne le font pas. En raison de cette spécification lexicale, ces propriétés ne sont pas affectées par la présence ou l'absence d'arguments.

Deuxièmement, je montre que la télicité de la racine du verbe affecte la façon dont les interprétations progressives sont dérivées. Les deux aspects imperfectifs, le « Stative » et le « Habitual », sont interprétés, respectivement, comme des parfaits et des habituels pour tous les types de verbes. Cependant, pour les verbes atéliques, l'aspect statif permet également une interprétation progressive ; pour les verbes téliques, les interprétations progressives passent par l'aspect habituel. Je défends l'idée que les significations du parfait et de l'habituel sont les contributions de base de ces aspects. Je présente la composition explicite du statif et j'établis les propriétés empiriques clés de l'Habituel. Les interprétations progressives associée à chaque aspect sont donc sémantiquement distinctes.

Troisièmement, je soutiens que le kanien'kéha est une langue à temps grammatical optionnel, contenant deux suffixes de passé facultatifs. En examinant les inférences de cessation qui surviennent avec ces suffixes, je propose que les propositions sans marque morphologique de temps contiennent deux temps cachés, le passé strict et le présent.

De manière plus générale, cette thèse fournit, par le biais d'une élicitation linguistique ciblée, une documentation empirique essentielle sur plusieurs phénomènes qui ont échappé aux descriptions précédentes du kanien'kéha. Pour les linguistes qui travaillent à la fois sur la sémantique temporelle et sur les langues iroquoiennes, je détaille comment la télicité et l'homogénéité des événements interviennent dans l'interprétation des aspects. Au-delà des implications théoriques, ce travail vise à offrir un ensemble de diagnostics fiables qui élucident les interprétations souvent opaques du système aspectuel au bénéfice de tous ceux engagés dans la revitalisation de la langue, qu'il s'agisse d'apprenants ou d'enseignants.

Non-technical summary

This thesis describes how speakers of Kanien'kéha express temporal distinctions. Unlike languages like English, Kanien'kéha does not require the verb to inflect for past, present, or future TENSE. On the other hand, Kanien'kéha has up to a four-way distinction with obligatory inflection for ASPECT (Punctual, Habitual, Stative, and Intentive), and up to a three-way distinction for MODALITY (Factual, Future, and Optative), which together result in a specific temporal meaning. The temporal meanings (pastness/presentness/futurity) associated with each verbal form arises from the joint-contribution of primarily these two systems. Tense, on the other hand, is argued to be an implicit contrast that does not need to be overtly marked – nonetheless, I argue that tense is part of the grammar of Kanien'kéha. I illustrate how these three systems of inflection interact with different classes of verbs to arrive at a given temporal interpretation, and outline the possible temporal interpretations a modal-aspectual form can have. The first part describes these grammatical systems, their interactions, and the range of meanings that each part of the grammar contributes; the second part discusses the implications this has for both the linguistic description and analysis of Kanien'kéha and the study of temporal systems across languages. Overall, we see a complex, though highly regular, system for expressing temporal meanings.

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Contribution of Author

This thesis is the original work of the author.

Chapter 3 builds on co-authored work with Arihwí:saks Colin Benedict, Katya Morgunova, and Willie Myers. §3.3.3.2 elaborates on work reported in Benedict et al. (2025), and §3.4 elaborates on work reported in Gatchalian and Morgunova (2024).

Abbreviations

Abbreviations used in glosses

1	first person
2	second person
2	third person
A	Agent pronominal prefix
BEN	Benefactive
CAUS	Causative
CIS	Cislocative
COIN	Coincident
CONT	Continuative
CONTR	Contrastive
DECESS	Decessive
DISTR	Distributive
DU	dual
DUPL	Duplicative
EX	exclusive
FACT	Factual
FI	Feminine-Indefinite
FOR.PST	Former Past
FUT	Future
FZ	Feminine-Zoic
HAB	Habitual aspect
IN	inclusive
INCH	Inchoative
INT	Intentive aspect
IPFV	imperfective
JR	Joiner vowel
LOC	Locative
M	Masculine
N	Neuter
NE	*ne* particle
NEG	Negative
NMLZ	Nominalizer
NSF	Noun suffix
OPT	Optative
P	Patient pronominal prefix
PART	participle
PL	plural
PRES	present
PROTH	Prothetic vowel
PFV	perfective
PRT	Partitive
PUNC	Punctual aspect
PURP	Purposive
PST	past
Q	Question particle
REFL	Reflexive
REM.PST	Remote Past
REP	Repetitive
REV	Reversive
SG	singular
SR	Semireflexive
STAT	Stative aspect
TRANS	Translocative

Other abbreviations and symbols

*	ungrammatical example
#	infelicitous example
(...)	optional morpheme

(*...)/(#...)	obligatorily present morpheme
***(...)/#(...)**	obligatorily absent morpheme
??	degraded example
$\tau(e)$	temporal trace of e/"runtime of the event"
$\subset$	proper subset, fully contained in
$\sqsubset$	proper mereological part
$\sqcup$	mereological sum
PROC	process sub-event
RES	result sub-event
XN	Extended Now

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Chapter 1

Introduction

Time can be a difficult thing to talk about, yet speakers of all languages manage to use their language to do so with an unremarkable ease and precision. This is hardly a new nor neglected observation. More remarkable, and indeed heavily remarked upon in the vast literature on temporal phenomena in linguistics (see, e.g., Dahl 1985; Binnick 1991), is the diversity of grammatical strategies employed by languages to situate in time all the happenings and occurrences and eventualities that speakers wish to talk about, and to communicate this situation effectively to others. TENSE is perhaps the most widely discussed of these strategies, though one need not look far to learn that tense does not play so central of a role in the temporal grammar of many languages as it does in, for example, that of English. Languages like those exemplified in (1) get by just fine without overtly marking clauses with tense.[1]

(1) a. Katá:wens.
k-atawen-s
1SGA-swim-HAB
'I am swimming/I was swimming/I swim (habitually)/I swam (habitually).' (Kanien'kéha)

b. sáy'sez'-lhkan.
play-1SG.SBJ
'I played/I am playing.' (Sťát'imcets; Matthewson 2006)

c. A-jahu.
1SG-bathe
'I bathed/I am bathing.' (Paraguayan Guaraní; Pancheva and Zubizarreta 2023)

This thesis focuses on the first language of those exemplified in (1). It describes and investigates the grammar of temporal reference in the Northern Iroquoian language Kanien'kéha, an optionally tensed

[1]The Kanien'kéha example typically gets interpreted with present reference, without additional context. I will establish the possibility of past reference with this form more unambiguously in the following discussion.

language, and studies how the resulting expressions are interpreted. This project thus encompasses two parts. First, we need a clearer empirical understanding of the morphosyntactic means Kanien'kéha uses to convey temporal meanings, and the range of meanings this morphology covers. While there there are many excellent descriptions of the morphosyntactic make-up of Iroquoian words, there are much fewer works which elaborate upon their interpretation in sufficient detail. Second, recent theoretical work in the syntax and semantics of Tense-Aspect-Mood (tam) cross-linguistically has clarified our overall understanding in the study of how each grammatical category contributes to the overall temporal interpretation. Kanien'kéha has not been brought to bear on these recent discussions, nor have these recent discussions been brought to bear upon a description of Kanien'kéha grammar. My aim here is to begin to address these gaps, laying a firm analytical foundation for understanding temporal reference in Kanien'kéha (and to some extent, in the other Northern Iroquoian languages).

1.1 Aims and Objectives

I have two broad aims in this dissertation. First, I provide a semantically-focussed description of t e temporal grammar of Kanien'kéha. As I will detail in §1.2.3, the literature on Kanien'kéha (and on Northern Iroquoian broadly) has, to my knowledge, focussed primarily on morphosyntactic and phonological properties of the language. I focus on elucidating some of the *semantic* properties for a fragment of the temporal grammar, concentrating primarily on the verb root, the aspectual suffixes, and the optional past suffixes. I will briefly touch on the modal system, only insofar as it relates to the meanings of these former three categories.

Second, I discuss some of the consequences of the foregoing description for the broader analysis and theory of temporal meaning in Kanien'kéha. This discussion centres around the following research questions:

① What are the aspectual **verb classes** in Kanien'kéha? (Ch. 3)

② What semantic and pragmatic contributions are made by the obligatory **Aspect suffixes**? (Ch. 4)

③ What is the inventory of **Tense suffixes**, and how are morphologically tenseless clauses (such as those in (1a)) best analyzed? (Ch. 5)

In addition to providing a description of Kanien'kéha's temporal grammar, this dissertation aims to answer some larger theoretical questions in light of the properties seen in Kanien'kéha. Throughout the course of this thesis, I will indicate how Kanien'kéha bears on our understanding of how temporal meaning is expressed in language more broadly. This aim centres around the following questions:

① What are the relevant **lexical properties of verbs** in deriving the attested interpretations with each tense-aspect form?

② What is the division of labour between the semantic contributions of forms and pragmatic reasoning when arriving at a given temporal interpretation?

③ Does the morphological tenselessness of Kanien'kéha clauses reflect a deep (syntactic or semantic) tenselessness in the structure?

Before turning to these questions, there are some morphosyntactic preliminaries to address. In Chapter 2, I will give the necessary morphosyntactic background of Kanien'kéha, and introduce my general analytical assumptions. Readers with sufficient familiarity with the verbal morphology of Iroquoian languages may wish to skip to §2.3, where I map the traditional position class description of the morphology to a hierarchical syntactic structure. More specific morphosyntactic claims introduced in this chapter will be revisited and elaborated upon throughout the thesis, but this initial discussion serves to situate the analyses which follow.

Having laid out this background, I zoom in on the analytical and theoretical issues which arise from looking at Kanien'kéha's temporal system. In Chapter 3, I address the first research question regarding aspectual verb classes. I show that verbs fall into three morphosyntactic classes, based on their compatibility with the Aspect suffixes, and the subsequently available temporal interpretations with these suffixes. Then, I show that each of these classes is itself heterogeneous, focussing primarily on the class of *event* verbs. In Iroquoian linguistics, the major distinction made in the class of event verbs is referred to as "consequentiality" (Chafe 1970, 1980). My claim in this chapter is that "consequentiality" can be understood more broadly as telicity (expanding on work by Cross et al. 2023). This will be formalized as a syntactically and semantically specified "result state". I further discuss some minor results related to the class of *state* verbs and *motion* verbs.

In Chapter 4, I turn to the interpretation of the Aspect suffixes. I will centre my discussion on the two aspects in which an on-going episodic interpretation (typically translated into the English Progressive) is found, the Habitual and the Stative aspects. These two Aspects stand apart from the Punctual aspect, which receives a perfective interpretation. My aim in this chapter is to establish that the two non-Punctual (non-perfective) aspects receive essentially imperfective readings, among other, more specialized interpretations. The analytical aim, then, is to provide a unified analysis of the various temporal interpretations contributed by each Aspect suffix. I claim that the Stative is a "Perfect State" perfect (following Nishiyama and Koenig 2010). I further show that competing analyses (in particular certain implementations of XN theories) are ill-suited for a language like Kanien'kéha, which shows particular syntactic properties which conflict with core assumptions of these alternative accounts. I then turn to two morphosyntactic strategies used to attain habitual interpretations, which will help to establish the general properties of the Habitual aspect. While I do not provide a compositional account for the Habitual aspect, I provide novel empirical contrasts which delimit the truth conditions it contributes.

Finally, in Chapter 5. I argue that Kanien'kéha has two covert tenses, in addition to two overt tenses.

I focus my discussion on the overt Former Past and Remote Past suffixes. Each of these suffixes gives rise to a cessation inference, whereby the runtime eventuality is understood as ceasing prior to the reference time (Plungian and van der Auwera 2006; Altshuler and Schwarzchild 2013; Cable 2017). In providing an analysis of such inferences, I argue that morphologically tenseless clauses in Kanien'kéha are *ambiguous* in that they contain one of two covert tenses (a strict past or a present). The result is that, while Kanien'kéha appears on the surface to pattern like languages with a single covert NON-FUTURE tense (Matthewson 2006, among many others), it in fact has a covert PAST/PRESENT distinction. Thus, my claim in this chapter is that Kanien'kéha has an inventory of four tenses, two overt and two covert.

In the remainder of this introduction, I will introduce the Kanien'kéha and Iroquoian languages as well as the prior work on them, the theoretical background, and the methodology by which the examples reported here were elicited.

1.2 The Iroquoian languages and Kanien'kéha

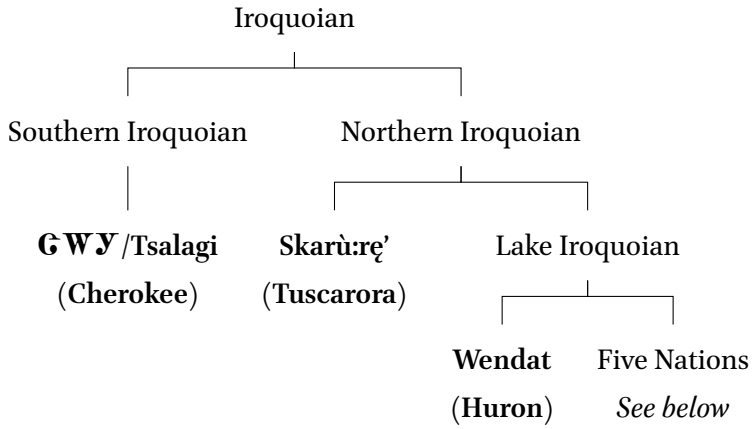
1.2.1 The Iroquoian language family

The Iroquoian languages are a family of languages spoken in eastern North America. Further general introductions to the family can be found in, for example, Mithun (1999, 2017a); Barrie and Uchihara (2019); Michelson (2016); Mithun and DeCaire (2024).

The language family consists of two branches: Southern Iroquoian, which consists solely of Cherokee, and Northern Iroquoian, consisting of the remainder of the languages. Following Mithun (2017a), the internal relationships between the languages of the family are sketched in (2).[2]

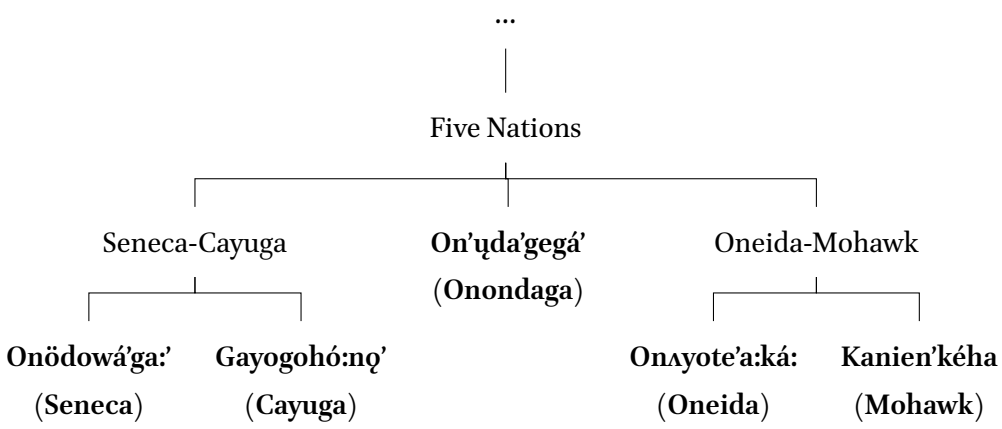
(2) **The Iroquoian language family (after Mithun 2017a)**

a.



[2]I have given both the endonyms and the exonyms used in the linguistic literature. The endonyms are from DeCaire (2023: 22) and Mithun and DeCaire (2024).

b.



There are two notes with respect to this presentation. First, the internal sub-groupings given here are standard, though not uncontested. As I have here, previous work such as Michelson (1988) and Mithun (1999, 2017a) has grouped the Five Nations languages as well as the Huronian languages (including Huron-Wendat) together to the exclusion of Tuscarora under the Lake Iroquoian sub-group. However, Julian's (2010) historical reconstruction has argued that neither a Proto-Lake-Iroquoian nor a Proto-Five-Nations languages that is formally distinct from Proto-Northern-Iroquoian can be reconstructed. He notes, though, that this has not found consensus in the literature (p. 13). Second, the sketch excludes other attested languages but which lack elaborate description such as Nottoway, Laurentian, and Susquehannock. For a full discussion of these languages, see for example, Mithun (1999); Mithun and DeCaire (2024).

1.2.2 Kanien'kéha

Kanien'kéha is spoken by the Kanien'kehá:ka people. In much of the prior work on the language, it is referred to by the exonym *Mohawk*. There is some dialectal variation, typically distinguishing between the Western dialects of Ohswé:ken' and Tyendinaga, the Central Ahkwesáhsne dialect, and the Eastern dialects of Kahnawà:ke, Kanehsatà:ke, and Wáhta' (Mithun 1999; Mithun and DeCaire 2024; Michelson et al. 2024). This thesis primarily reports on work with speakers of the Kahnawà:ke and one speaker of the Ahkwesáhsne dialect. The dialectal differences are predominantly lexical and phonological (as well as orthographic). For the semantic phenomena discussed below, I have not found significant effects of dialect though a full study of variation in the temporal semantics requires further research. For the purposes of this thesis, I have aggregated examples from the two dialects, and made a note where (possibly speaker) variation was found.

As with the majority of the Indigenous languages of North America, colonial efforts to disrupt the intergenerational transmission of language and cultural identity has led to the decline of Kanien'kéha use. A study of the vitality of Kanien'kéha is undertaken by DeCaire (2023), where he reports that there

are 562 advanced-proficiency first-language speakers across the six communities in Canada (p. 44). In addition, he counts 77 advanced-proficiency second-language speakers. Currently, there are significant revitalization efforts in all communities, including immersion programs for school-aged children and adults. I cannot do full justice to these efforts here. A history of revitalization efforts in Kahnawà:ke is given in Stacey (2016) and Gomashie (2019).

1.2.3 Northern Iroquoian linguistics

This thesis relies heavily on the insights of past work on the Northern Iroquoian languages. Most of the cited work here focuses on phonological, morphological, syntactic, and discursive properties of the language. As such, the formal semantic properties of the grammatical structures generally receives secondary attention (though one exception is Chafe 1970). In this section, I will briefly introduce the seminal works in Northern Iroquoian linguistics, and the literature on Kanien'kéha in particular.

Lounsbury's (1953) *Oneida verb morphology* is a seminal work, with much of his descriptive and terminological innovation persisting through to the most recent work in Iroquoian linguistics. The descriptive tradition inaugurated by his work has been followed through for the majority of the Northern Iroquoian languages.[3]

Kanien'kéha's verbal morphology is most thoroughly described by Bonvillain (1973) and a series of papers by Mithun (1984, 1991, 1995, 2001a,b, 2006, 2010, 2016, 2020, 2021). Work on Kanien'kéha from a generative perspective has been done from quite early, the earliest of which is Postal (1962), a transformational grammar of Kahnawà:ke Kanien'kéha (with some speakers consulted in New York City). More recently, Baker (1988, 1996) undertakes a large-scale study of head-movement incorporation and polysynthesis, drawing heavily on Kanien'kéha for its empirical basis. Additional work done around this time is found in Ikeda (1991), Chamorro (1992), and Ormston (1993), all masters theses from McGill University, focussing on complementation, aspectual inflection, and word order, respectively. Hopkins (1988) provides additional discussion of incorporation. Finally, Baker (1992) and Baker and Travis (1997, 1998) are a series of papers focussing on the aspect-mood system of Kanien'kéha. This last pair of references is most relevant for the current dissertation, and will be discussed in more detail below, though much of their technical implementations are not adopted here.

Finally, there have been several resources directed for second-language learners. In particular, Martin (2023) describes much of the verbal morphology. An earlier teaching grammar is found in Deering and Delisle (2007). Lexical resources includes a recent dictionary by Michelson et al. (2024), as well as the earlier Michelson (1973).

[3]Major descriptive grammars have been written for Tuscarora (Williams 1967; Hill 2019), Huron (Lukaniec 2018 on Wendat; Korpis 2001 on Wyandot), Seneca (Chafe 2014), Cayuga (Dyck et al. 2024), Onondaga (Chafe 1970; Barrie 2015; Woodbury 2018), Oneida (Lounsbury 1953; Michelson et al. 2016), and for Cherokee (Montgomery-Anderson 2008).

1.3 Methodology

All uncited examples in this thesis come from elicitation over Fall 2023 to Spring 2025. Speakers who were consulted for this project were Mary Onwá:ri Tekahawáhkwen McDonald, Karonhiá:wi Helen Norton, Katerí Deer, and Akwiratékha' Martin. Additionally, other advanced second-language speakers were consulted throughout this project to ensure that the limited time with first-language speakers was used effectively. These speakers were Ro'nikhonhkátste Norton and Tehokwiráthe Cross. All examples have been checked with at least two of the first-language speakers.

Elicitation sessions were conducted both online through Zoom, in-person at McGill, and in-person at Kanien'kéha Onkwawén:na Raotitióhkwa Langauge and Cultural Center (KORLCC) in Kahnawà:ke. Sessions were typically attended by at least one speaker, one to three linguists, and for elicitations conducted at KORLCC, by up to four immersion teachers and up to four immersion students and research assistants.

The examples reported on here were collected in line with standard linguistic elicitation techniques, such as those described in Payne (1997); Matthewson (2004) and Bochnak and Matthewson (2014, 2020). In general, elicitation sessions consisted of either (i) a translation task, (ii) a grammaticality judgement task, or (iii) a felicity judgement task. Translation tasks involve a both a target sentence presented to the speaker in English and a context presented either in Kanien'kéha or in English. In some cases, the full context was translated into Kanien'kéha. This was done in particular when the translation task was followed by one of the two judgement tasks. In grammaticality judgement tasks, speakers were presented with a context and a constructed form in the target language. Speakers were then asked to judge whether the sentence is well-formed in Kanien'kéha. Examples that were judged ill-formed, i.e. ungrammatical, are presented here with a * mark. In felicity judgement tasks, speakers are presented with both a context and a constructed form. In this case, speakers are asked whether the form is appropriate given the context. These contexts are established, as in all tasks, in either English or in Kanien'kéha. In the case that the full context is presented in Kanien'kéha, the context is arrived at as a result of an earlier translation task or through a modification of examples found in texts or previous literature. Examples that are judged ill-formed, i.e. infelicitous, are presented here with a # mark.

All of the information gathered from these three tasks, as well as comments provided by speakers during the course of the session, are taken as indicative rather than definitive. The results of all tasks are taken to indicate the overall well-formedness of the set of examples under discussion.

Where possible, elicited examples have been supplemented with corpus examples. These come predominantly from narratives collected in Scott (1991). I take examples attested in texts to correspond to a positive response to a judgement task.

Chapter 2

Kanien'kéha morphosyntax

Kanien'kéha is described as a "polysynthetic" language.[1] Central to this description is the fact that verbs typically consist of multiple obligatory morphemes, resulting in "extreme morphological complexity in the verb" (Fortescue et al. 2017). This complex morphological structure as instantiated in Northern Iroquoian verbs is richly documented, with much of the descriptive and terminological conventions originating in Lounsbury's (1953) grammar of Oneida.

The purpose of this chapter is to give a sufficient description of Kanien'kéha morphosyntax for the remainder of this dissertation, with particular attention to verbal morphology. I follow the general organizational principles of recent Northern Iroquoian grammars by, for example, Lukaniec (2018) for Wendat, Woodbury (2018) for Onondaga, Chafe (2014) for Seneca. Furthermore, in §2.3, I will lay some of the analytical assumptions made throughout this discussion.

2.1 Phonology and orthography

Examples in this thesis will be presented in the standardized orthographic conventions established by the Mohawk Language Standardisation Project in 1993 (Lazore and Jacobs 1993). Here, I will provide the basic correspondences between the orthography and their IPA values, and give a brief overview of Kanien'kéha phonology. The segmental inventory of Kanien'kéha is given in Tables 2.1 and 2.2. There is some disagreement with respect to the number of consonants in previous description, due to both dialectal differences and to the status of whether the surface labialized velar stop and the alveolar affricate are each a single complex segment, /kʷ/ and /t͡s/ respectively (Michelson 1988; Hopkins 1988), or are instead a cluster of two segments (Bonvillain 1973) /kw/ and /ts/. The former position receives support from the pattern of vowel lengthening in stressed syllables; as such, I will follow Michelson (1988)

[1] I will not take a stance on the mophosyntactic status of polysynthesis here, and use it primarily as a descriptive term. For a critical discussion of the theoretical status of polysynthesis, see the articles collected in Fortescue et al. (2017), Haspelmath's (2018) review of the foregoing, the overview Zúñiga (2019) (and citations therein).

and Hopkins (1988) here. See LiVolsi (in prep.) for a recent treatment of aspects of the phonology of Kanien'kéha, in particular of syllable structure, accentuation, and epenthesis.

	Alveolar	Palatal	Velar	Labiovelar	Laryngeal
Stop	t /t/		k /k/	kw /kʷ/	' /ʔ/
Fricative	s /s/				h /h/
Affricate	ts /ts/				
Nasal	n /n/				
Approximant	r /r/	i /j/		w /w/	

Table 2.1: Inventory of consonants (following Michelson 1988; Hopkins 1988)

There is no phonological voicing-contrast for obstruents in Kanien'kéha, though both voiced and voiceless consonants appear on the surface. The stops /t, k/ are voiced before all vowels and sonorants, and are voiceless otherwise. The fricative /s/ is voiced intervocalically and between the glottal stop and a vowel, and is voiceless otherwise (Michelson 1988: 9).

The rhotic /r/ has varied phonetic realizations across the dialects, but is uniformly represented in the orthography as <r>. In Kahnawà:ke as well as other Central and Eastern dialects and Tyendinaga, the pronunciation is described as being an alveolar flap [ɾ]; in Western dialects of Ahkwesáhsne and Ohswé:ken', it surfaces as a lateral [l], (Michelson 1988).

Finally, across the two dialects reported on here, there is variation with respect to the surface realization of /tj/, /tsj/ and /kj/ (orthographic <ti, tsi, ki> when preceding a vowel) sequences. In Kahnawà:ke, /tj/ and /kj/ sequences are neutralized to [tʃ] (or [dʒ] prevocalically), whereas in Ahkwesáhsne they are neutralized to [kj] (or [gj] prevocalically). These are illustrated in (3). Dialectal variation is also found for /tsi/ sequences are pronounced as [tsi] in Kahnawà:ke and [tʃi] in Ahkwesáhsne (again, with the same voicing alternation). For more details, see Michelson (1988: 13).

(3) a. tienthos
k-ientho-s
1SGA-plant-HAB
'I plant it' (Kahnawà:ke)

b. kienthos
k-ientho-s
1SGA-plant-HAB
'I plant it' (Ahkwesáhsne)

The vowel inventory is given in Table 2.2. Vowels have a two-way length contrast. Long vowels are marked orthographically with a colon, <v:>. Length only occurs in stressed syllables (under specific conditions) and is therefore predictable (see Michelson 1988; LiVolsi in prep.).

	front	mid	back	front	mid	back
high	i /i/					on /ũ/
mid	e /e/		o /o/		en /ɤ̃/	
low			a /a/			

Table 2.2: Inventory of oral (left) and nasal (right) vowels

Kanien'kéha has a regular accentual system, whereby tonic stress is placed on the penultimate syllable containing an *underlying* vowel. There are apparent exceptions on the surface where the final two syllables contain epenthetic vowels, which are unable to bear stress. If the accent falls on an open syllable, the vowel is lengthened, and the accent is marked with a high tone (orthographically represented with an acute accent <V́>). Where the accent falls on a syllable closed by a laryngeal consonant, the laryngeal is deleted and the accent is marked with a falling tone (orthographically represented with a grave accent <V̀>); since the deletion of the laryngeal creates an open syllable on the surface, all falling tones are long. See LiVolsi (in prep.) for discussion and analysis. A detailed book-length description of the phonotactic and accentual systems of Kanien'kéha (and other Lake Iroquoian languages) can be found in Michelson (1988). (A further discussion of syllabification is found in Piggott 1995.)

Finally, there are three epenthetic segments in Kanien'kéha, which occur in complementary contexts. First, Kanien'kéha verbs are minimally bi-syllabic; a prothetic vowel *i-* occurs when the word is sub-minimal. In such cases, this word-initial *i-* bears the main stress. Second, a joiner vowel *a* is inserted between illicit clusters within the verb stem (to be defined below). Following an established convention in the literature on Kanien'kéha, I will segment out the joiner and gloss it as JR. This convention should not be taken to indicate any morphosyntactic function or semantic contribution. Finally, there is a default epenthetic *e* which is inserted to break up illicit clusters; this segment is weightless, i.e., it does not count in determining the position of the accent, resulting in the principled exceptions to the generally penultimate stress described above.

Where examples taken from the literature diverge from the orthographic conventions given above, I have tacitly updated the forms. In much prior work (e.g., Bonvillain 1973; Mithun 1991), the nasal vowels are written as <u> or <ų> for the current digraph <on>, representing /ũ/, and <ʌ>, <ɤ̨>, or <v> for the digraph <en>, representing /ɤ̃/. Where the accent is not marked, I have added it with reference to the recent dictionary by Michelson et al. (2024).

2.2 The verb in Kanien'kéha

In this section and the next, I will give a brief overview of the verbal morphology relevant to the remainder of this thesis. For further discussion of the morphology, see Bonvillain (1973), Martin (2023), and Michelson et al. (2024). In §2.2.1, I give a descriptive overview of the morphemes which are obligatory on all verbs. Then, in §2.2.2, I give an overview of the full verbal template. I will then, in §2.3, outline my analytical assumptions for the relevant parts of the verbal template to be used in the remainder of the thesis.

2.2.1 The minimal verb

The Kanien'kéha verb is morphologically complex, consisting minimally of a verb stem, a pronominal prefix, and an aspectual suffix. That is, the minimal verb is given by the template in (4).

(4) **Minimal verb template**
Pronominal prefix—[verb stem]—Aspect

Minimally, a verb stem consists of a verb root, as illustrated in (5).

(5) **Minimal verb**

a. wakí:ta's
wak-ita'-s
1SGP-sleep-HAB
'I am sleeping' (Michelson et al. 2024: 189)

b. í:keks
i-k-ek-s
PROTH-1SGA-eat-HAB
'I eat it' (Michelson et al. 2024: 109)

I will refer to the VERB STEM as the morphological unit consisting of the verb root, any incorporated nouns, and the derivational suffixes.[2] Noun incorporation and derivational suffixes will be discussed in §2.2.2. Some verb stems require a pre-pronominal prefix, which occurs to the left of the pronominal

[2]In the literature on Iroquoian languages, the term "stem" has varied usage. Lounsbury (1953), for instance, includes the Stative and Progressive as part of the stem; for him, the unit I am referring to as the "stem" is the *verb base*. See Lukaniec (2018: 71*f*) for further discussion of the terminology. This term should be understood as referring solely to the morphological string rather than the syntactic structure underlying it. An example where this distinction becomes important is with the pronominal prefixes – I assume that they are determined by the arguments introduced material associated syntactically with the "stem" (i.e., verb root, derivational suffixes), but these pronominal prefixes are nevertheless morphologically external to it. See §2.3 for details.

prefix. When the verb root requires pre-pronominal prefixes, or when the pre-pronominal prefix contributes non-compositional or idiomatic meaning, I include it as part of what I refer to as the verb stem (following Michelson and Doxtator 2002: 15*f*, though they refer to this as the "base"). I will refer to these as "discontinuous stems" strictly due to their morphological discontinuity, though in §2.3 I will provide an analysis where the prefixes are syntactically local to the root. For example, some verbs, such as those listed in (6) occur with the Duplicative suffix (generally contributing a meaning of "two-ness", which is not obviously present in these examples).

(6) **Discontinuous stems include pre-pronominal prefixes**

a. teió'tson
te-io-'tson
DUPL-NP-be.dirty.STAT
'It is dirty' (Michelson et al. 2024: 195)

b. tewatkà:ron
te-w-at-akahron
DUPL-NP-SR-be.wide.STAT
'It is wide' (Martin 2023: 16)

In these cases, I will consider both the root *'tson* 'be.dirty' and the duplicative *te-* as both part of the verb stem.

Verb stems are classified by three criteria. First, the phonological stem class determines the morphological form of the pronominal prefixes, as we will see immediately below. The phonological stem class is determined in turn by the first segment of the stem. As such, there are five classes: (consonant-initial) C-stems, *i*-stems, *a*-stems, *e*-stems, *o*-stems. Second, the stem determines the telicity class (or "consequentiality" class; see Chafe 1970, 1980), which influences the interpretations available with the Aspect suffixes. The interpretational effects of this classification forms the central empirical and analytical focus of Chapters 3 and 4. Finally, intransitive stems are lexically specified for one of the two sets of pronominal prefixes.

The PRONOMINAL PREFIXES occur directly to the left of the stem and index up to two core arguments. The sole argument of intransitive verbs is indexed with either the Agent (A-) prefixes or Patient (P-) prefixes, as determined by the verb stem. Typically, the choice between the prefix series will be determined by the root, but with Stative aspect event verbs, the prefixes shift to the P-prefix. While there is some semantic motivation (diachronically) for determining which series of prefix is used (Mithun 1991, 2006), in the synchronic grammar the choice appears to be partially lexically specified (Baker 1996; Coon 2025).

The pronominal prefixes are specified for person, number, and gender. There is a three-way number distinction between singular, dual, and plural, as well as a four-way gender distinction, between mascu-

line (M), feminine-indefinite (FI), feminine-zoic (FZ), and the neuter (N). Masculine gender is used for reference to human males and groups including at least one male referent, the feminine-indefinite gender is used for reference to singular female referents and generic/non-specific reference, the feminine-zoic is used for reference to female humans and animals, and neuter gender refers to inanimate entities. The feminine-indefinite lacks number distinctions, whereas the feminine-zoic distinguishes singular, dual, and plural.[3] In the A-prefix series, there is additionally a clusivity distinction for first-person dual and plural. P-prefixes, on the other hand, do not mark clusivity, nor a dual number for third-persons.

A full table of the intransitive prefixes is given in Table 2.3 for the A-prefixes and Table 2.4 for the P-prefixes (following Michelson et al. 2024: 10). In these tables, italicized segments replace the initial vowel of the stem. A small caps E is an epenthetic vowel inserted before sonorants, a glottal stop, and consonant clusters. Finally, prefixes beginning with *h* surface without *h* word-initially, and the initial *r* of the masculine prefixes undergo debuccalization to *h* when word-medial.

	C-stem	*i*-stem	*a*-stem	*e*-stem	*o*-stem
1SG	kE-	k-	k-	k-	k-
1DU.INCL	teni-	teni-	tia-	ten-	ten-
1DU.EXCL	iakeni-	iakeni-	iatia-	iaken-	iaken-
1PL.INCL	tewa-	tew*en*-	tewa-	tew-	ti- (tew-)
1PL.EXCL	iakwa-	iakw*en*-	iakwa-	iakw-	iati- (iakw-)
2SG	hsE-	ts-/hs-	hs-	hs-	hs-
2DU	seni-	seni-	tsa-	sen-	sen-
2PL	sewa-	sew*en*-	sewa-	sew-	ts- (sew-)
MSG	ra-	r*en*-	ra-	hr-	hr-
MDU	hni-	hni-	hia-	hn-	hn-
MPL	rati-	rati-	r*on*-	ronn-	ronn-
FI	ka-	k*en*-	wa-	w-	i-
FZSG	ie-	i*e*-	i*on*-	iak-	iak-
FZDU	keni-	keni-	tia-	ken-	ken-
FZPL	konti-	konti-	k*on*-	konn-	konn-
N	ie-	i*e*-	i*on*-	iak-	iak-

Table 2.3: Agent pronominal prefixes (A-prefixes)

The two animate arguments of a transitive verb are both indexed with a portmanteau transitive pronominal prefix. Ditransitive verbs index the highest applied argument (i.e., the primary object in the sense of Dryer 1984) together with the subject. Transitive pronouns do not index neuter arguments. When one of the two arguments (the agent or the primary object, either a theme or applied argument) is neuter, an intransitive pronominal prefix surfaces. In the case of a neuter agent, the theme is indexed

[3]The choice between the feminine-indefinite and feminine-zoic for reference to a human female carries certain social implications; for discussion, see Mithun (2014) and Michelson (2015).

	C-stem	*i*-stem	*a*-stem	*e*-stem	*o*-stem
1SG	wakE-	wak-	wak-	wak-	wak-
1DU	ionkeni-	ionkeni-	iontia-	ionken-	ionken-
1PL	ionkwa-	ionkw*en*-	ionkwa-	ionkw-	ionti-
2SG	sa-	s*en*-	sa-	s-	s-
2DU	seni-	seni-	tsa-	sen-	sen-
2PL	sewa-	sew*en*-	sewa-	sew-	ts- (sew-)
MSG	ro-	r*o*-	r*o*-	raw-	ra-
MPL	roti-	roti-	rona-	ron-	ron-
FI	iako-	iak*o*-	iak*o*-	iakaw-	iaka-
FZSG	io-	i*o*-	i*o*-	iaw-	ia-
FZPL	ioti-	ioti-	iona-	ion-	ion-
N	io-	i*o*-	i*o*-	iaw-	ia-

Table 2.4: Patient pronominal prefixes (P-prefixes)

by the P-prefix; in the case of a neuter theme/applied argument, the agent is indexed by an A-prefix. Furthermore, transitive pronominal prefixes indexing the feminine-zoic singular are largely syncretic with the A- and P-prefixes, except for when the feminine-zoic is a co-argument with another third-person. Since only two arguments are indexed by the transitive pronominal prefix, in applicative constructions with three arguments, the non-indexed theme argument must be neuter (see Coon 2025 for further details and discussion). Table 2.5 gives the paradigm of transitive prefixes used with consonant-initial stems (following Michelson et al. 2016, see Martin 2023 or Michelson et al. 2024: 10–11 for the full set).

A syntactic account of the pronominal prefixes is proposed by Coon (2025), where they are the result of an Agree relation between different pronominal probes (located at various points in the functional structure) and the φ-features of the arguments. I will ultimately adopt such an account here, and provide additional detail when we turn to form of the pronominal prefixes used with Stative aspect verbs in §3.2.

	1SG	1DU	1PL	2SG	2DU	2PL	FZSG	MSG	FI	FZPL	MPL
1SG				kon-	keni-	kwa-	ke-	ri-		khe-	
1EX.DU				keni-	keni-	kwa-	iakeni-	hshakeni-		iakhi-	
1EX.PL				kwa-	kwa-	kwa-	iakwa-	hshakwa-		iakhi-	
1IN.DU							teni-	tshiteni-		iethi-	
1IN.PL							tewa-	tshitewa-		iethi-	
2SG	takE-	takeni-	takwa-				hshe-	tshE-		hshe-	
2DU	takeni-	takeni-	takwa-				seni-	tshiseni-		ietshi-	
2PL	takwa-	takwa-	takwa-				sewa-	tshisewa-		ietshi-	
FZSG	wakE-	ionkeni-	ionkwa-	sa-	seni-	sewa-	io-	ro-		iako-	
MSG	rake-	hshonkeni-	hshonkwa-	hia-	tshiseni-	tshitewa-	ra-	ro-		hshako-	
FI									iontate-		
FZDU/PL	ionkE-	ionkhi-	ionkhi-	ionsa-/iesa-	ietshi-	ietshi-	konwa-	ronwa-	iakoti-	konwati-	ronwati-
MDU/PL									hshakoti-		

Table 2.5: Transitive pronominal prefixes, C-stems.

Finally, verbs in Kanien'kéha are obligatorily inflected for one of four ASPECTUAL SUFFIXES. The available paradigmatic contrasts depend on the verb root. I will provide more detail of the restrictions in Chapter 3. Here, I will note that there are three classes of roots, which determine the inflectional classes of stems. STATE roots (or more properly, state stems; see §2.3) only appear in the Stative aspect; an example is given in (7). EVENT roots inflect for the Punctual, the Habitual, and the Stative aspect; examples are given in (8). Finally, MOTION roots inflect for the the Intentive/Imperfective, Habitual, and Stative aspects (and certain stems formed with the Purposive suffix additionally inflect for the Punctual; see §3.4 for details); examples are given in (9).

(7) **State root**
róhton
ro-hton
MSGP-be.full.**STAT**
'he is full'

(8) **Event root (Martin 2023: 117, 130)**

a. wakató:rate'
wa'-k-atorat-**e'**
FACT-1SGA-hunt-**PUNC**
'I did hunt'

b. kató:rats
k-atorat-**s**
1SGA-hunt-**HAB**
'I hunt/am hunting'

c. wakatorá:ton
wak-atorat-**on**
1SGP-hunt-**STAT**
'I have hunted'

(9) **Motion root**

a. tho í:ke'
tho i-k-e-'
there EP-1SGA-go-**INT**
'I am going/walking there.'

b. ié:ke's
ie-k-e-'**s**
TRANS-1SGA-go-**HAB**
'I go there.'

c. iewaké:non
ie-wak-e-**non**
TRANS-1SGP-go-**STAT**
'I have gone there.'

All aspectual suffixes have multiple allomorphs (Martin 2023; Michelson et al. 2024). The allomorphs are in general lexically conditioned, though there are some phonological regularities; Michelson et al. (2024) list 19 different patterns of each suffix and Hopkins (1988) provides a detailed discussion, arguing for four major conjugation classes. A list of the most common suffixes is provided in Table 2.6 (Martin 2023, Michelson et al. 2024: 12).

With respect to the aspectual suffixes, there are two further things to note. First, as noted above, event verbs are lexically specified for whether they take A-prefixes or P-prefixes. However, in the Sta-

Aspect	Forms
PUNCTUAL	*-e', -ne', -', ∅*
HABITUAL	*-ha', -s, -e's, -as, -'s*
STATIVE	*-on, -e', -en, -'on, -'en, ∅*

Table 2.6: Common forms of the Aspectual suffixes

tive aspect, this distinction is neutralized. Stative aspect event verbs take P-prefixes (with principled exceptions to be discussed in §3.2). This is exemplified in (8), where the Stative aspect alone takes the P-prefix.

Second, when the verb appears in the Punctual aspect, one of the three modal pre-pronominal prefixes is obligatory. These include the Factual (10a), the Future (10b), and the Optative (10c). In general, the Factual gives rise to a past perfective interpretation, the Future gives rise to future interpretations (though see §4.5), and the Optative gives rise to a range of modal interpretations depending on the context. Furthermore, the modal prefixes are generally ungrammatical with non-Punctual aspects without the addition of the Continuative suffix (see §2.2.2.4 for examples and discussion).

(10) **Modal paradigm of a Punctual aspect verb (Martin 2023: 109)**

a. **wa'**keníkhon'
wa'-ke-nikhon-'
FACT-1SGA-SEW-PUNC
'I sewed it.'

b. **en**keníkhon'
en-ke-nikhon-'
FUT-1SGA-SEW-PUNC
'I will sew it.'

c. **a**keníkhon'
a-ke-nikhon-'
OPT-1SGA-SEW-PUNC
'I ought to sew it.'

Thus, so far we have seen that the minimal verb in Kanien'kéha includes three morphemes: the pronominal prefix, the verb stem, and the aspectual suffix. In the case of a Punctual aspect verb, a modal prefix is obligatory in addition.

2.2.2 Beyond the minimal verb

In the previous section, I discussed the core verbal morphology in reference to the minimally complex full verb. More commonly, verbs are more elaborately articulated. The morphological analysis of verbs in Northern Iroquoian is typically framed in terms of a verbal template, schematized in (11), which groups classes of morphemes together (such as the derivational suffixes and the pre-pronominal prefixes). Bolded categories are obligatory. Categories marked with * may recur in the structure; PP is the pronominal prefix, and PrePP is the pre-pronominal prefix.

(11) **The Kanien'kéha verb template, overview**

(PrePP*)–**PP**–[((SEMI-)REFL)–(√noun)–√**verb**–(DERIV*)]$_{STEM}$–**Aspect**–(EXTASP/Tense)

Following Lounsbury (1953: 18), much of the subsequent discussion of Northern Iroquoian morphology has been organized in terms of **position classes** (explicitly or implicitly). Such classes group together "morphemes which are mutually exclusive and which, when they occur, always occur in the same relative order with respect to other morphemes" (18). This definition is stated in such a way as to derive classes based on order (see his fn. 9). However, we will see instances where the position classes are not able to derive a complete description of the complementary distribution of certain pairs of morphemes, in particular within a string of pre-pronominal prefixes. The full description must make reference to their semantic contribution. For example, the use of both Translocative and Cislocative pre-pronominal prefixes despite their different positions within the template.

My discussion in this section will focus on four aspects of the verb template: ① I briefly discuss noun incorporation, the semi-reflexive, and reflexive. Then, in turn, I discuss ② the derivational suffixes, ③ the pre-pronominal prefixes, and finally ④ the extended aspectual/tense suffixes. The order of discussion roughly reflects my assumptions regarding the order of composition, to be made explicit in the following section.

2.2.2.1 Noun incorporation, the semi-reflexive, and the reflexive

A well-known property of Kanien'kéha is its highly productive process of noun incorporation, whereby an argument of the verb appears morphologically integrated into the verb. In Kanien'kéha, a noun root (i.e., without gender prefixes or the nominal suffix, see §2.4.1) can appear directly to the left of a verb root. While the term "noun incorporation" suggests a derivational process in which a free-standing noun is moved into the verb (Baker 1988, 1996), recent work by DeCaire et al. (2017) has argued that noun incorporation is the pragmatically neutral structure and that the corresponding non-incorporated structure signal information-structurally marked interpretations, such as topicality or focus (see also Boles 2024). The pair in (12) illustrates.

(12) **Noun incorporation (DeCaire et al. 2017: 1-2)**

a. wa'khní:non' ne **kanákta'**
wa'-k-hninon-' ne **ka-nakt-a**
FACT-1SGA-buy-PUNC NE **N-bed-NSF**
'I bought THE/A BED'

b. wa'ke**nakt**ahní:non'
wa'-ke-**nakt**-a-hninon-'
FACT-1SGA-**bed**-JR-buy-PUNC
'I bought the/a bed'

However, there are additional *syntactic* constraints on the availability of noun incorporation that are not predicted solely by a pragmatic account. While pairs of incorporated/excorporated nouns like (12) illustrate an information structural contrast, not all nouns can incorporate. Baker (1996) shows that while themes (13a) and unaccusative subjects (13b) freely incorporate, unergative and transitive subjects and applied arguments do not (14).[4]

(13) **Transitive themes and unergative subjects may incorporate**

a. Onén:ia' wa'tkatsiserà:rihte'.
onenia' wa'-t-ka-**tsiser**-a-hri-ht-e'
stone FACT-DUPL-NA-**pane**-JR-shatter-CAUS-PUNC
'The stone broke the window-pane.' (theme, Baker 1996: 292)

b. Ó:nen wa'o'serehtakè:tohte'
onen wa'-io-'**sere**-ht-a-ke'toht-e'
now FACT-NP-**car**-NMLZ-JR-appear-PUNC
'The car stuck out (e.g. of the garage).' (Baker 1996: 294)

(14) **Subjects of unergatives and transitives and applied arguments do not incorporate**

a. *Otsísera' wa'tkaneniáhrihte'
onenia' wa'-t-ka-**neni**-a-hri-ht-e'
windowpane FACT-DUPL-NA-**stone**-JR-shatter-CAUS-PUNC
Intended: 'The stone broke the window-pane.' (external argument, Baker 1996: 292)

b. *Áhsire' enkewirón:nien'
ahsire' en-ke-**wir**-onni-en-'
blanket FUT-1SGA-**baby**-make-BEN-PUNC
Intended: 'I made the blanket for the baby.' (applied argument, Baker 1996: 293)

c. *wa'tkawriahsèn:tho'
wa'-t-ka-**wir**-ahsentho-'
FACT-DUPL-NA-**baby**-cry-PUNC
Intended: 'The baby cried.' (unergative subject; Baker 1996: 294)

[4]See the discussion in Baker (1996: 294) for the claim that intransitive verbs not permitting incorporation are unergative, while those that do are unaccusative.

d. ?? wa'ka'serehtaráthen'
wa'-ka-**'sere**-ht-a-rathen-'
FACT-NA-**car**-NMLZ-JR-climb-PUNC
Intended: 'The car climbed (on it, e.g., a hill).' (unergative subject; Baker 1996: 294)

Furthermore, there is an animacy condition, where animate nouns do not incorporate. Apparent counterexamples such as the incorporation of *wir* 'baby' are proposed to be due to a "low animacy" nominal (Baker 1996). While 'baby' refers to an animate being, such "low animacy" nominals are treated as grammatically inanimate.

Looking solely at the morphological forms, the term noun incorporation refers to three slightly different surface forms. First, some nouns incorporate without additional morphology (recall that the joiner morpheme is purely epenthetic, despite its segmentation here). This is seen in (15).

(15) **Noun incorporation without nominalization**
wahatitsiaién:ta'ne'.
wa-hati-**itsi**-a-ient-a'n-e'
FACT-MPLA-**fish**-JR-have-INCH-PUNC
'They caught fish.' Mithun (2010: 40)

Second, some nouns (and all verb roots used referentially) require a nominalizer in order to incorporate. This is illustrated in (16). The nominalizer used is determined by the noun root, taking one of the following forms: *-(ht/'t)sher, -ser, -ht, -'t, -t, -hkw* (Martin 2023).

(16) **Noun incorporation with nominalization**

a. ienonhkwatsherón:nis
ie-**nonhkw**-a-**tsher**-onni-s
FI.A-**medicine**-JR-**NMLZ**-make-HAB
'she used to make medicine' (Scott 1991: 2)

b. kahseriie'táneren
ka-**hseriie**-**'t**-a-neren
NA-**string**-**NMLZ**-JR-tie.up.STAT
'It is tied up with string' (Mithun 2010: 42)

Finally, some verbs obligatorily incorporate a nominal. In the absence of an incorporated lexical root, these verbs surface with a pleonastic element (also called an "empty root" in Michelson et al. 2024: 15, 20; see Boles 2024).

(17) **Obligatory noun incorporation for some verbs**

a. wa'khahseró:roke'
wa'-k-**hahser**-orok-e'
FACT-1SGA-**light**-cover-PUNC
'I covered the lamp.'

b. wa'kehrhó:roke' ne oháhsera'
wa'-ke-**hrh**-orok-e' ne o-hahser-a'
FACT-1SGA-**thing**-cover-PUNC NE NP-light-NSF
'I covered the lamp.' (Boles 2024: 2)

The left edge of the verb stem may additionally include one of the "lower voice" markers. The term "lower voice" is meant here to evoke a structurally low position, which I argue the Semireflexive occupies in §2.3.1.2 below (see also Barrie and Alboiu 2008). For the moment, I will simply describe them with reference to their linear order. The pre-verb root *-atat* morpheme can straightforwardly be characterized as a reflexive, as can be seen in the examples below (18). The use of the Duplicative with the reflexive gives rise to a reciprocal reading, as in (18b).

(18) **Reflexive and reciprocals (Mithun 2006: 205)**

a. wahontatié:nawa'se'
wa'-hon-**atat**-ienawa's-e'
FACT-MPLA-**REFL**-help-PUNC
'They helped themselves.'

b. wa'thontatié:nawa'se'
wa'-**t**-hon-**atat**-ienawa's-e'
FACT-**DUPL**-MPLA-**REFL**-help-PUNC
'They helped each other.'

Finally, the Semireflexive prefix also occurs to the left edge of the verb. It has also been called a "middle" (Mithun 2006). The Semireflexive contributes a wide range of meanings. Note that there are many instances of verb stems lexicalized with the Semireflexive: in particular verbs of perception (19a), verbs describing changes in position (19b), psych verbs (19c). In each of these forms, there is no verbal alternant without the Semireflexive.

(19) **Lexicalized Semireflexive verbs (Mithun 2006: 202-3)**

a. wakathón:te'
wak-**at**-hont-e'
1SGP-**SR**-hear-STAT
'I hear'

b. katá:wens
k-**at**-awen-s
1SGA-**SR**-swim-HAB
'I swim'
(Michelson et al. (2024: 96) list *awen* as a noun root meaning 'water', though it occurs in limited contexts)

c. wakaterièn:tare'
wak-**at**-erien't-a-r-e'
1SGP-**SR**-disposition-JR-insert-STAT
'I know.'
(gloss following Michelson et al. (2024: 295))

Because of the many instances in which the Semireflexive is lexicalized, I will assume that it is a stem-internal morpheme. The Reflexive is not crucial for my purpose, and I will not give a concrete analysis of it here.

2.2.2.2 Derivational suffixes

On the right side of the verb root, a number of derivational suffixes appear. These are varied in function but generally involve the introduction of arguments or a modification to the event structure of the verb. The template of suffixes discussed here is given in (20); this discussion is limited to those suffixes which occur in the body of this thesis, and is therefore not intended to be comprehensive.

(20) **Derivational suffix template (adapted from Mithun 2017b; Michelson 2023)**
$\sqrt{}$verb – INCH/REV – CAUS – INSTR – BEN – PURP

The INCHOATIVE suffix takes state roots, which only inflect for the Stative aspect, and derives an event root, which inflects for all three aspects (see Chapter 3 for details on these root classes). The resulting meaning is a description of an event which leads to the state of the base root.

(21) a. iohní:ron
io-hnir-on
NP-be.hard-STAT
'it is hard'

b. iohníhrha's
io-hnir-**ha**-s
NP-be.hard-**INCH**-HAB
'it becomes hard'
(Martin 2023: 220)

(22) a. khseró:hen
k-hserohen
1SGA-be.quick.tempered.STAT
'I am quick tempered'

b. enkhseróhen'ne'
en-k-hserohen-'**n**-e'
FUT-1SGA-be.quick-tempered-**INCH**-PUNC
'I will become angry'
(Michelson et al. 2024: 146)

The REVERSIVE derives a verb which expresses the "un-doing" of the base verb (in the case of telic verbs) or the cessation of the base verb's event (in the case of atelic verbs and those which denote an irreversible event). The "un-do" meaning is illustrated in (23), and the cessation meaning is illustrated in (24). I will discuss this suffix further in §3.3.3.2, where I provide a formal characterization of its meaning (see also Benedict et al. 2025).

(23) **Reversive derivation: "un-do V"**

a. takhsontéhrha'
DUPL-1SGA-connect-HAB
'I'm joining it, connecting it'

b. wa'thahsonterá:ko'
FACT-DUPL-MSGA-connect-JR-REV-PUNC
'he disconnected it' (Michelson et al. 2024: 56)

(24) **Reversive derivation: "stop V"**

a. ra'serehtóhares ne raò:sere
ra-'sereh-tohare-s ne rao-'sere
MSGA-car-wash-HAB NE MPOSS-car
'He is washing his car.'

b. waha'serehtoharehsi
wa-ra-'sereh-tohare-**hsi**-'
FACT-MSGA-car-wash-**REV**-PUNC
'He finished washing the car'

The CAUSATIVE, similar to the inchoative, can derive event verb stems from state roots and introduces a causer, illustrated in (25). When suffixed to an event root, it similarly introduces a causer. In each case, the causer is indexed as the agent.

(25) **Causative verbs**

a. khní:rats
k-hnir-**at**-s
1SGA-be.hard-**CAUS**-HAB
'I harden it.' (Martin 2023: 171)
(*cf.* (21a))

b. tekténhstha'
te-k-ten-**hst**-ha'
DUPL-1SGA-fly-**CAUS**-HAB
'I make it fly.' (Martin 2023: 170)

When the causee is an animate argument (i.e., one which is indexed by the pronominal prefix), it is indexed as the theme but sometimes requires the addition of the benefactive – compare the examples in (26).

(26) **Causatives with a transitive pronominal prefix**

a. Sak wa'shakóiehte' ne Onwári
Sak wa'-**shako**-ie-**ht**-e' ne Onwari
Sak FACT-**MSG>FI**-wake-**CAUS**-PUNC NE Onwari
'Sak woke Mary up (Sak caused Mary to wake).' (Baker 1996: 353, see also Michelson et al. 2024: 171)

b. tkoniaton'nekténːni
t-**koni**-aton'nek-**t**-**en**-ni
CIS-**1SG>2SG**-be.startled-**CAUS**-**BEN**-STAT
'I startled you (I caused you to be startled).' (Martin 2023: 171)

Finally, Baker (1996: 348) claims that causatives are only possible with unaccusative verbs. Investigating both the restrictions on the causative and the apparently variable ability of causatives to introduce arguments is left for future research.

The INSTRUMENTAL and BENEFACTIVE are specialized applicatives. Mithun (2006) notes that instruments and oblique arguments in general are typically introduced in separate clauses; the instrumental applicative introduces an instrument – the examples in (27) illustrate this with neuter instrument arguments. The instrumental is commonly used to form a referential expression from verbs to refer to implements and locations, as seen in (28).

(27) **Instrumental introduces instruments**

Wahi	thí:ken	kanonhséshne		thi	ratina'tónhkhwahkwe',
wahi	thiken	ka-nonhses=hne		thi	rati-na'ton-**hkw**-hah-kwe'
really	that	NA-building-be.long=LOC		that	MPLA=point.out-**INSTR**-HAB-FOR.PST

ienekeraientáhkhwa',	ó:nen	né:'	thí:ken	rati'terontónhkwe's	nè:'e.
ie-neker-a-ient-**ahkw**-ha'	onen	ne:'	thiken	rati-'teronton-**khw**-e'-s	ne'e
FIA-hay-JR-set-**INST**-HAB	now	it.is	that	MPLA-live-**INSTR**-STAT-DISTR	it.is

'That longhouse, you know, they used to call it that, they used to store their hay in it, and now people live in it.' (Mithun 2006: 211)

(28) **Instrumental verb stems used referentially**

a. iekaratónhkhwa'
ie-karaton-hkw-ha'
FZSGA-tell.story-INSTR-HAB
'legend' (Michelson et al. 2024: 202)

b. tsi iehwistaientáhkhwa'
tsi ie-hwist-aient-ahkw-ha'
that FZSGA-money-put-INSTR-HAB
'they put money there = a bank' (Michelson et al. 2024: 160)

The benefactive, illustrated in (29), introduces an affectee: despite its name, it introduces both beneficiaries and maleficiaries.

(29) **Benefactives introduce affectees**

a. onkwathwistáhon'se'
wa-wak-at-hwist-ahton-'s-e'
FACT-1SGP-SR-money-disappear-**BEN**-PUNC
'the money disappeared on me, I lost the money' (Michelson et al. 2024: 160)

b. wahshakona'tón:hahse' ononhkwa'shòn:'a
wa-hsako-na'ton-**hahs**-e' o-nonkwa'=shon'a
FACT-MSG>3PL-point.out-**BEN**-PUNC NP-medicine=DISTR
'He showed them various medicines.' (Mithun 2006: 212)

c. wahakhtháhrhahse'
wa'-hak-hthar-**hahs**-e'
FACT-MSG>1SG-talk-**BEN**-PUNC
'he is talking to me' (Michelson et al. 2024: 156)

The PURPOSIVE derives motion verbs (both motion verbs and the interpretation of the purposive are further detailed in §3.4). The purposive verb stem describes motion towards accomplishing the eventuality described by the base verb. The agent of the motion event may be the sole argument of the base intransitive verb (30a), the subject of a base transitive verb (30b), or the object of a base transitive verb (30c).[5]

(30) **Purposive verb stems are motion verbs**

a. wa'kanonhwétha'
wa'-k-anonhwet-**h**-a'
FACT-1SGA-sleep.over-**PURP**-PUNC
'I went to sleep over' (Michelson et al. 2024: 65)

b. wa'khenontèn:re'
wa'-khe-nonten-**hr**-e'
FACT-1ST>FI-feed.someone-**PURP**-INT
'I am on my way to feed her' (Michelson et al. 2024: 262)

c. wahonwanonhkarónhe'
wa-honwa-nonhkkaron-**h**-e'
FACT-FI>MSG-cut.hair-**PURP**-INT
'He is going to get a hair cut.' (Michelson et al. 2024: 254)

2.2.2.3 Pre-pronominal prefixes

The pre-pronominal prefixes are a set of morphemes which appear linearly to the left of the pronominal prefixes. We discussed the modal pre-pronominal prefixes (i.e., the Factual, Future, and Optative), which obligatorily co-occur with the Punctual aspect, above in §2.2.1. The template of the full set of pre-pronominal prefixes is given in (31). In this section, I will give a brief description of each prefix's function, starting from the left.

[5] See Baker (1996: 374) for an analysis of these as control structures.

(31) **Template of pre-pronominal prefixes**

$$\left\{\begin{array}{l}\text{PRT}\\ \text{COIN}\\ \text{CONTR}\\ \text{NEG}\end{array}\right\} - \text{TRANS} - \text{FACT} - \text{DUPL} - \left\{\begin{array}{l}\text{FUT}\\ \text{OPT}\end{array}\right\} - \left\{\begin{array}{l}\text{REP}\\ \text{CIS}\end{array}\right\}$$

The PARTITIVE is used for a variety of purposes. It is typically involved in any construction involving degrees, quantity, and manner (Michelson et al. 2024). It is also used in exclamative constructions (Myers 2024).

(32) **The partitive in degree and numeral constructions (Myers 2024)**

a. Tó: nihahnén:ies ne Kó:r?
to **ni**-ha-hnenies ne Kor
how **PRT**-MSGA-be.tall.STAT NE Kor
'How tall is Kó:r?'

b. Ià:ia'k niwahsì:take nihahnén:ies ne Kó:r.
ia'ia'k **ni**-wa-hsit-a-ke **ni**-ha-hnenies ne Kor
six **PRT**-NA-foot-JR-be.amount.STAT **PRT**-MSGA-be.tall.STAT NE Kor
'Kor is six feet tall.'

c. áhsen nikón:ti è:rhrr'
ahsen **ni**-kon-t-i ehrhar
three **PRT**-FZNSGA-SR-be.number dog
'three dogs'

The COINCIDENT appears in constructions which convey similarity and, more important for the following discussion, spatial and temporal overlap. When used in similative constructions of two things, the Duplicative is used with the Coincidenl, as shown in (33).

(33) **Coincident expresses similarity (Martin 2023: 134–5)**

a. né: sha'tewahiò:ten
ne: **sh-a'te**-w-ahi-oten
it.is **COIN-DUPL**-NP-fruit-be.kind.STAT
'it is the same type of fruit'

b. sha'tehnihnén:ies
sh-a'te-hni-hnenies
COIN-DUPL-MDUA-be.tall.STAT
'they are the same height'

In constructions expressing temporal overlap, the Coincident appears in either the on-going (i.e., Stative or Habitual) aspect or the Factual-Punctual. Further details are given in Chapter 4; see also Martin (2023: 134*ff*). In the former case (34a), both verbs which express the temporally overlapping events are marked. In the latter (34b), the Coincident is used on the verb which is situated with respect to a larger interval (in this example, the interval during which an on-going cleaning event occured).

(34) **Coincident marks temporal overlap**

a. Kó:r shiiohrhòn:ke shatehononniáhkwen
Kor shi-io-hrhon'ke sh-ate-ho-nonniahkw-en
Kor COIN-NP-be.morning.STAT COIN-DUPL-MSGP-dance-STAT
'Kor has been dancing since this morning.'

b. Shiahà:rawe' ne Kó:r, tetiakwatohtáhrhos
sh-iaha'-ra-we-' ne Kó:r, te-iakwa-tohtahrho-s
COIN-TRANS.FACT-MSGA-go-PUNC NE Kor DUPL-1PL.EXA-clean-HAB
'When Kó:r arrived, we were cleaning.'

The NEGATIVE and CONTRASTIVE prefixes are used to express negation and obligatorily co-occur with the negative particle *iah*. The Negative occurs before the pronominal prefixes, the Repetitive, and the Cislocative pre-pronominal prefixes. Elsewhere, the Contrastive is used. The distribution is given in (35), following Morgunova (2023).[6]

(35) **Distribution of Negative and Contrastive prefixes (Morgunova 2023)**

TRANS/COIN	FACT	DUPL	FUT/OPT	REP/CIS	PRON.
CONTR *th-*				NEG *te-*	

(36) **Negation with the Negative and Contrastive prefixes**

a. Iah tetkatá:wens.
iah **te**-t-k-atawen-s
NEG **NEG**-CIS-1SGA-swim-HAB
'I don't swim there.'

[6]There are further uses of the contrastive, which "indicates an unusual or unexpected situation" (Michelson et al. 2024: 14)

b. Iah thiewákhson'.
iah **th**-ie-wak-hs-on
NEG **CONTR**-TRANS-1SGP-finish-STAT
'I haven't finished it.'

The TRANSLOCATIVE and CISLOCATIVE are used to indicate that the eventuality described by the verb occurs at or towards a particular location: as indicated by the name, the Translocative describes movement away from the deictic centre (typically the speaker's location, but may be contextually shifted) or locates the eventuality at a place far from the deictic centre; the Cislocative describes movement towards the deictic centre, or locates the eventuality close to the deictic centre. An example of this is given in (37); note that the Translocative appears linearly to the left of the Future, while the Cislocative appears linearly to its right.

(37) **Trans-/cislocative introduces location**

a. enhontó:ri'
en-hon-atori-'
FUT-MPLA-drive-PUNC
'They will drive.'

b. ienhontó:ri'
i-en-hon-atori-'
TRANS-FUT-MPLA-drive-PUNC
'They will drive in that direction.' (Martin 2023: 151)

c. enthontó:ri'
en-**t**-hon-atori-'
FUT-**CIS**-MPLA-drive-PUNC
'They will drive in this direction.' (Martin 2023: 156)

Some verb roots obligatorily require the translocative/cislocative to form a verb stem. Examples of these are given in (38) and (39).

(38) **Lexically-specified translocative stems**

a. iehahtsá:tons
ie-ha-htsaton-s
TRANS-MSGA-point-HAB
'He points to it' (Michelson et al. 2024: 59)

b. ia'tewakerihwaientà:se'
i-a'te-wake-rihw-aient-a's-e'
TRANS-DUPL-1SGP-matter-put.down-BEN-STAT
'I have decided' (Martin 2023: 150)

c. iekahnehkwá:nons
ie-k-ahnehkwanon-s
TRANS-1SGA-swallow-HAB
'I am swallowing it.' (Martin 2023: 154)

(39) **Lexically-specified cislocative stems**

a. tkatáhsawens
t-k-at-ahswen-s
CIS-1SGA-SR-begin-HAB
'I begin' (Martin 2023: 156)

b. tkhéhnhes
t-khe-hnhe-s
CIS-1SG>FI
'I defend her' (Michelson et al. 2024: 224)

c. tkahsé:tas
t-k-ahset-as
CIS-1SGA-count-HAB
'I am counting it/them.' (Martin 2023: 156)

The DUPLICATIVE, in its productive use, conveys a notion of "two-ness". For instance, it is obligatory with verbs which involve two participants.

(40) **Duplicative marks with events involving two participants**

a. wà:keke'
wa-k-ek-e'
FACT-1SGA-eat-PUNC
'I ate it.'

b. tékeni wà:tkeke'
tekeni wa'-**t**-k-ek-e'
two FACT-**DUPL**-1SGA-eat-PUNC
'I ate two things.' (Martin 2023: 86)

Furthermore, as with the translocative/cislocative prefixes, some verb roots are specified to obligatorily occur with the duplicative.

(41) **Lexically-specified duplicative stems**

a. teió'tson
te-io-'tson
DUPL-NP-be.dirty.STAT
'It is dirty' (Michelson et al. 2024: 195)

b. tewatkà:ron
te-w-at-akahron
DUPL-NP-SR-be.wide.STAT
'It is wide' (Martin 2023: 16)

The REPETITIVE conveys both repetitive and restitutive readings, often translated into English as 'again'. Further details of its semantic contribution is taken up in §3.3.3; a full analysis is given in Myers (2025).

(42) Kó:r saharashéntho' ne ahthén:no.
Kor **sa**-ha-rashenth-o' ne ahthenno
Kor **REP.FACT**-MSGA-kick-PUNC NE ball
'Kó:r kicked the ball again.' (Myers 2025)

Finally, note that "position classes" of this template are not fully able to determine the complementary distribution of these prefixes: for example, the Factual and Future/Optative prefixes are in complementary distribution, seen in (43), despite being in different position classes, as we can see by their relative order when they co-occur with the Duplicative in example (44); see Blackburn 2025 for further details.

(43) *wa'tenkenónniahkwe'
wa'-t-**en**-ke-nonniwahkw-e'
FACT-DUPL-**FUT**-1SGA-dance-PUNC

(44) **Factual and Future/Optative are in distinct position classes**

a. wa'tkenónniahkwe'
wa'-**t**-ke-nonniwahkw-e'
FACT-**DUPL**-1SGA-dance-PUNC
'I danced.' (Martin 2023: 84)

b. tenkatskà:hon'
t-en-k-atshaka'hon-'
DUPL-FUT-1SGA-dine-PUNC
'I will dine.' (Martin 2023: 86)

An analysis in strictly in terms of these position classes as *order classes* defined by their relative position (Lounsbury 1953) requires additional statements to capture this complementary distribution, and others. However, the semantic contributions of the prefixes alone is also insufficient to treat the complementary distribution of morphemes. The Partitive, for example, is incompatible with the Negative and the Repetitive and Cislocative are similarly in complementary distribution, despite being semantically independent of each other. That is, neither of these restrictions seem to follow straightforwardly from their meaning, though they are captured by treating them as members of the same order class.s

2.2.2.4 The "extended aspectual" and tense suffixes

Finally, there is a small set of post-aspectual suffixes, commonly referred to in other descriptions as the "extended aspectual" suffixes. Their distribution is determined by the preceding aspect. Habitual aspect verbs can be followed by the Former Past and the Continuative suffixes; Stative aspect verbs can be followed by the Former Past, Remote Past, Continuative and the Progressive suffixes; and Punctual aspects may not be followed by any "extended aspectual" suffix (Martin 2023: 138*ff.*). This is summarized in (45).

(45) **Extended aspect and tense suffix template**

$$\text{verb stem} - \left\{ \begin{array}{l} \text{HAB} - \left\{ \begin{array}{l} \text{FOR.PST} \\ \text{CONT} \end{array} \right\} \\ \text{STAT} - \left\{ \begin{array}{l} \text{FOR.PST} \\ \text{REM.PST} \\ \text{CONT} \\ \text{PROG} \end{array} \right\} \\ \text{PUNC} \end{array} \right\}$$

The meaning of the FORMER PAST and REMOTE PAST suffixes will be taken up in Chapter 5. There, I will argue that these are the overt instantiations of the Tense system. As such, I will refer to these as tense suffixes rather than "extended aspects". These are exemplified briefly in (46). Note that the Remote Past changes the location of stress of the stem with respect to the form without a past suffix, whereas the Former Past does not.

(46) a. Ohna'kénhaton shahí:ken' rató:rats**kwe'**.
Ohna'kenhaton sh-a'-hi-ken-' ra-atorat-s-kwe'
last.time COIN-FACT-1SG>MSG-see-PUNC MSGA-hunt-HAB-FOR.PST
'When I saw him last, he was hunting.'

b. Shawátis shahí:ken' **rotshokwèn:ne**.
Shawatis sh-a'-hi-ken-' ro-atshokw-en-hne
John COIN-FACT-1SG>MSG-see-PUNC MSGP-smoke-STAT-REM.PST
'John was smoking when I saw him.'

The CONTINUATIVE suffix, also called the "Modalizer" for other Northern Iroquoian languages (Dyck et al. 2024), is obligatory when the Future or Optative modal prefixes are used with the Habitual or Stative aspects.

(47) a. akhiatónhseke'
a-k-hiatonh-s-eke'
OPT-1SGA-write-HAB-CONT
'I should be a writer'

b. enkhiatónhseke'
en-k-hiatonh-s-eke'
FUT-1SGA-write-HAB-CONT
'I will be a writer' (Martin 2023: 140)

(48) a. akatorièsheke'
a-k-atorie'-s-eke'
OPT-1SGA-drive-HAB-CONT
'I should be a driver'

b. akatorièsheke'
en-k-atorie'-s-eke'
FUT-1SGA-drive-HAB-CONT
'I will be a driver' (Martin 2023: 140)

Finally, the PROGRESSIVE is a derivational suffix which occurs only with the Stative aspect forms and is used to express the on-going-ness of the eventuality. For some speakers, it appears to further contribute a meaning of physical motion, and is often translated as "going along and V-ing". The resulting stem can itself be inflected further for the aspects; while traditionally grouped together as part of the suffixes to the Stative aspect, Lounsbury (1953: 89) notes for Oneida that it derives a new stem (his "base").

(49) **The Progressive conveys on-going-ness and motion (Martin 2023: 142)**

a. wakatawenhátie'
wak-atawen-hatie'
1SGP-swim.STAT-PROG
'I am swimming along'

b. wakatwenhátie'skwe'
wak-atawen-hatie-s-kwe'
1SGP-swim-.STAT-PROG-HAB-FOR.PST
'I used to swim along here and there'

2.2.3 Summary of verbal morphology

The schematic given above in (11), repeated in (50), collapses the major positional classes into their traditional functional and morphological groupings.

(50) **The Kanien'kéha verb template, overview**
(PrePP*)–**PP**–[((SEMI-)REFL)–(√noun)–√**verb**–(DERIV*)]$_{\text{STEM}}$–**Aspect**–(EXTASP/Tense)

A complete template, with each morpheme discussed above, is given in (51), following Mithun (1989: 289). As noted above, this template does not adequately capture the complementary distribution of morphemes. For example, the Translocative and the Cislocative are in complementary distribution despite being in different position classes. Furthermore, there are certain verb roots which obligatorily co-occur with the Duplicative or the Repetitive; such dependencies are assumed to be lexical. These restrictions and dependencies will be briefly discussed in the next section.

(51) **The Kanien'kéha verb template, full (see Mithun 1989)**

$$\left\{\begin{array}{l}\text{PRT}\\ \text{COIN}\\ \text{CONTR}\\ \text{NEG}\end{array}\right\} - \text{TRANS} - \text{FACT} - \text{DUPL} - \left\{\begin{array}{l}\text{FUT}\\ \text{OPT}\end{array}\right\} - \left\{\begin{array}{l}\text{REP}\\ \text{CIS}\end{array}\right\} - \textbf{pron.} - \left\{\begin{array}{l}\text{REFL}\\ \text{SR}\end{array}\right\} - \sqrt{\text{noun}} -$$

$$\sqrt{\textbf{verb}} - \left\{\begin{array}{l}\text{REV}\\ \text{INCH}\end{array}\right\} - \text{CAUS} - \text{INSTR} - \text{BEN} - \text{PURP} - \left\{\begin{array}{l}\text{HAB} - \left\{\begin{array}{l}\text{FOR.PST}\\ \text{CONT}\end{array}\right\}\\ \text{STAT} - \left\{\begin{array}{l}\text{FOR.PST}\\ \text{REM.PST}\\ \text{CONT}\\ \text{PROG}\end{array}\right\}\\ \text{PUNC}\end{array}\right\}$$

For the remainder of my discussion of Kaien'kéha's verbal morphology, I will focus on the crucial structural assumptions regarding the obligatory temporal categories of Tense, Aspect, and Modality; derivational suffixes and pre-pronominal prefixes will be referenced where they become relevant for these temporal categories. The focus for the remainder of this thesis, then, is the reduced template given in (52).

(52) **The Kanien'kéha verb template, temporal categories**

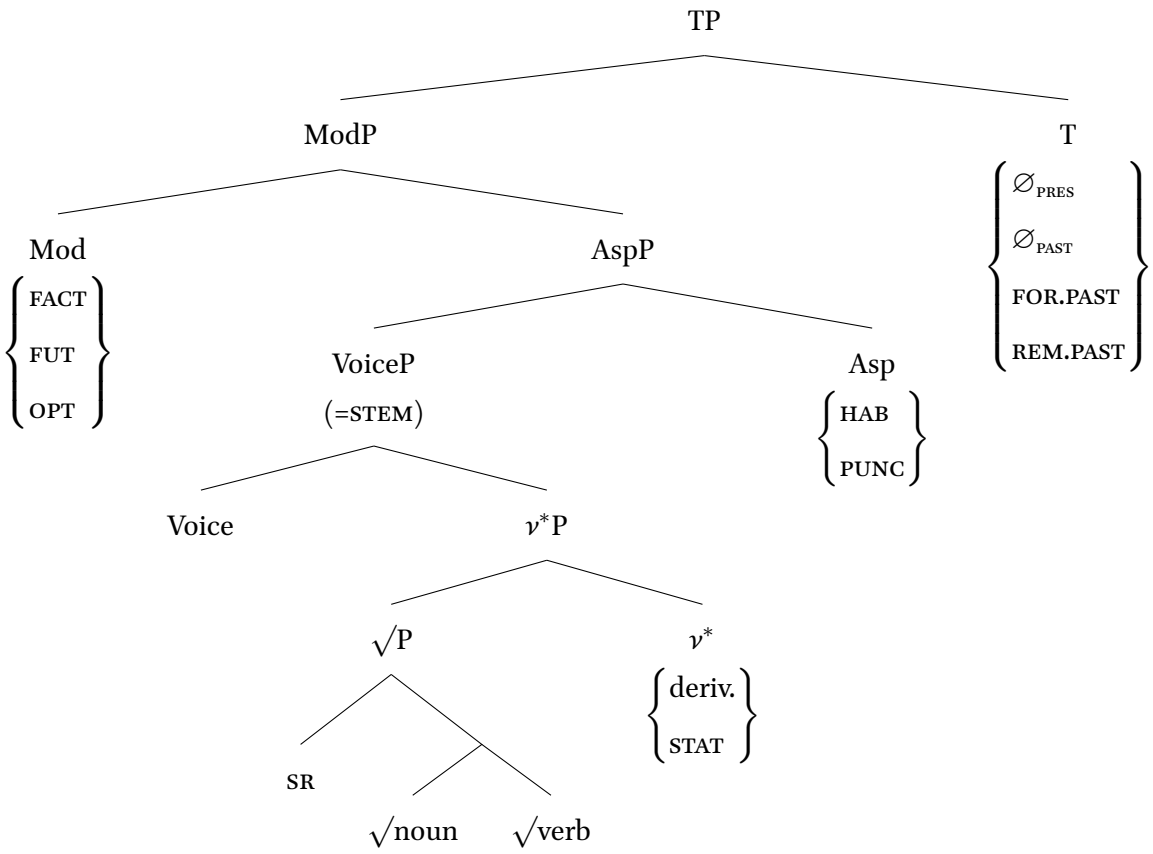
$$\left\{\begin{array}{l}\textsc{fact}\\ \textsc{fut}\\ \textsc{opt}\end{array}\right\} - \text{pron.} - \left(\left\{\begin{array}{l}\textsc{sr}\\ \sqrt{}\text{noun}\end{array}\right\}\right) - \sqrt{}\text{verb} - (\text{derivational}) - \left\{\begin{array}{l}\textsc{hab} - (\textsc{for.pst})\\ \textsc{stat} - \left(\left\{\begin{array}{l}\textsc{for.pst}\\ \textsc{rem.pst}\end{array}\right\}\right)\\ \textsc{punc}\end{array}\right\}$$

The discussion in this section has roughly followed the traditional descriptive conventions for the Iroquoian languages. In the next section, I will expand on this by laying out my syntactic assumptions for how the template is instantiated.

2.3 Syntactic preliminaries

In this section, I will argue that the template in (52) corresponds to the syntactic derivation in (53). Throughout this thesis, I will represent syntactic structures in a way that maps transparently to their surface morphological position (i.e., as suffixes or as prefixes). I do not intend these to be claims about syntactic headedness, nor about linearization in general. I adopt the Mirror Principle (Baker 1985) as a heuristic to determine the hierarchical structure, though we will see some exceptions below.

(53) **Morphosyntactic derivation of the Kanien'kéha verb**



My purpose here is to establish certain analytical preliminaries needed for the discussion in the remainder of this thesis. Settling much of the syntactic details will require discussion beyond the scope of this thesis. Instead, I aim to provide a sufficiently detailed morphosyntactic picture to begin discussing the semantic interpretation of the temporal structure (here, the Stative v^0, the Asp^0, and the T^0). The most relevant morphosyntactic assumptions are the following:

① What I refer to descriptively as "verb roots" may be moprhosyntactially complex. (In the remainder of the thesis, I will abstract away from this internal structure, but the following discussion will give some indication to its composition.)

② The Stative "aspect" is a derivational suffix, syntactically a flavour of v (following Ormston 1993; Baker and Travis 1998; Coon 2025). The state/event distinction is thus determined at the level of vP.

③ The "verb stem" corresponds syntactically to a VoiceP.

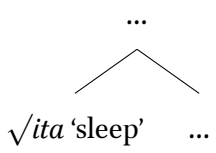
④ The (syntactic) source of pre-pronominal prefixes is distributed across the verbal spine. In (53), the Semireflexive and Modality prefixes are present, but additional pre-pronominal prefixes will be discussed in §2.3.7.1.

I will begin with the composition of the "root phrase", and build up my assumptions by moving up the structure.

2.3.1 The root (phrase), $\sqrt{P}$

The root, either alone or with a set of other syntactic objects (incorporated nominal element, "low voice" morphemes), for a phrase which I will call the root phrase.[7] In the following chapters of this thesis, I will abstract away from the internal composition of the "root phrase". In this section, I will briefly discuss how morphologically-complex roots (labeled $\sqrt{P}$ throughout) may be formed. In the simplest case, a verb root alone suffices to form the $\sqrt{P}$. This is illustrated in (54a). The structure represents the constituent marked with brackets in the morphological segmentation line.

(54) a. wakí:ta's
wak-[ita']-s
1SGP-sleep-HAB
'I am sleeping' (Michelson et al. 2024: 189)

b. 

In Chapter 3, I will show that verb roots in Kanien'kéha are classified along two dimensions: their co-occurence with the aspectual suffixes and their event-structural complexity. While the discussion there will focus on "roots" as the complement of the first v^0, it is apparent from the morphology that the relevant structure may be complex. In this section, then, I will show how the syntactic "root phrase" is morphosyntactically constructed. Where the internal composition of the root is not relevant, I will label this constituent the root, notating it $\sqrt{}$ in derivations. In this remainder of this section, I propose that the incorporated noun and the Semireflexive are both part of this syntactic constituent.

2.3.1.1 Internal syntax of the root: noun incorporation

I will roughly follow previous work on Kanien'kéha noun incorporation (Baker 1988, 1996; Renard 2023; Boles 2024) in assuming that when a noun is incorporated into the verb, the verb root takes the "nominal element" as its complement. Since a formal comparison of the details of their respective structural claims will take us beyond the scope of this thesis, I refer the reader to the cited works themselves for further

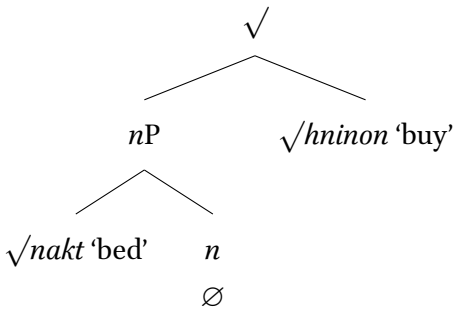
[7] I will remain relatively agnostic about the theoretical issues surrounding "root phrases" (see, for example, Harley 2014). The term "root phrase" suggests roots may directly take complements. In this thesis, I use the term to refer to lexical material below the introduction of the eventuality-class defining vP. That is, the "root phrase" is intended to capture all obligatory material that contributes to an eventuality description.

information. In general, though, the three syntactic accounts of Kanien'kéha's noun incorporation in the aforementioned citations agree on the basic structure. Essentially, the incorporated nominal head ends up in a some local syntactic relation with the verbal head (here, taken to be the root).

Renard (2023) argues that there are two possible structures for noun incorporation; more specifically, there are two possible kinds of nominal element that may be incorporated. He classifies noun incorporation structures into two classes based primarily on the availability of idiomatic, non-compositional meaning (as well as a few other criteria). For forms which are fully compositional in their meaning, he refers to this as an "active" noun incorporation structure. This is exemplified in (55a). He proposes the structure in (55b); this is also the structure which Boles (2024) arrives at through morphological and semantic arguments.

(55) a. wa'kenaktahní:non'
wa'-ke-[nakt-a-hninon]-'
FACT-1SGA-bed-JR-buy-PUNC
'I bought a bed

b. **Structure for "active" noun incorporation (Renard 2023: 5)**

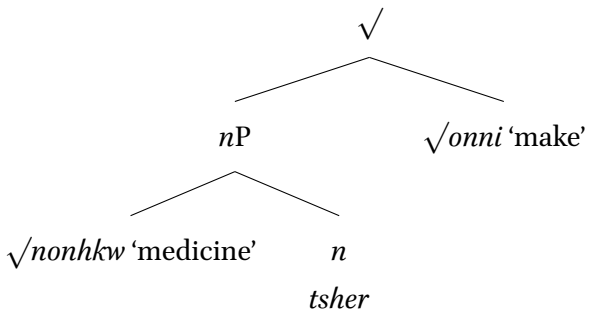


Under this proposal (unlike that of Baker 1988), there is no syntactic movement of the noun-root to derive "incorporated nouns". Instead, I assume here that all material internal to the verb root as well as all heads within the extended projection of the verb are base-generated in their surface order (with the exception of the pre-pronominal prefixes, discussed below).[8] I will remain agnostic here for how this syntactic structure is linearized, though the syntactic proposal outlined here is in principle compatible with the basic tenents (such as head-adjacency and Mirror Principle ordering) of a number of explicit word-formation theories.[9]

The presence of a full *n*P complement is motivated through the overt nominalizer which occurs in some instances of incorporation, whose form is dependent on the noun root. An example is given in (56a).

[8] A similar view is comprehensively articulated in, e.g., Crippen (2019) for the syntax of Tlingit verbs.
[9] See, for instance, Svenonius (2016), Harizanov and Grivanova (2019) and Arregi and Pietraszko (2024).

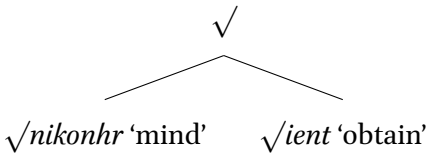
(56) a. ienonhkwatsherón:nis
ie-[**nonhkw**-a-**tsher**-onni]-s
FI.A-**medicine**-JR-**NMLZ**-make-HAB
'She used to make medicine' (Scott 1991: 2)

b. 

Next, there are verbs which clearly contain an incorporated nominal but this nominal does not contributed to the meaning of the verb in a compositional way. An example of this is given in (57). In this case, the incorporated material and the verb root can be represented as a complex head, consisting of two roots. This structure is "inactive" in the terminology of Renard (2023).

(57) a. wake'nikonhraién:ta's
wake-['nikonhr-a-ient]-a's
1SGP-mind-JR-obtain-HAB
'I understand' (Renard 2023: 1)

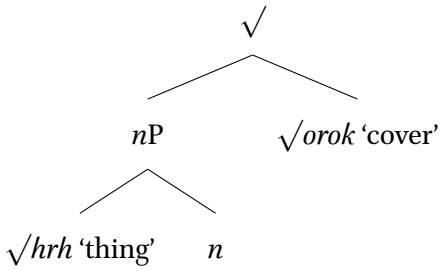
b. **Structure for "inactive" noun incorporation (Renard 2023: 4)**



We have so far discussed cases where the verb may optionally occur with an incorporated noun. Some verb roots obligatorily incorporate. In the absence of lexical material, the verb root appears with additional morphological material to the left. Here, I assume that this material is an *n*P containing a semantically bleached noun root, following Boles (2024).

(58) a. wa'kehrhó:roke' ne oháhsera'
wa'-ke-[**hrh**-orok]-e' ne o-hahser-a'
FACT-1SGA-**thing**-cover-PUNC NE NP-light-NSF
'I covered the lamp.' (Boles 2024: 2)

b. **Structure for noun incorporation of an "empty root"**



Finally, examples such as those in (59) illustrate what Mithun (1984) calls "classificatory noun incorporation". The crucial property of these constructions is that the incorporated nominal is "doubled" by a standalone noun. This noun may be formed from an identical noun root to the incorporated noun as in (59a) or it may refer to an instance of a kind denoted by the incorporated noun as in (59b).

(59) a. Thetén:re **akè:sere** ke'**sereht**akwatákwaskwe'.
thetenre ake-'sere ke-'sere-ht-a-kwatakwa-s-kwe'
yesterday 1SG.POSS-car 1SGA-car-NMLZ-JR-fix-HAB-FOR.PST
'I was fixing my car yesterday.'

b. Tóhka niiohserá:ke tsi náhe' sha'té:kon nikón:ti **rabahbót**
tohka ni-i-ohser-ake tsi nahe sha'tekon ni-kont-i rabahbot
several PRT-NP-winter-be.number since eight PRT-FZPLA-be.number bullhead
wahon**tsia**hní:non' ki rake'níha.
wa-hon-tsia-hninon-' ki rake'niha
FACT-MSGA-fish-buy-PUNC this my.father
'Several years ago, my father bought eight bullheads.' (Mithun 1984: 870)

I will defer a discussion of these examples to §2.3.2, where I provide some details about the syntax of standalone nominal arguments.

2.3.1.2 Internal structure of the root: the Semireflexive

Turning now to the Semireflexive, I will assume that the idiomatic interpretations suggest a similarly low structural position (see also Barrie and Alboiu 2008). Crucially, the Semireflexive is obligatory with certain verb roots (Mithun 2006), in which case it does not appear in the synchronic grammar to make a consistent semantic contribution. Thus, I will assume throughout that for words which include the Semireflexive, it is part of the root phrase. The overall upshot of this is that all material that contributes to the meaning non-compositionally will be contained within the root phrase.

As Mithun (2006: 202) notes, the function of the Semireflexive is partially transparent: it detransitivizes roots and identifies the sole argument as both the agent and theme. However, she notes that over time, shifted "abstract senses are now their primary meanings", citing examples like (60).

(60) **"Metaphorical middle" (Mithun 2006: 202)**
iekatewennáta's
ie-k-ate-wenn-at'a-s
TRANS-1SGA-SR-voice-insert-HAB
'I telephone'

For the remainder of the discussion, I will abstract away from the contribution of the Semireflexive prefix (and, to some extent, incorporated nouns) and specify the meaning of the full verb root without going through the composition. This is solely an expedient, and future work will be needed to integrate noun incorporation and the root-internal prefixes into the wider compositional system.

2.3.2 The status of standalone nominals

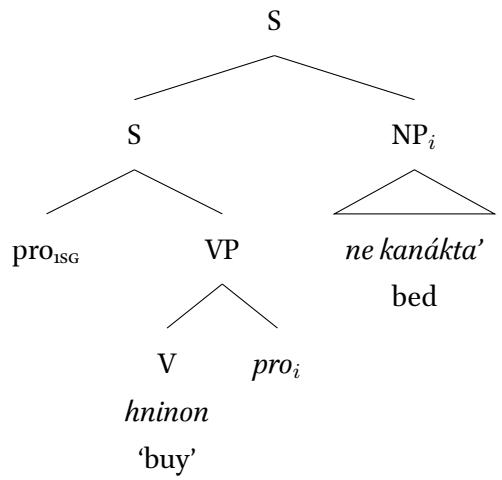
In this section, I will give a brief overview of the syntax of standalone nominals, which do not form a morphological word with the verb. I will refer to standalone nominals as NPs for convenience; whether these forms are *syntactically* NPs or DPs is not crucial here. There are two major positions one might take with respect to the syntactic position of NP. The choice between these is not crucial, as I will argue in Chapter 3 that the arguments of the verb play no discernible role in the temporal interpretation of the sentence. Nonetheless, I will spell out my assumptions here for concreteness.

The most influential syntactic analysis of nominals in "polysynthetic" languages is the "high adjunction" analysis whereby all overt nominals are adjoined high in the clause and co-referenced with pronominal material which occupies the canonical "argument" position (Baker 1988, 1996, see also Jelinek 1984). Thus, a sentence like (61a), containing a full NP, receives the structural description in (61b), where the NP argument is adjoined to the full clause, here labeled S, and is co-indexed with a null pronominal within the clause.

(61) **Nominals as "high adjoined" (adapted from Baker 1996: 282)**

a. Wa'khní:non' ne kanákta'.
wa'-k-hninon-' ne ka-nakt-a'
FACT-1SGA-buy-PUNC NE NA-bed-NSF
'I bought the/a bed.'

b.



In contrast, given an account of word-formation where a sequence of adjacent syntactic *heads* form a morphological word, the NP object can be merged in the complement of the verb, and be excluded from whatever mechanism derives word-hood.[10] For concreteness and given recent work on the information structural effects of noun incorporation and word order (DeCaire et al. 2017; Flaim 2025), I will assume that NP arguments are introduced within the specifiers of the heads that introduce them. Themes are introduced as complements to the root (but see Myers 2025); when the noun is incorporated, I will follow Boles (2024) who places doubled NPs as the specifier of the complement *n*P, which then gets excorporated.[11] Thus, the phrase in (62a) is assumed to have the structure in (62b). The syntax of *v* and Voice are discussed in the next section.

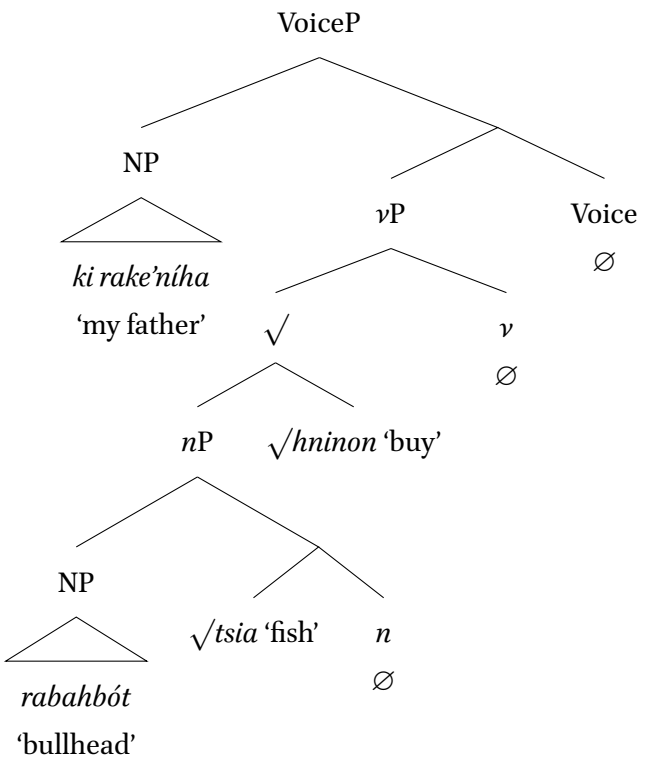
(62) a.

rabahbót	wahon**tsia**hní:non'		ki	rake'níha
rabahbot	wa-hon-tsia-hninon-'		ki	rake'niha
bullhead	FACT-MSGA-fish-buy-PUNC		this	my.father
'My father bought bullheads'				

[10]

[11]Motivation for such as structure can be found in possessor raising structures, as discussed in Boles (2024: 48).

b.



As noted above, I remain agnostic about the precise mechanism for word-formation. Nonetheless, the above assumptions are compatible with any theory which builds morphological words through the amalgamation of adjacent heads (with the further assumption that the morphemes that form complex roots are heads). Thus, overt root-internal NP arguments which are not heads do not get linearized as part of the word, whereas the roots and heads in the functional sequence [*n*P-√-*v*-Voice] do.

2.3.3 The verb stem, *v*P

We now turn to the structure dominating the root phrase in more detail. The verb root lies at the core of each verb stem. It imposes three properties onto the verb stem: ① the state/event distinction, ② the pronominal class, and for event verbs, ③ the telicity of the event. This final property makes Kanien'kéha unlike languages with incremental themes; this property will be detailed in Chapter 3 below.

In this section, I show that verbs are structurally differentiated by the *v*P into two classes: eventive *v*P headed by v_{DO} and stative *v*P headed by v_{BE}, which corresponds to the Stative aspect (Ormston 1993; Baker and Travis 1998; Coon 2025). The distinction between state verbs and event verbs thus arises from which *v* head the √P first merges with. In other words, the aspectual paradigm is associated with the *v*P rather than the root – this will be crucial to derive the full range of interpretations of Stative aspect forms in Chapter 3.

2.3.3.1 *v*P and the state/event distinction

Following much of the syntactic literature on this low verbal domain (e.g Marantz 1997; Pylkkänen 2008; Harley 2017), I will assume that the verb root is syntactically classified by a *v* head. There may be different "flavours" of *v* (Folli and Harley 2005), which impart more specific event structural properties to the phrase; an alternative approach is that of Wood (2015), whereby the interpretation of a single *v* is determined by contextual allosemy. What is crucial for Kanien'kéha is that the distinction between state and event verbs is determined here by the flavour of *v* which takes the root as its complement. The interpretations of the "core" *v* heads are given in (63).[12] There are some additional candidates for additional flavours of *v*, including the Causative and the Inchoative derivational suffixes. As v^0 heads, these derive event verbs (similar to v_{DO}) but specify semantic properties beyond stativity/eventivity of the eventuality. As such, I will set these aside here.

(63) **Inventory of *v***

a. $[\![v_{\text{DO}}]\!] = \lambda P_{<l,t>} \lambda e.\text{activity}(e) \,\&\, P(e)$

b. $[\![v_{\text{BE}}]\!] = \lambda P_{<l,t>} \lambda e.\text{state}(e) \,\&\, P(e)$

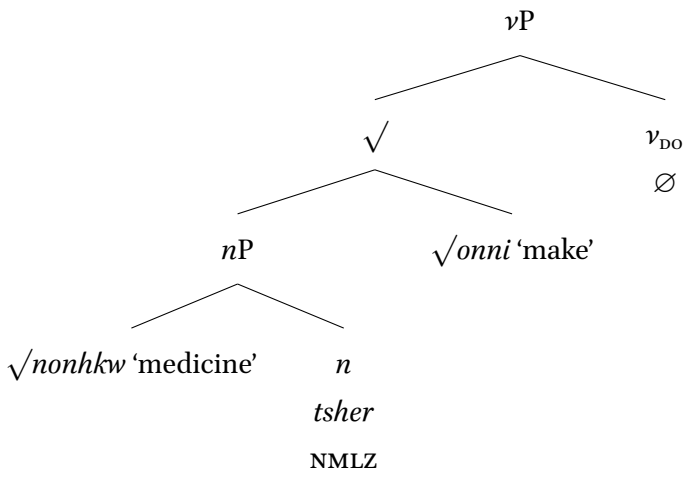
These heads syntactically categorize the root as a verb, and associate the eventuality description denoted by the root with an event or a state (Wood 2015: 28). That is, the *v* heads sorts roots syntactically into event verbs and state verbs. To keep denotations simpler, I will often omit the contribution of *v*, since it is often clear from the surrounding context whether we are dealing with an event or a state.

For event verbs, which are compatible with three aspectual values, the *v* head is null. Thus, the event verb in (64) is selected for by an eventive v_{DO}.

(64) a. ienonhkwatsherón:nis
ie-[nonhkw-a-tsher-onni]-s
FI.A-medicine-JR-NMLZ-make-HAB
'She used to make medicine' (Scott 1991: 2)

[12] I take eventualities (both events and states) to be of type l, whose variables are denoted with e, e', e'', etc..

b.



While eventive *v* is phonologically covert, I will follow Ormston (1993); Baker and Travis (1998) and Coon (2025) in assuming that stative *v* is realized by the Stative suffix. The motivation for this analysis that these authors present includes the existence of state verbs, which inflect only for the Stative aspect. Baker (2003) proposes that these roots require the use of a light verbal v_{BE} in order to function as predicates.

(65) **"Stative only" state verbs (Mithun 2006)**

a. ró-**hton** 'he is full'

b. ró:-**ion** 'he is old'

c. ra-**kowá:nen** 'he is big'

d. ra-**hnén:ies** 'he is tall'

Further, Baker and Travis (1998) show that certain Stative aspect forms may be incorporated, whereas Habitual and Punctual forms cannot be incorporated. If incorporation is restricted to nominals and verb stems, syntactically a *v*P, then the ability to incorporate Stative aspect forms follows only if these forms are *v*P or smaller. The crucial contrast with this is the inability of Habitual and Punctual forms to be incorporated, which follows from their different syntactic status – they are AspP.

An additional argument for the claim that the Stative aspect is a verbal v_{BE} head can be found with restriction on the distribution of the Progressive suffix: it only appears on Stative aspect forms. On the additional assumption that it is a derivational suffix, since further aspectual morphology appears to its right, this suggests a non-Aspectual syntax for Stative forms. (66a) shows a bare Habitual aspect, (66b) shows the Stative form, and (66c)–(66d) shows that the Stative form (and *not* the root) is embedded by the Progressive.

(66) **Progressive embeds Stative (Martin 2023: 143)**

a. katè:kwas'
k-ate'kw-as
'I run away'

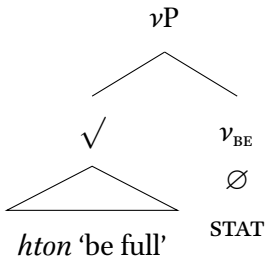
b. wakatè:kwen
wak-ate'kw-en
1SGP-run.away-STAT
'I have run away.'

c. wakate'kwenhátie'
wak-atekw-en-hatie'
1SGP-run.away-STAT-PROG
'I am running away (along).'

d. * wakate'kwahátie'
wak-atekwa-hatie'
1SGP-run.away-STAT-PROG
Intended: 'I am running away (along).'

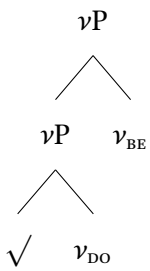
This pattern suggests that the Stative aspect is in fact lower than the AspP domain (which we discuss in §2.3.4). I adopt their analysis here. The structural description of a state verb in the Stative aspect is given in (67).

(67) **Structural description for state verbs in the Stative aspect**



The analysis of the Stative aspect suffix as a v_{BE} head has consequences for Stative aspect forms in general. That is, an event verb in the Stative aspect will be argued to have the following layered *v*P structure. The structure is sketched in (68), to be discussed in more detail in §2.3.4.3. I will detail the semantic consequences for such structures once we have discussed the interpretation of the Stative aspect in Chapter §4.

(68)



2.3.3.2 A sketch of the Voice system

Finally, I assume that external arguments are introduced by Voice (Kratzer 1996). Furthermore, I assume that the specific thematic role associated with this external argument is conditioned contextually (Kratzer 1996; Wood 2015): Voice can introduce both agents and stateholders. Thus the interpretation of Voice will be one of the entries in (69), depending on the flavour of v that it immediately c-commands. In the context of an eventive verb, headed by v_{DO}, Voice is spelled out as (69a). In the context of a stative verb, headed by v_{BE}, Voice is spelled out as (69b).[13] Nothing in principle goes wrong if the stateholder is introduced, for example, in the specifier of the stative v_{BE} directly (Paparounas 2023: 184; Coon 2025). These are not necessarily interchangeable analyses, as there may be syntactic arguments leveraged in favour of one structure over the other; I will not adjudicate between these choices here.

(69) **Interpretations of Voice (Wood 2015: 30)**

a. $[\![\text{Voice}_{\text{AGENT}}]\!] = \lambda x \lambda e.\textsc{agent}(x, e) \;/\; __ v_{\text{DO}}$

b. $[\![\text{Voice}_{\text{HOLDER}}]\!] = \lambda x \lambda e.\textsc{stateholder}(x, e) \;/\; __ v_{\text{BE}}$

The Voice head composes with the vP by Event Identification (Kratzer 1996) and takes the external argument in its specifier. The resulting VoiceP is a property of eventualities, with all arguments satisfied. Thus, the structural configurations of state verbs, event verbs, and Stative-aspect event verbs is summarized in Table 2.7. The final line gives the structure of Stative aspect event verbs, which will be discussed in the following section.

2.3.4 The event anchoring categories: AspP and ModP

Next, I turn to the two projections which anchor the property of events (via the temporal trace function, τ which returns the runtime of an event) to a reference time and an evaluation world. That is, these categories map the property of eventualities denoted by the vP to a property of intervals (AspP) and then a further property of intervals relativized to the evaluation time and world (ModP) – these latter

[13] The subscripts indicate that a particular "flavour" of Voice is what ultimately gets interpreted; this allows the semantic interpretation function to remain a one-to-one map.

verb class	structural configuration
state	$\sqrt{}$-v_{BE}-Voice
event	$\sqrt{}$-v_{DO}-Voice
Stative aspect event	$\sqrt{}$-v_{DO}-Voice-v_{BE}

Table 2.7: Possible structural configurations up to VoiceP

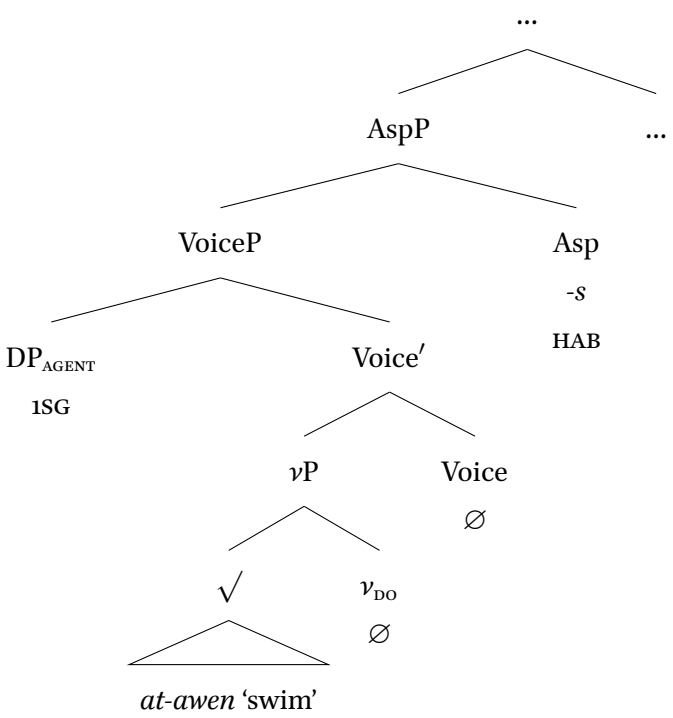
details will be less crucial for the following as I do not discuss the Modal prefixes in detail in this thesis. Nonetheless, I outline some of their morphosyntactic properties here for concreteness. Some of the semantic details will be elaborated upon in Chapter 4.

2.3.4.1 Event *v*Ps in the Habitual aspect

I turn first to event verbs in the Habitual aspect. The Habitual aspect does not occur with modal prefixes (except when co-occuring with the Continuative suffix, set aside here). Thus, the Habitual aspect verb in (70a) receives the structural description in (70b).

(70) a. katá:wens
k-at-awen-s
1SGA-SR-swim-HAB
'I swim'

b.



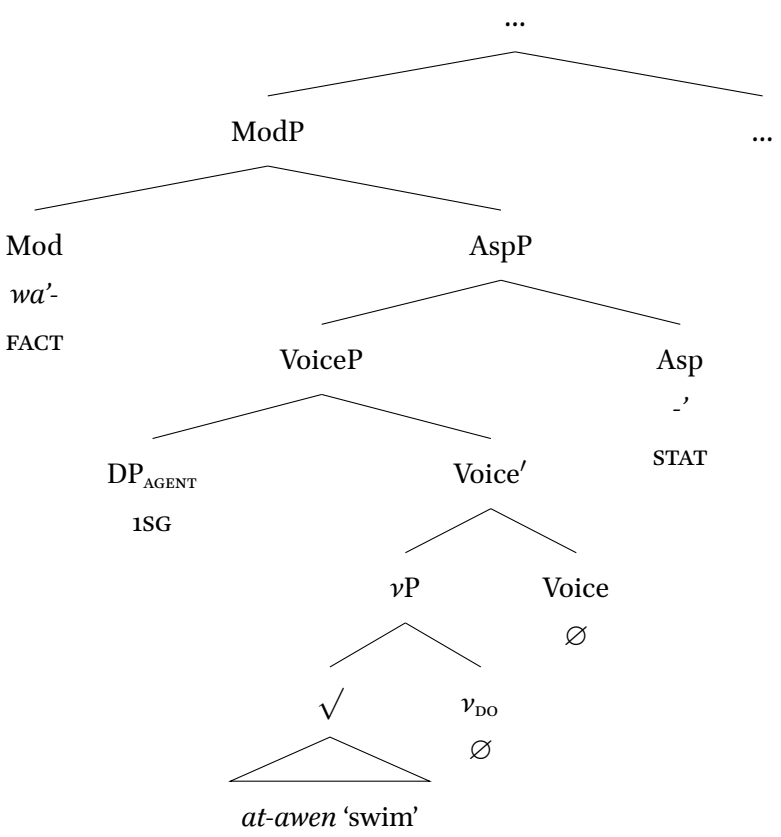
2.3.4.2 Event *v*Ps in the Punctual aspect

The Punctual aspect differs from the Habitual aspect in requiring one of the three Modal prefixes. I will assume here that the Modal prefixes instantiate a ModP projection above Asp, following the conventional ordering of these elements (e.g., Rullmann and Matthewson 2018). An alternative option is given in Baker and Travis (1997) where the modal is an adjunct to the Punctual aspect Asp head. I do not adjudicate between these options here, as it will take us far beyond the scope of this thesis.

Thus, a Punctual aspect event verb like (72a) receives the structural description in (72b).

(71) a. wa'katá:wen'
wa'-k-at-awen-'
FACT-1SGA-SR-swim-PUNC
'I swam'

b.



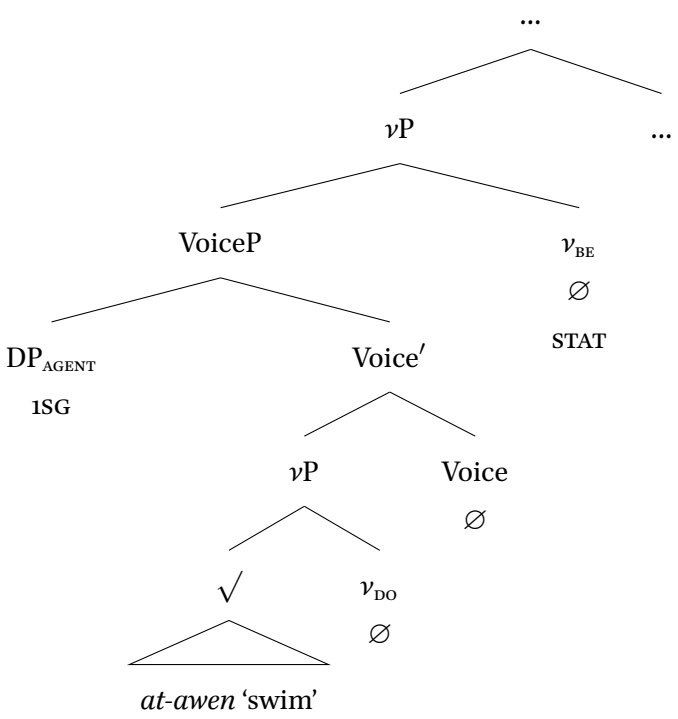
2.3.4.3 Stative aspect *v*Ps lack AspP and ModP

Finally we turn to the syntactically simplest structure. I assume that the Stative aspect, whether it is used in the derivation of state verbs or event verbs, do not contain an Aspect projection above the v_{BE}

head, nor do they generally contain a Modal projection.[14] The question of how the relation between the runtime of the state and the reference time therefore arises. One analytical possibility is to include a null Asp head in such constructions; a second is to derive the "imperfectivity" of statives from the properties of states in general (as opposed to events). Adjudicating between these is left for the future, and the choice will not greatly affect the claims in the remainder of this thesis. When the verb root is a state root, we saw above that the Stative aspect v_{BE} merges directly with the root. When the verb root is a event root, like in the Stative perfect form (72a), the structure corresponds to (72b).

(72) a. wakatá:wen
wak-at-awen
1SGP-SR-swim.STAT
'I have swum'

b.



State verbs (in their sole aspectual form), as discussed above, differ from the Stative event verbs in that they lack the intermediary VoiceP and v_{DO} projections. I will return to the syntax of Stative aspect *v*Ps in more detail in §3.2, and their semantics in Chapter 4.

[14]The Optative prefix is possible on some Stative verbs, in which case the ModP is present. A more detailed investigation into the modal system is necessary to understand the distribution of Optatives with Statives, however.

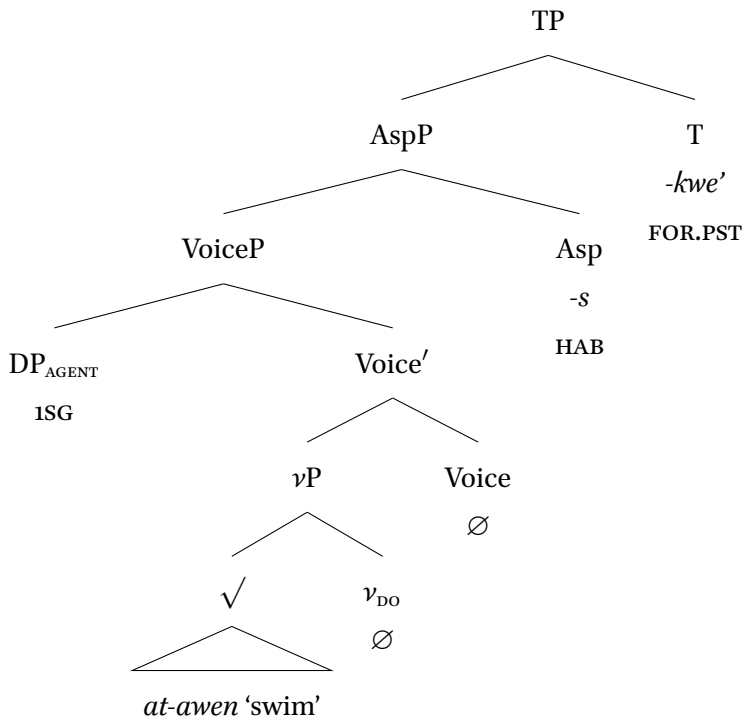
2.3.5 The post-aspectual suffixes, TP

Finally, the class of post-aspectual suffixes (also called the extended aspectual suffixes, Lounsbury 1953) consist of the Past tense suffixes and the Continuative suffix. I will provide an analysis of the Past tense suffixes in Chapter 5, and leave the Continuative for future research.

Briefly, I will show below that the Former Past and Remote Past are the overt members of the tense paradigm of Kanien'kéha. Thus, VoiceP, AspP, or ModP are dominated by a TP, resulting in the structure in (73b).

(73) a. katá:wenskwe'
k-at-awen-s-**kwe'**
1SGA-SR-swim-HAB-**FOR.PST**
'I used to swim.'

b.



I will further assume that all verbs are headed by TP. Where there is no overt tense suffix, as in the majority of cases, a covert T head is present in the structure – the semantic rationale behind this will be provided in Chapter 5.

2.3.6 Interim summary

The system I have outlined above results in four basic structural configurations. These correspond transparently to the morphosyntactic complexity of the verb. This is summarized in Table 2.8.

verb type	stem	Asp?	Mod?	T?
state	$\sqrt{}$-v_{BE}-Voice	N/A	N/A	yes
event-STAT	$\sqrt{}$-v_{DO}-Voice-v_{BE}	N/A	N/A	yes
event-HAB	$\sqrt{}$-v_{DO}-Voice	HAB	N/A	yes
event-PUNC	$\sqrt{}$-v_{DO}-Voice	PUNC	yes	yes

Table 2.8: Morphosyntactic structure of verbs

2.3.7 On the morphosyntax of the pre-pronominal prefixes

Before concluding this section, I will briefly address one morphological question which arises with respect to the pre-pronominal prefixes, namely, their linearization and templatic ordering. The position I outline here is that the pre-pronominal prefixes are a heterogeneous category both semantically and morphosyntactically. Semantically, it is clear that they express a range of functions, making both modal and non-modal contributions to the meaning of the verb. Morphosyntactically, I claim that the syntactic source of the pre-pronominal prefixes is distributed across the verbal spine; defending this position will require a more elaborated theory of word-building than I am able to provide here. I will leave such a defence for future work, and instead, I will defend the following premises: first, the elements that occur to the left of the pronominal prefix can be introduced at various points in the clause and can take scope at various points in the verbal spine; second, the position classes (i.e., the linear order of prefixes) does not adequately explain the complementary distribution of various morphemes, nor the morphological fusion seen with certain non-adjacent morphemes.

2.3.7.1 Linearization of the pre-pronominal prefixes

My aim here is to argue that the material that appears on the left edge of the verbal complex morphologically is distributed syntactically across the clause. Consider once more the template in (74).

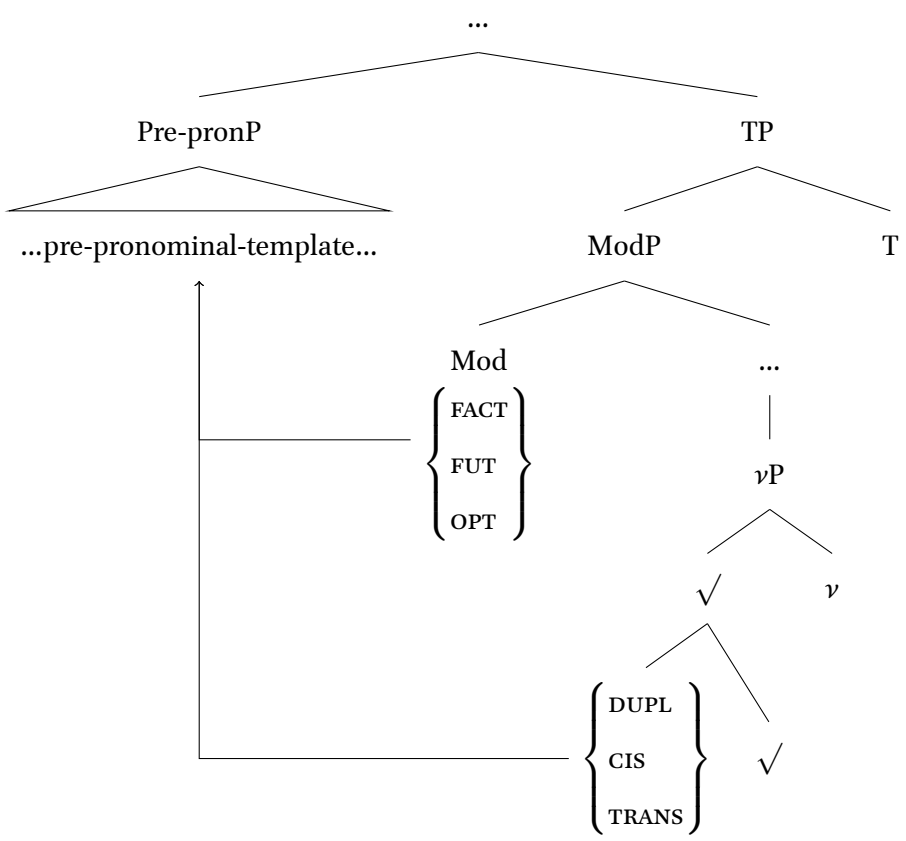
(74) **Template of pre-pronominal prefixes**

$$\left\{\begin{array}{l}\text{PRT}\\ \text{COIN}\\ \text{CONTR}\\ \text{NEG}\end{array}\right\} - \text{TRANS} - \text{FACT} - \text{DUPL} - \left\{\begin{array}{l}\text{FUT}\\ \text{OPT}\end{array}\right\} - \left\{\begin{array}{l}\text{REP}\\ \text{CIS}\end{array}\right\}$$

Above, I have argued that the Modal prefixes (the Factual, Future, and Optative) are syntactically below TP, and that the set of lexically-selected prefixes which form part of the verb stem (the Duplicative, Translocative, and Cislocative) are introduced as part of the verb root. I implement this by assuming these latter prefixes originate as adjoined material to the syntactic root. Thus, the source of the these

prefixes does not map straightforwardly to their linear order within the template. This is schematically illustrated in (75), where we see the root-internal pre-pronominal prefixes and the Modal pre-pronominal prefixes being reordered from their base-generated position to the left edge of the clause.

(75)



This analytical move requires some defense. I will provide a partial argument here: namely, there is evidence that the material in the pre-pronominal prefixes are not interpreted in their strict Mirror Principle abiding position. As a case in point, I will show in §3.3.3.3, following Myers (2025), that the Repetitive can take scope at various points within the verbal spine. The remaining morphemes at the leftmost edge will not be discussed in detail here, but may be understood as high-scoping sentential operators.

The picture that arises here is one where the syntactic source of the morphemes differs considerably from their surface morphological position. I will assume (together with Coon 2025; Blackburn 2025) that the linear order of pre-pronominal prefixes can be understood as the result of a post-syntactic morphological operation. One initial piece of evidence for this, we will see below, is that this domain evidences morphological fusion in a way not seen elsewhere in the verb.

2.3.7.2 Fusional forms

Certain strings of pre-pronominal morphemes result in partially fused forms, as is common across the family (Barrie and Uchihara 2019). This sets apart the morphological properties of this domain from the rest. This morphological asymmetry between domains, as well as the mismatch between the structural position and surface order in the pre-pronominal domain, suggest a distinct linearization process.

The realization of morphemes on the right side of the clause varies *phonologically*, that is, the rules reference only adjacent segments and prosodic properties. On the other hand, the pre-pronominal prefixes exhibit complex fusional forms which are conditioned not by phonological adjacency but by *morphological* co-occurrence.

For example, the most striking instance of this is the use of the Repetitive with the Factual. Note from the template in (74) that these forms are not linearly adjacent in terms of position class. Nonetheless, when co-occurring, these two suffixes fuse.[15] To see this, consider the Repetitive and Factual in isolation. The position class can be established by their relative order to the Duplicative.

(76) **Repetitive and Factual prefixes**

a. téstiens
te-**s**-k-ien-s
DUPL-**REP**-1SGA-put.down-HAB
'I gamble again' (Martin 2023: 146)

b. wa'tiakení:ien'
wa'-**t**-iakeni-ien-'
FACT-**DUPL**-1DU.EXCL-put.down-PUNC
'We two gambled' (Michelson et al. 2024: 454)

However, when used together, the Factual and Repetitive surface as *sa-*, as seen in (77a); while this form may be morphologically decomposed into *s-* and *a-*, representing the Repetitive and Factual respectively, note that the linear order is reversed. As such, this form are typically considered to be a fusional form.[16] This is further demonstrated by exponents that surface when the Factual, Repetitive, and Duplicative all co-occur. This is given in (77b), where the fused Repetitive-Factual appears linearly to the right of the Duplicative. The *-onsa* allomorph in (77a) results from the non-initiality of the fused Repetitive-Factual; this allomorph surfaces whenever the Repetitive-Factual is preceded by other material.

(77) **Repetitive-Factual fused prefix**

[15] A similar process appears with the Cislocative and Factual, resulting in *onta-* 'CIS.FACT'.

[16] See, for example, the glosses provided in Mithun (2006: 206*f*) for *tonsahonwá:tahste'* 'they stood him back up'.

a. sakátien'
sa-k-a-tien-'
REP.FACT-1SGA-SR-put.down-PUNC
'I sit down again' (Martin 2023: 145)

b. tonsatien'
t-**onsa**-k-ien-'
DUPL-**REP.FACT**-1SGA-put.down-PUNC
'I gambled again.' (Martin 2023: 146)

The fusional morphology of the type exemplified above requires further study (see Martin 2023, Michelson et al. 2024: 13, and Blackburn 2024 for an overview of additional alternations in Kanien'kéha, and Diaz et al. 2019 for work on Oneida). Nonetheless, I take these as indicative of a more complex morphological process being independently necessary for the pre-verb stem domain in general. Crucially, such morphological fusion only occurs in this pre-pronominal domain.

2.4 Non-verbal expressions

Finally, in this section, I discuss the non-verbal word classes of Kanien'kéha: nouns and particles. While these word classes will be less central to the discussion in this thesis, they will be implicated in some of the diagnostics below so a brief introduction is necessary. Note here that I will use the term "noun" as those words which are morphologically complex, and "particle" as those which are unanalyzable. That is, some referential elements will fall in the class of "particle" rather than "noun" because of their morphological simplicity (Michelson 2023).

2.4.1 Nouns

The morphological structure of nouns in Kanien'kéha is less articulated than that of the verb. Nonetheless, nouns typically consist of three morphemes: the gender prefix, the noun stem, and the noun suffix. This is seen in (78). Nouns may also be unanalyzable particles, as in (79). This is common for loaned vocabulary.

(78) **Simple noun stems**

a. ohwísta'
o-hwist-a'
NP-money-NSF
'money'

b. kákhwa'
ka-khw-a'
NA-food-NSF
'food'

(79) **Unanalyzable nouns**

a. kwéskwes
'pig'

b. takò:s
'cat'

In (80), we see that noun stems may themselves be complex, consisting of a verb root and a nominalizer.

(80) a. kahiatónhsera'
ka-hiaton-hser-a'
NA-write-NMLZ-NSF
'book'

b. owistóhsera'
o-wisto-hser-a'
NP-be.cold-NMLZ-NSF
'butter'

Nouns in Kanien'kéha are number-neutral and are not marked for specificity or definiteness. Plurality on morphological nouns may be marked with what is termed the "distributive" suffix, though this often gives rise to a "different kind" interpretation rather than strictly a plural interpretation.

(81) a. ka'serehshòn:'a
ka-'sere-hshon'-a
NA-car-DISTR-NSF
'cars, many kinds of cars'

b. otsi'ten'okòn:'a
o-tsi'ten-okon'-a
NP-bird-DISTR-NSF
'bird, different kinds of birds'

The above discussion covers the class of morphosyntactic nouns, that is, those words which share morphosyntactic characteristics that differentiate them from morphosyntactic verbs. However, Kanien'kéha verbs may also be used referentially without overt nominalization. An example of this is given in (82).

(82) Nek tsi ó:nen shithonatáhsawe **ne** **rontétsen'ts** ákte' nón:we
Nek tsi ó:nen shi-t-hon-at-áhsaw-e ne ron-at-etsen't-s ákte' nón:we
but now COIN-CIS-MPLP-SR-begin-STAT NE MSGP-SR-treat-HAB elsewhere where
iekonwanatenniéhthahkwe ne konnón:kwe.
ie-konwan-atenniéht-ha-hkwe ne konnonkwe
TRANS-3>FZSG-send-HAB-FOR.PST NE FZPLA-human
'But now, doctors are starting to send people elsewhere.' (Scott 1991: 6)

2.4.2 Particles

The final word class in Kanien'kéha is that of particles, which are distinguished by their lack of morphological complexity. Particles are a heterogeneous class, and encompass a wide range of functions and properties, and in many cases occur in combination with each other.

- Quantification and deixis: *akwé:kon* 'all', *kí:ken* 'this', *thé:nen* 'something/anything'
- Temporal particles: *ò:nen* 'now', *nonwèn:ton* 'ever'
- Negation and other grammatical particles: *iah* NEG, *áre'kho* 'not yet', *ken* Q particle
- Numerals: *énska* 'one', *tékeni* 'two', ...
- Discourse particles: *á:ke* 'oh', *wáhi* 'right?, isn't it?'

There is rather limited work on particles in Iroquoian in general. For further examples in Kanien'kéha, see Bonvillain (1973: 239). For discussion, see Mithun (2017b: 755) and Mithun (2020) on discourse particles.

Chapter 3

The verb root: telicity as result state

I begin my discussion at the bottom of the verbal structure: the verb root. We will see that the choice of verb root affects the interpretations available downstream in the derivation.

This chapter makes two central observations. First, the lexicon of verb roots is subdivided into three major syntactic classes, state roots (83a), event roots (83b), and motion roots. Motion roots include a derivational suffix called the PURPOSIVE (83c). Each of these classes are differentiated by their morphosyntactic properties as well as the interpretations available in their various aspectual forms (as I will detail further in §3.1). State and motion roots consist of a small number of verbs, and form a relatively minor part of my focus here.

(83) **Three classes of roots**

a. *State roots* (Mithun 2006: 198)

hton	'be full'
ion	'be old'
kwahsthe'	'be rich'

b. *Event roots*

atawen	'swim'
atshokw	'smoke'
onni	'make'

c. *Motion roots*

e	'go and be at'
takhe	'run'
V-hr	'V-PURPOSIVE'

While the first two classes of state and event roots have been widely described in the literature on Kanien'kéha (e.g., Baker 1992, 1996; Mithun 2006), the latter class of motion roots has not.[1] As such, this chapter first aims to establish the morphosyntactic properties which define membership in each class of roots. I will also show that each of these classes is in fact heterogeneous, and can be further subdivided.

Then, I establish the central observation of this chapter: that the class of event roots is divided into two further subclasses. The property distinguishing these subclasses is referred to in the literature on Iroquoian languages as "consequentiality" (Chafe 1970, 1980), which I will show is a telicity distinction.

[1]This class of motion roots has been described for other Northern Iroquoian languages, however. See, for instance, Lukaniec (2018: 119*ff*, 137*ff*) on Wendat, Woodbury (2018: 149) on Onondaga, Michelson et al. (2016: 344*f*) on Oneida.

Grammatically, this contrast is made clearest in the strategy used to express an ongoing eventuality (at the reference time). Following some descriptive and pedagogical literature on Kanien'kéha, I will refer to these constructions as the Habitual Ongoing (84) and the Stative Ongoing (85), respectively.[2] Note that the translational equivalents of verbs are not good proxies for class membership in Kaien'kéha: (84b) shows the verb *atawen* 'swim' which is telic in Kanine'kéha while the translational equivalent in English is an atelic Activity verb (*atawen* is etymologically the semi-reflexive *at* and the root *awen* 'water', Michelson et al. 2024: 96; see §2.3.1 above for discussion).

(84) **Habitual Ongoing (telic/consequential)**

a. ra'niá:ken's
ra-'niaken-'-s
MSGA-escape-INCH-HAB
'He is escaping' (Mithun 2006: 198)

b. katá:wens
k-atawen-s
1SGA-swim-HAB
'I am swimming/bathing'

(85) **Stative Ongoing (atelic/non-consequential)**

a. rohnekì:ren
ro-hnekihr-en
MSGP-drink-STAT
'He is drinking' (Mithun 2006: 198)

b. wakatshókwen
wak-atshokw-en
1SGP-smoke-STAT
'I am smoking'

Despite the term "consequentiality" being a standard term used to refer to these subclasses in the description of the Northern Iroquoian languages, it is unclear how the intuition underlying this notion can be mapped onto a more formal grammatical one. For example, it is not immediately clear that *khonni* 'make food' should be part of the class of non-consequential verbs, understood to be those activities "with no obvious results" (Mithun 2006: 198). I will address some of these concerns in §3.3.1,

[2]Some work (e.g., DeCaire 2023; Martin 2023) refers to these constructions as the Habitual Present and Stative Present. However, since these constructions are compatible with ongoing eventualities at past reference times (see Chapter 5 for details), I will refer to them as the Ongoing constructions instead.

where I dissociate the notional contrast of "consequentiality" from the grammatical contrast that underlies verb class membership. To this end, I present and develop two novel grammatical diagnostics for "consequentiality" put forward in my collaborative work reported in Cross et al. (2023) and Benedict et al. (2025).

In this chapter and the next, I will develop an account for the difference in interpretation seen with the aspectual suffixes in (84)–(85). The account relies on both the meaning of the aspect suffixes, to be detailed in Ch. 4, and the distinct lexical semantics of these roots. This latter distinction is the focus of §3.3, where I argue that forms like (84) are built with telic roots, whereas those like (85) involve atelic roots. The differences between telic and atelic roots will be attributed to a systematic asymmetry in the *lexical* representation of verbs in each class. To represent this asymmetry, I will rely principally on an operator-based decomposition of a predicate's event structure, following e.g. Bar-el (2005) and Kiyota (2008), who in turn draw on Dowty (1979) and Rothstein (2004), for work on Salish aspectual classes.

In this approach, the eventualities denoted by a verb phrase can be decomposed into proper subparts, none of which fall within the extension of the verb root. Thus, the verb root in (84a) will be argued to have the interpretation in (86a), where the event e is understood as the sum of a homogeneous process and a homogeneous result sub-eventuality. On the other hand, the verb root in (85b) will be argued to have the interpretation in (86b), where the event e is understood as a simple, homogeneous process. Thus, while every sub-event e' of *smoke* is itself within the extension of the predicate *smoke*, this is not the case for *escape*. Given that *escape* is the sum of two homogeneous sub-events (e_1 and e_2), the only sub-events (e') which are within the extension of *escape* are those which are also sums of e_1 and e_2.

(86) a. $[\![$*'niaken'*$]\!] = \lambda e.\exists e_1, e_2[(e = e_1 \sqcup e_2)$ & $\text{escape}_{\text{PROC}}(e_1)$ & $\text{be.escaped}_{\text{RES}}(e_2)]$

b. $[\![$*atshokw*$]\!] = \lambda e.\text{smoke}(e)$

In representations abstracted from lexical content, I will adopt the terms PROC(ESS) and RES(ULT) from Ramchand (2008) to refer to the process component (e_1) and the result component (e_2) of a telic verb. Thus, the representation of a telic event root is schematized in (87a), and that of an atelic event root in (87b). It will be crucial that each sub-event is itself homogeneous. That is, with telic events, the sub-events e_1 and e_2 (such that $\text{PROC}(e_1)$ and $\text{RES}(e_2)$) are themselves homogeneous, though their sum e is not. With atelic roots, the whole event e consists of only a homogeneous process, so the whole event is homogeneous.[3]

(87) a. *telic root* $\rightsquigarrow \lambda e.\exists e_1, e_2.\ (e = e_1 \sqcup e_2)$ & $\text{PROC}(e_1)$ & $\text{RES}(e_2)$
(The event e is composed of two sub-events, of which e_1 is a process and e_2 is a result state)

b. *atelic root* $\rightsquigarrow \lambda e.\text{PROC}(e)$

[3]The $\rightsquigarrow$ symbol will be used throughout to indicate that a given category will receive a structural description or semantic denotation indicated *schematically*.

The claims I put forward here about Kanien'kéha event verb roots are as follows. First, I argue that the central opposition in Kanien'kéha with respect to the lexical aspectual properties of event roots is that of telicity, understood as the present of a result-state subevent, RES. Second, I argue that this distinction must be lexically specified as part of the root – it is an *invariant* property of a given root.

This chapter is organized as follows. In §3.1, I will give a basic overview of the morphosyntactic evidence for the three-way root classification defended here. Then, in §3.2, I discuss state roots in more detail, and argue, following Baker and Travis (1998) and Coon (2025), that the Stative aspect is syntactically unlike the other aspectual suffixes; rather than Asp^0, it is v^0. In §3.3, I show that there is a contrast between telic (process-result; or "consequential") and atelic (process-only; "non-consequential") verbs within the class of event roots. I argue that this contrast is lexically specified, and propose a representation of event roots wherein telic event roots are the sum of two subevents. Finally, in §3.4, I show that motion roots are a distinct class in Kanien'kéha and that they are structured similarly to telic event roots, with one major exception being motion verbs derived with the PURPOSIVE suffix. These latter forms are claimed to involve modal semantics. §3.5 concludes.

3.1 The verb root classes

The class of verb roots in Kanien'kéha is divisible into three classes, most saliently through their aspectual paradigms. This is, as I will argue further below, primarily a morphosyntactic distinction. Nonetheless, there is some semantic coherence to these subclasses, as we will see.

The first class of STATE ROOTS consists of verbs which describe "adjectival" meanings (Baker 1992, 2003; Chafe 2012; Michelson 2023).[4] As discussed by Mithun (2006) and Coon (2025), these meanings span both individual- and stage-level properties. Morphosyntactically, these roots only appear in the Stative aspect, without further derivation by, for e.g., an Inchoative or Causative suffix..

(88) **State verbs only occur in the Stative aspect**
róhton
ro-hton
MSGP-be.full.**STAT**
'he is full'

[4]Whether this intuitive semantic coherence corresponds to a distinct *morphosyntactic* class of adjectives is debated in the Iroquoian literature – Chafe (2012) and Michelson (2023) argue that it does not. Below, I will adopt an analysis of these forms following Baker and Travis (1998), that state roots are "adjectival" underlyingly but without committing to a distinct class of adjectival *roots* on the surface. In other words, this class of roots are always verbal on the surface, but the restriction to the Stative aspect is the result of an underlying class distinction at the level of the root (whether we call this a "state" or "adjectival" root is immaterial).

Furthermore, the temporal interpretation of these forms is obligatorily ongoing at the utterance time. To express a state that is limited to the past, one of the two PAST forms is required (see Chapter 5).

(89) **State verbs with Past suffix**

a. #Thetén:re iowísto.
thetenre io-wisto
yesterday NP-be.cold.STAT
Intended: 'It was cold yesterday'

b. Thetén:re iowistóhne.
thetenre io-wisto-hne
yesterday NP-be.cold.STAT-REM.PAST
'It was cold yesterday.'

The second subclass consists of event roots. Roots in this subclass have a three-way aspectual contrast, appearing in the Punctual, Habitual, as well as the Stative aspects. We will discuss the interpretation of these aspects in more detail in §3.3.

(90) **Event verbs have a three-way aspectual contrast (Martin 2023: 117, 130)**

a. wa'kató:rate'
wa'-k-atorat-**e'**
FACT-1SGA-hunt-PUNC
'I hunted'

b. kató:rats
k-atorat-**s**
1SGA-hunt-**HAB**
'I hunt/am hunting'

c. wakatorá:ton
wak-atorat-**on**
1SGP-hunt-STAT
'I have hunted'

The final class is that of motion roots. While this class has been recognized for other Iroquoian languages (Michelson et al. 2016; Woodbury 2018; Lukaniec 2018), there has not been any work discussing the properties of these roots for Kanien'kéha. The characteristic property of these forms is that they have up to a four-way aspectual contrast, involving the three aspects above and an additional Intentive aspect.

Stems composed of the PURPOSIVE suffix inflect for all four. The Intentive is interpreted as ongoing, and optionally combines with the Factual.

(91) **Motion verbs have a four-way aspectual contrast (Michelson et al. 2024: 87)**

a. wa'katkennisa'à:nha'
wa'-k-atkennisa'-a-hnh-**a'**
FUT-1SGA-meet-JR-PURP-**PUNC**
'I went to a meeting.'

b. katkennisa'à:nhe's
k-atkennisa'-a-hnh-**e's**
1SGA-meet-JR-PURP-**HAB**
'I go to meetings (habitually).'

c. wakatkennisa'à:nhon
wak-atkennisa'-a-hnh-**on**
1SGP-meet-JR-PURP-**STAT**
'I have gone to a meeting.' (Martin 2023: 161)

d. (wa')katkennisa'à:nhe'
(wa'-)k-atkennisa'-à-hnh-**e'**
FACT-1SGA-meet-JR-PURP-**INT**
'I am going/am on my way to a meeting (there).'

For simple motion verbs, the characteristic property is that the INTENTIVE aspect, optionally with the FACTUAL, can be used to convey ongoing motion. This contrasts with the use of the factual with event verbs, where it typically results in a past perfective interpretation (see §3.4 for details).

(92) a. í:ke'
i-k-e-'
EP-1SGA-go-INT
'I am going/walking.'

b. tho wà:ke'
tho wa'-k-e-'
there FACT-1SGA-go-INT
'I am going there.' (Michelson et al. 2024: 107)

With this three-way distinction in hand, the remainder of this chapter is devoted to spelling out some of the additional properties associated with these classes.

3.2 State roots (and the heterogeneous syntax of the Stative)

As we saw, state roots have the simplest aspectual paradigm, appearing only in the Stative aspect.[5] In this section, I will argue that the forms which surface with the Stative aspect have a shared syntax, involving a v_{BE} head, but differ in the amount of structure in the complement to this head. Thus, state roots are those roots which merge directly with this head, obligatorily. We will see that when event verb roots directly merge with this stative head, they behave as though they were state-roots. This is in contrast to what happens when they merge with the eventive v_{DO} head, then later with the v_{BE} head.

To do this, we will contrast three structures that underlie the Stative aspect: state roots (which directly merge with v_{BE}), event roots with an ongoing state interpretation (which directly merge with v_{BE}), and event roots with a perfect interpretation in the Stative (which have an eventive complement to v_{BE}).

First, consider the general behaviour of verbs in the Stative aspect with respect to the form of the pronominal prefix. In general, Kanien'kéha verbs lexically specify the form of the pronominal prefix: they may appear with either a Patient (P-) prefix or an Agent (A-) prefix (see §2.2.1 for a more complete description). For example, the verb root *onhshen* 'groan' takes P-prefixes (93), while the verb root *hiaton* 'write' takes A-prefixes (94). This contrast between P- and A-prefix verbs is maintained in the Punctual and Habitual aspects. However, in the Stative aspect, the contrast is neutralized: all event verbs in the Stative aspect take P-prefixes. This can be seen in (93c) and (94c).

(93) **Event root with P-prefixes (Martin 2023: 119,131)**

a. enwakónhshene'
en-**wak**-onhshen-e'
FUT-**1SGP**-groan-PUNC
'I will groan'

b. wakonhshé:nha'
wak-onhshen-ha'
1SGP-groan-HAB
'I groan'

c. wakonhshé:nen
wak-onhshen-en
1SGP-groan-STAT
'I have groaned/am groaning'

(94) **Event root with A-prefixes (Martin 2023: 110,144)**

a. enkhiá:ton'
en-**k**-hiaton-'
FUT-**1SGA**-write-PUNC
'I will write it'

b. khiá:tons
k-hiaton-s
1SGA-write-HAB
'I write/am writing it'

c. wakhiá:ton
wak-hiaton
1SGP-write.STAT
'I have written it'

However, state verbs, which *only* occur in the Stative aspect, may appear with both P- and A-prefixes.

[5] More properly, given the syntax of Stative aspect forms, the discussion here reflects state *stems*. I will use *state roots* to refer to roots which appear only with the "low v_{BE}" syntax discussed below.

This appears to track a distinction between stage- and individual-level properties, though I will not explore this further here (see Mithun 2006 and Coon 2025 for discussion).

(95) **State verbs with P-prefixes (Mithun 2006: 198)**

a. róhton
ro-hton
MSGP-be.full.STAT
'he is full'

b. ró:ion
ro-ion
MSGP-be.old.STAT
'he is old'

c. rokwáhsthe'
ro-kwahtshe'
MSGP-be.rich.STAT
'he is rich'

(96) **State verbs with A-prefixes (Mithun 2006: 199)**

a. rakowá:nen
ra-kowanen
MSGA-be.big.STAT
'he is big'

b. rahnén:ies
ra-hnenies
MSGA-be.tall.STAT
'he is tall'

c. ra'shátste'
ra-'shatste'
MSGA-be.strong.STAT
'he is strong'

Finally, consider the forms in (97). In this example, the verb *hnhoton* 'close' has a three-way aspectual contrast, indicating that it is an event verb. However, there are two possible forms in the Stative aspect: in (97c), the verb appears with a P-prefix and gets a resultative perfect interpretation; in (97d), the verb appears with an A-prefix and gets an (idiomatic) ongoing state interpretation.

(97) **Four-way contrast for *hnhoton* (Michelson et al. 2024: 245)**

a. enkehnhó:ton'
FUT-1SGA-close-PUNC
'I will close it'

b. kehnhó:tons
ke-hnhoton-s
1SGA-close-HAB
'I close it'

c. wakehnhó:ton
wake-hnhoton
1SGP-close.STAT
'I have closed it'

d. kehnhó:ton
ke-hnhoton
1SGA-close.STAT
'I am in jail (I am closed in)'

Such an alternation is not limited to this verb, nor is the A-prefix Stative form always interpreted idiomatically as in (97d). The following additional examples are given in Mithun (2006: 206), with the elicited minimal pairs given in the (b) examples.[6]

(98) **Pronominal prefix contrast in Stative aspect**

a. kaksahrónnion'
ka-ks-a-hr-onnion'
NA-dish-JR-set-DISTR.STAT
'The table is set' (Mithun 2006: 206)

b. Ó:nen wakeksahrónnion'.
onen wake-ks-a-hr-onnion'
already 1SGP-dish-JR-set-DISTR.STAT
'I've already set the table.'

(99) a. kana'tarakwè:taron
ka-na'tar-a-kwe'tar-on
NA-bread-JR-slice-STAT
'The bread is sliced' (Mithun 2006: 206)

b. Ó:nen wakena'tarakwè:taron.
onen wake-na'tar-a-kwe'tar-on
already 1SGP-bread-JR-slice-STAT
'I've already sliced the bread.'

For verbs which show this alternation, I propose that the P-prefix Stative forms like those in example (99b) result from the root being used with an eventive syntax (i.e., it merges first with v_{DO}, then later with v_{BE}). In more descriptive terms, it is the third member of the three-aspect paradigm, and the P-prefix arises as a result of the normal alternation in the Stative aspect. In contrast, the A-prefix Stative forms

[6] An important terminological note: Mithun (2006) refers to the (a) examples as "resultatives", though her discussion makes clear that she understands these as non-resultative states. That is, these A-prefix Stative forms "eliminate the indirect reference to a prior event" (unlike the P-prefix Stative *perfect*). Given that the term "resultative" is used, both here and in the broader literature, as one interpretation of the "perfect", I will refer to the (a) examples as *state readings* and the (b) examples as *result perfects*.

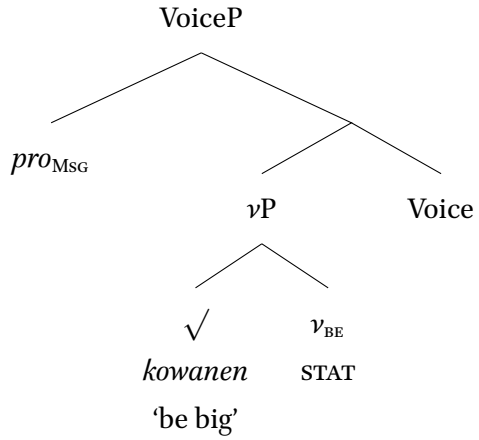
like those in (99a) involve the same root being used within a stative syntax (i.e, it directly merges with v_{BE}). As such, it does not form part of the three-aspect event paradigm.

To develop this proposal further, we need to first consider the underlying syntax that generates P-prefixes. Coon (2025) argues that the P-prefix arises in the Stative forms as a result of two key assumptions.[7] First, following Ormston (1993) and Baker and Travis (1998), the Stative suffix instantiates v^0_{BE}.[8] The second assumption is that the mechanism for deriving P-prefixes is, in general, the result of a lexically specified property of verbs. Simplifying slightly, given that the Stative aspect is syntactically a light verb, it is also lexically specified to carry the feature triggering P-prefixes.

Since state verbs obligatorily merge with v_{BE} low, the syntax is relatively simple. This is shown in (100).

(100) **Syntactic structure of a state verb**

a. **ra**-kowá:nen
MSGA-be.big.STAT
'he is big' (state root)



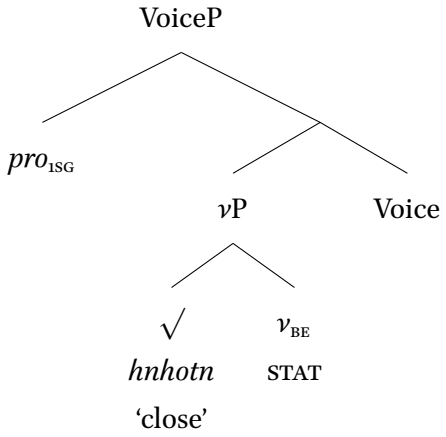
The syntax corresponding to the two Stative aspect forms of an event root, then, depends on the location of v_{BE} relative to the root. When the root directly merges with v_{BE}, we derive the A-prefix form with an ongoing state interpretation – this is given in (101a). When v_{BE} merges above an eventive structure (itself containing v_{DO}; see, e.g., Harley 2017). Thus, the Stative aspect form of event verbs involves

[7] Accounting for the full system of person agreement in Kanien'kéha requires further assumptions. I have simplified the story here, ignoring complications which arise with inanimate nominals and transitive pronominal prefixes. See Coon (2025) for details.

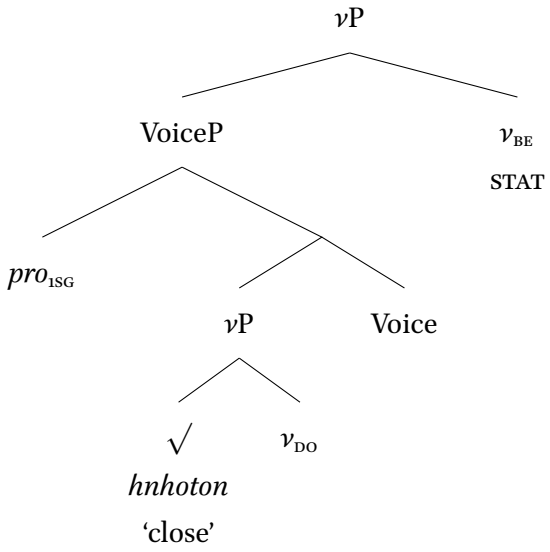
[8] Baker and Travis (1998) forward two morphosyntactic arguments for this analysis. On one hand, the existence of state roots which only take the Stative aspect has been used by these authors to motivate a distinct class of "adjectival roots" which must be verbalized. Following discussion in Baker (2003), Kanien'kéha is thus a language with adjectival roots but no syntactic class of surface adjectives. On the other hand, the Stative suffix appears to the left of certain derivational suffixes such as the Progressive, and in some cases can appear to the left of a nominalizer – neither the Habitual nor the Punctual aspect may appear in these positions.

v-recursion: a Stative v_{BE} head takes the full *v*P (or VoiceP; crucially, the complement of v_{BE} has all its arguments saturated) as its complement. The result is the P-prefix form with a perfect interpretation, as seen in (101b).

(101) a. **ke**-hnhó:ton
1SGA-close.STAT
'I am in jail (I am closed in)' (stativized event root)



b. **wake**-hnhó:ton
1SGP-close.STAT
'I have closed it' (event root, perfect)



This proposal accounts for the interpretational differences seen in (98)–(99) in the following way. The P-prefix Stative form, corresponding with the layered-*v*P structure in (101b) as argued for in the previous chapter, is interpreted as a perfect. The A-prefix Stative form, corresponding to the syntax in (101a),

results in an ongoing state reading. More specifically, the result state of the telic event root *hnhot* 'close' is predicated of the subject without reference to the process. While on the surface similar to passives, they differ in that these state-interpreted event roots "eliminate the indirect reference to a prior event" (Mithun 2006: 206). The differences between these meanings will be spelled out in further detail in §4.4. Thus, I propose that verbs such as *hnhoton* 'close' are in fact compatible with both stative syntax and eventive syntax; more precisely, they may have the syntax of a state state (**??**) or an event stem (**??**), depending on the flavour of *v* they are the complement to. We turn to a discussion of the properties of event roots more generally next.

3.3 Event roots

In this section, I elaborate on the semantics of event roots further. I will show that this class is made up of two subclasses: telic event roots and atelic event roots. I argue that this distinction is due to the presence/absence of a RESULT STATE component in the event structure (both semantically and syntactically), and that this distinction is *lexically specified* on the root. I will implement this within a decompositional framework for event structure, such as that of e.g. Dowty (1979); Rothstein (2004); Bar-el (2005). I first develop the motivation for this distinction in §3.3.1. Then, I then present my arguments for this distinction to be encoded lexically in §3.3.2. Finally, I present additional arguments for this distinction in §3.3.3; these arguments help to sharpen the proposal that it is specifically a *result* state which encodes the telicity distinction.

3.3.1 Telicity, consequentiality, and ongoing episodic interpretation

Kanien'kéha has two constructions for expressing ongoing episodic interpretations. A verb can be inflected in either the Habitual or the Stative aspect, as seen in (102) and (103). Crucially, these two strategies are complementary and divide the class of event roots into two. Thus, *iento* 'plant' only has the ongoing interpretation in the Habitual aspect and *atshokw* 'smoke' only in the Stative.

(102) a. tiénthos
k-ientho-s
1SGA-plant-HAB
i. 'I plant.' (habitual)
ii. **'I am planting.'** (ongoing episodic)

b. watiénthon
wak-ientho-on
1SGP-plant-STAT
i. 'I have planted.' (perfect)
ii. Not: 'I am planting.' (ongoing episodic)

(103) a. katshókwas
k-atshokw-as
1SGA-smoke-HAB
i. 'I smoke.' (habitual)
ii. Not: 'I am smoking.' (ongoing episodic)

b. wakatshókwen
wak-atshokw-en
1SGP-smoke-STAT
i. 'I have smoked.' (perfect)
ii. **'I am smoking.'** (ongoing episodic)

This is a well-known phenomenon in the literature on Northern Iroquoian languages. Since the influential discussion in Chafe (1970, 1980) on Onondaga and Seneca, this has been attributed to the "consequentiality" of the verb. Verbs like *ienth* 'plant' in (102) are called "consequential", whereas verbs like *atshokw* 'smoke' in (103) are called "non-consequential". The intuition underlying this contrast is explained as follows:

> If we consider why a speaker of Onondaga might not say something like 'he has sung' or 'he has danced' while he would say things like 'he has planted corn' or 'it has burned', we notice that events like planting or burning have perceptible consequences. They result in states which can be talked about. Events like singing and dancing, on the other hand, do not have similarly perceptible results.…We might, then, posit a new selectional unit for verbs, one that can be labeled 'consequential'. Its meaning involves the **potentiality of present and perceptible states**, such as those that would result from pounding or planting corn, from burning, and the like.' (Chafe 1970: 17*f*, emphasis mine)

Here, I will adopt essentially this intuition.[9] This pattern is summarized in Table 3.1.

root	STATIVE	HABITUAL
telic (consequential)	perfect/**ongoing**	habitual
atelic (non-consequential)	perfect	habitual/**ongoing**

Table 3.1: Interpretation of event roots under Stative and Habitual aspects

However, it remains to be seen what the grammatical correlate for the "potentiality of present and perceptible states" would be. In the remainder of this section, I will propose that consequentiality is a contrast in the telicity of the event description (Cross et al. 2023), and more specifically that the *telos* or result of an event is represented in the lexical semantic contribution of the root as a separate RESULT STATE sub-eventuality. Telicity here will be treated within a decompositional framework of event structure such as that developed in Chapter 2 of Dowty (1979), and extended in various studies such as Rothstein (2004) and Bar-el (2005). In other words, I will propose and substantiate the following claims:

[9] Chafe (1980) originally found that the Stative form of atelic predicates (such as 'sing' and 'dance') in Onondaga are absent – the same is not true of Kanien'kéha, as we will see in our discussion of the perfect interpretation of Stative aspect forms in §4.4 below.

① Consequentiality/telicity refers to the presence of a RESULT STATE in the lexical meaning and *v*P-internal syntax, in addition to a PROCESS

② The RESULT STATE is lexically encoded by the verb, so we find no effect of arguments on aspectual class

③ The RESULT STATE is available to other grammatical operators

Then, in the following chapter, we will see how the asymmetry between telic verbs, which are event structurally heterogeneous, and atelic verbs, which are event structurally homogeneous, will ultimately derive the available interpretations in the Habitual and Stative aspect.

3.3.2 Telicity in Kanien'kéha is a root property

Before proceeding with my discussion, it is worth making a terminological note about my use of TELICITY. Much work on telicity has shown that the determination of telicity is distributed throughout the syntactic structure of predicates (Verkuyl 1993; Krifka 1989, 1998; Rothstein 2004; Travis 2010). More precisely, telicity is a way of formalizing "goal-orientedness" of event descriptions and as such, it can be affected by the arguments with which a verb composes. When the argument of an otherwise atelic, process verb provides a way of "measuring out" an event, for instance, the predicate behaves like telic predicates. Consider, for example, the English examples in (104). The example with no argument beahves like an atelic predicate, as illustrated here by its incompatibility with the adverbial clause *in an hour* in (104a).[10] On the other hand, adding an object such as *the essay* in (104b), which provides an appropriate natural endpoint for the reading event, makes the *in an hour* felicitous. In the terminology of Vendler (1957), the addition of the argument turns the Activity *read* into the Accomplishment *read the essay*. Note that the adverbial clause *for an hour* is still felicitous with (104b), so long as we understand the reading-of-essays as a non-telic activity; see Rothstein (2004) for details.

(104) a. Mary read (for an hour/*in an hour).

b. Mary read the essay (for an hour/in an hour).

A parallel case is found with the addition of a prepositional phrase which provides a natural endpoint. The verb phrase *push the cart* cannot typically be understood as telic, as shown in (105a). However, when adding the PP *to the store* in (105b), the verb now receives a telic interpretation, with the endpoint being reached once the cart is at the store.

[10]This test has become a standard diagnostic for English since its introduction in Dowty (1979).

(105) a. John pushed the cart (for ten minutes/*in ten minutes).

b. John pushed the cart to the store (for ten minutes/in ten minutes).

To summarize, the verbs in the (a) examples describe an unbounded process, whereas the addition of a quantized direct object in (104b) or a goal-denoting prepositional phrase in (105b) is able to turn the event description into one that is bounded. Telicity, then, is better understood as a property of verb phrases (VPs) rather than of the verb alone.

In Kanien'kéha, what I am calling "telicity" is not affected by arguments. More precisely, the interpretational contrasts that motivate the distinction between telic and atelic verbs in Kanien'kéha do not change with the introduction of an argument.[11] I will use the ongoing reading of the Habitual and Stative aspects to show this.

In (106), we see the Stative On-oing construction with the verb root *atshokw* 'smoke'. Such roots are atelic. As we see in (106b), providing an argument which could in principle serve as an incremental theme does not change the telicity of this predicate. I use an overt numeral with the noun to preclude an analysis of these nouns as mass or kind terms, since to my knowledge, Kanien'kéha systematically does not distinguish between count/mass morphologically.

(106) **Stative Ongoing (atelic) verb unaffected by argument**

a. Kwah ó:nen'k Kó:r **rotshókwen**.
kwah onen'k Kor ro-atshokw-en
just right.now Kor MSGP-smoke-STAT
'Kor is smoking right now.'

b. CONTEXT: *I ran into Kor, and for some reason, he had two lit cigars in his mouth!*
Shahí:ken' Kó:r, tékeni shiká: **rotshókwen!**
sh-a-hi-ken-' Kor tekeni shika: ro-atshokw-en
COIN-FACT-1SG>MSG-see-PUNC Kor two cigar MSGP-smoke-STAT
'When I saw Kor, he was smoking two cigars!'

A similar example in (107) shows that adverbial clauses which might also provide an explicit measure do not change the telicity of the root. Adverbial clauses headed by *tsi níiore*, meaning something akin to 'the extent to which', in principle provide the event description with a natural endpoint. That is, in (107b), the singing event progresses and terminates with the baby's falling asleep. The verb *aterennot* 'sing' is itself atelic, and thus has its ongoing reading in the Stative aspect; once more, this is invariant: the verb in (107b) is also in the Stative aspect and interpreted as ongoing.

[11]The one exception to this is the verb *ek* 'eat', which is atelic but patterns as a telic verb with an incorporated noun in *ahi-a-k* 'fruit-eat' (Cross et al. 2023). I have not found other exceptions of this type, including with other "reflexo-ingestive" verbs.

(107) **Adverbial clauses providing endpoint do not affect telicity**

a. Kwah ó:nen'k **wakaterén:note.**
kwah onen'k wak-ate-renn-ot-e'
just right.now 1SGP-SR-song-stand-STAT
'I am singing right now.'

b. **Wakaterén:note'** tsi níiore' enhó:ta'we' ne
wak-ate-renn-ot-e' tsi ni-io-r-e' en-ho-ita'w-e' ne
1SGP-SR-song-stand-STAT that PRT-NP-be.extent-PUNC FUT-MSGP-asleep-PUNC NE
owirà:'a
owira'a
baby
'I am singing until the baby falls asleep.'

I will take the observed invariance in the behaviour of verbs with respect to the ongoing reading as justifying a lexical treatment of telicity. That is, the property with encodes telicity in Kanie'nkéha is encoded directly in the meaning of the root. As we will see, this view derives two types of properties of events. Verb roots which describe atelic eventualities, encompassing both states and "activity"-like events, are crucially homogeneous. An arbitrary temporal subpart of an atelic event is in the extension of the predicate. Verb roots which describe telic events, on the other hand, describe an event which is the sum of two subparts, neither of which are in the extension of the predicate. Thus, one cannot infer in general that a temporal subpart of a telic event also counts as an instance of the whole event. We will see in the following chapters that this is a crucial ingredient for the analysis of ongoing interpretations of the Habitual and Stative aspects. In the remainder of this subsection, I will motivate a decompositional analysis whereby telic verbs involve a process and a result state, whereas atelic verbs involve only a process.

3.3.3 Telic event roots describe processes and their result states

In this section, I will provide three independent diagnostics for the two subclasses of event roots. These tests corroborate the distinction between Habitual Ongoing verbs and Stative Ongoing verbs, and provide a foundation for their analysis in terms of RESULT STATES. In particular, I propose that telic event roots are non-homogeneous because they are the sum of two distinct sub-events, a process component and a result state. This is schematized in (108a). Atelic event roots, given the absence of any evidence for a decompositional event structure, are proposed to consist of only a homogeneous property, schema-

tized in (108b).[12]

(108) **Telic event roots are non-homogeneous**

a. *telic root* $\rightsquigarrow \lambda e.\exists e_1, e_2[(e = e_1 \sqcup e_2)$ & PROC(e_1) & RES$(e_2)]$

b. *atelic root* $\rightsquigarrow \lambda e.$property$(e)$

I will show in the following chapter that the ongoing readings fall out from the semantic contribution of the Stative and Habitual suffixes, in conjunction with the non-homogeneous event structure of telic event roots and the homogeneous event structure of atelic event roots.

The goal of this subsection, then, is to defend the representation given in (108). I will do so by presenting three independent arguments which diagnose the presence of this result state. Each of the diagnostics relies on an interpretive contrast which identifies the same classification of predicates.

3.3.3.1 Test 1: Culmination entailments for telic roots in the Stative aspect

The first observation is closely related to the aspectual form in which we find the ongoing reading. Habitual aspects verbs with an ongoing reading, that is telic roots, have only a single reading in the Stative aspect – they are obligatorily interpreted as a perfect (see §4.4 below for more discussion on the diversity of "perfect" readings). The relevant property for the present discussion is that the perfect reading requires *culmination*, and not only anteriority or termination of the process. More specifically, the use of the Stative aspect *entails* that there is a resulting state which is typically understood as holding at the utterance time; this is illustrated in (109).

(109) **Resultative perfect reading for telic verbs**

Kó:r **tehotohtáhrhon**.

Kor te-ho-tohtahrh-on

Kor DUPL-MSGP-clean-STAT

'Kó:r has cleaned it (and it is currently clean).'

As is found cross-linguistically for perfect constructions, telic (i.e., bounded) events do not have the continuative reading, whereby the event is understood as ongoing at the reference time. This is shown in (110). We will further refine this observation in Chapter 4 when we detail the analysis of the perfect. Crucially for present purposes, a continuative reading of the perfect expresses that the culmination condition has not been reached; this is not an available meaning with telic event verbs.

[12]This discussion reports on collaborative work with Arihwí:saks Colin Benedict and Willie Myers, reported in Benedict et al. (2025).

(110) **No continuative perfect reading for telic verbs**

#Kó:r	shiiohrhòn:ke	**sha'tehotohtáhrhon.**
Kor	shi-io-hrhon'k-e	sh-a'te-ho-tohtahrh-on
Kor	COIN-NP-morning-STAT	COIN-DUPL-MSGP-clean-STAT

Intended: 'Kor has been cleaning all morning/since the morning.'

In contrast, the perfect readings available in the Stative of atelic verbs are experiential and continuative. Resultative readings are absent.

(111) **Atelic verbs have both experiential and continative readings**

a.

Kó:r	shiiohrhòn:ke	**shihowenná:note'**	kí:ken	iewennahnotáhkhwa'.
Kor	shi-io-hrhon'k-e	shi-ho-wennanot-e'	kiken	iewennahnotahkhwa'
Kor	COIN-NP-morning-STAT	COIN-MSGP-read-STAT	this	book

'Kor has been reading this book all morning/since the morning.'

b.

Tóka nòn:wa	enska	tà:ni'ts	kaié:ri	**nihotshókwen.**
toka nonwa	enska	tà:ni'ts	kaieri	ni-ho-atshokw-en
maybe	one	until	four	PRT-MSGP-smoke-STAT

'He has smoked maybe one to four times.'

For further discussion on these various perfect readings, see §4.4. While this diagnostic indicates that there is an additional condition on the use of the Stative aspect with telic predicates, it relies on the interpretation of the Stative aspect suffix to do so. Ideally, we would like to see tests for result states which do not rely at all on aspect. The following two diagnostics, then, provide an argument from a non-aspectual construction.

3.3.3.2 Test 2: Reversive stems of telic roots mean "un-do"

The first of these independent diagnostics (i.e., those which do not use the Stative aspect) involves the REVERSIVE SUFFIX.[13] To begin, consider the forms in (112) – (113), with the Reversive suffix bolded in the (b) examples. Note that there are two allomorphs of the Reversive, the choice of which is lexically determined by the verb. Further note that the form with the Reversive suffix is given two distinct translations. In (112), the addition of the Reversive results in a meaning that can be paraphrased as "undo the result of the action indicated by the verb".

(112) **Reversive means to "un-do" with telic verbs**

[13] I thank Arihwí:saks Colin Benedict for directing me to these observations regarding the Reversive suffix, and for further discussion.

a. ke'níkhons
ke-'nikhon-s
1SGA-sew-HAB
'I'm sewing it.'

b. Wa'tkaterien'tawénrie' ne tiorì:wa' **(s)ke'nikhónkwas**
wa'-t-k-at-erien't-awenri-e' ne t-io-rihw-a' s-ke-'nikhon-**kwa**-s
FACT-DUPL-1SGA-SR-disposition-stir-PUNC NE CIS-NP-matter-NSF REP-1SGA-sew-**REV**-HAB
'I made a mistake, so that's why I'm undoing the stitches (again).'

In (113), however, the addition of the Reversive derives a verb that can be paraphrased as "to stop doing the action indicated by the base verb". Note also that the derived predicate does not change the telicity of the base verb root – *nikhon* 'sew' is telic, and so is its Reversive *nikhonkwa* 'un-sew', as indicated by the Habitual Ongoing form in (112b); *khonni* 'cook' is atelic, and so is its Reversive in (113b).

(113) **Reversive means to "stop" with atelic verbs**

a. wakekhón:ni
wake-kh-onni
1SGP-food-make.STAT
'I'm cooking.'

b. Ó:nen **wakekhonniáhsion.**
onen wake-kh-onni-**ahsi**-on
already 1SGP-food-make-**REV**-STAT
'I've already stopped cooking.'

These two readings – "un-do" and "stop" – correlate strongly with the telicity of the predicate, though this is not exceptionless. For example, while the telic predicates in (114) can use the Reversive with an un-do meaning, those in (115) do not (see Bhadra 2024 for similar facts in English). Rather, these have a "stop" reading, similar to atelic verbs.

(114) **Reversible results of telic events**

a. takhsontéhrha'
ta-k-hsontehr-ha'
DUPL-1SGA-connect-HAB
'I'm joining it, connecting it'

b. wa'thahsonterá:ko'
wa'-t-ha-hsonter-ako-'
FACT-DUPL-MSGA-connect-REV-PUNC
'He disconnected it' (Michelson et al. 2024: 56)

c. khwatá:ses
k-hwatase-s
1SGA-twist-HAB
'I am turning, twisting it (for example, tightening the lid on a jar)'

d. wa'khwataséhsi'
wa'-k-hwatase-hsi-'
FACT-1SGA-twist-REV-PUNC
'I opened, untwisted it.' (Michelson et al. 2024: 158)

(115) **Non-reversible results of telic events**

a. ra'serehtóhares ne raò:sere
ra-'sereh-tohare-s ne rao-'sere
MSGA-car-wash-HAB NE MPOSS-car
'He is washing his car.'

b. waha'serehtoharehsi
wa-ra-'sereh-tohare-hsi-'
FACT-MSGA-car-wash-REV-PUNC
'He finished washing the car'

c. Shawátis rateweiénstha'.
Shawatis ra-ateweien-st-ha'
John MSGA-know-CAUS-HAB
'John is studying (right now).'

d. Enió:karahwe' enkateweiénstá:ko
En-io-karah-we' en-k-ateweiénst-ako-'
FUT-be.evening.PUNC FUT-1SGA-study-REV-PUNC
'I'll be done studying in the evening.'

These exceptions suggest that the availability of the "undo" reading of the Reversive comes with the additional condition that the result state of the telic event is "reversible". Atelic predicates, however, only have the "stop" reading, as shown in (116).

(116) **Reversive of atelic events is "stopping"**

a. Kahiatónhsera rowennà:note'
kahiatonhsera ro-wennahnot-e'
book MSGP-read-STAT
'He's reading a book.'

b. wa'kewennahnotá:ko'
wa'-ke-wennahnot-ako-'
FACT-1SGA-read-REV-PUNC
'I finished reading it.' (⇒ I'm done for good)

root	meaning of REV
telic	un-do
atelic	stop

Table 3.2: Summary of telicity diagnostics (to be amended)

This is summarized in Table 3.2. A full analysis of the Reversive is forthcoming. For the purpose of this chapter, the crucial point is that telic verbs which describe events with reversible results have a "un-do" reading. In other words, the availability of the "undo" reading of the Reversive picks out a subset of verb roots, which is itself a subset of those roots which have a culmination entailment in the Stative aspect and a ongoing episodic reading in the Habitual aspect. The "undo" reading, intuitively, is available only when the verb has a result state. Thus, the class of verbs picked out by this diagnostic is that of telic verbs which encode a reversible result state. This is crucially a proper subset of telic verbs generally.

3.3.3.3 Test 3: Repetitive stems of telic roots have restitutive readings

The second diagnostic involves the Repetitive prefix, drawing on the work of Myers (2025), and provides the strongest indication that the class of telic verbs is distinguished by the presence of a result state as part of its lexical meaning. While the free translations of Repetitive forms into English often involves the word 'again', the Repetitive is much more flexible in its scope, as shown by Myers (2025). That is, the use of the Repetitive, like English 'again', comes with a presupposition that there was an event of the type described by the base predicate in the past. Unlike English, however, Kanien'kéha permits the subject and the object to be excluded from this presupposition. This is illustrated in (117), where (316a) shows a subjectless repetitive presupposition and (117b) shows an argumentless one.

(117) **Kanien'kéha Repetitive prefix means 'again' (Myers 2025)**

a. Kó:r saharashéntho' ne ahthén:no.
Kor sa-ha-rashenth-o' ne ahthenno
Kor REP.FACT-MSGA-kick-PUNC NE ball
i. '[Kó:r kicked the ball] again.'
Presupposition: An event of Kó:r kicking the ball occurred before.
ii. 'Kó:r [kicked the ball] again.'
Presupposition: An event of kicking the ball occurred before.

b. CONTEXT: John and Paul were friends for 50 years. Last week, John died (*Sawatís wahrénheie'*...)
Sok Kó:r sahrénheie'.
sok Kor sa-hr-enhei-e'
then Kor REP.FACT-MSGA-die-PUNC
'Then Kó:r died.'
Presupposition: An event of dying occurred before.

What is crucial for us is that the Repetitive is also possible with a restitutive reading, which crucially differs from that of the repeated verb reading. To see this, we can see that the use of the particle *á:re'* 'again' together with the Repetitive rules out the restitutive reading but not the repetition reading.

(118) **Restitutive and repetitive ambiguity (Myers 2025)**

a. Teskráhta's
te-s-k-rahta'-s
DUPL-REP-1SGA-put.shoes.on-HAB
✓ Restitutive: 'I'm putting my shoes back on.' (someone else put them on before)
✓ Repetitive: 'I'm putting my shoes on again.' (I put them on before too)

b. Á:re' teskráhta's
are' te-s-k-ráhta'-s
again DUPL-REP-1SGA-put.shoes.on-HAB
✗ Restitutive: 'I'm putting my shoes back on.' (someone else put them on before)
✓ Repetitive: 'I'm putting my shoes on again.' (I put them on before too)

Crucially, only telic verb roots have a well-defined restitutive reading. Restitutive readings have been used cross-linguistically to argue for the presence of a result state in the event structure of verb roots. To see this, consider the sentence in (119), which has two possible interpretations.

(119) Bilbo opened the door again.

a. Bilbo opened the door, and that had happened before.

b. Bilbo opened the door, and the door had been open before. (Beck 2005)

The presence of the restitutive reading in (119b) shows that the presupposition of *again*, i.e. that there was a prior eventuality of some type, can be satisfied by just the result. That is, the state of the door being open is sufficient to licence *again*, crucially in cases where Bilbo is opening the door for the first time. Thus, we will see that restitutive readings can provide an additional piece of evidence for a result state in the semantic representation of the verb.

There are two families of analyses which account for the ambiguity in (119): a STRUCTURAL analysis and a LEXICAL analysis. I will outline and adopt the structural analysis here (see von Stechow (1995, 1996); Beck (2005); Myers (2025) for discussion). I will then follow Myers (2025) in assuming that a structural ambiguity underlies examples like these in Kanien'kéha.

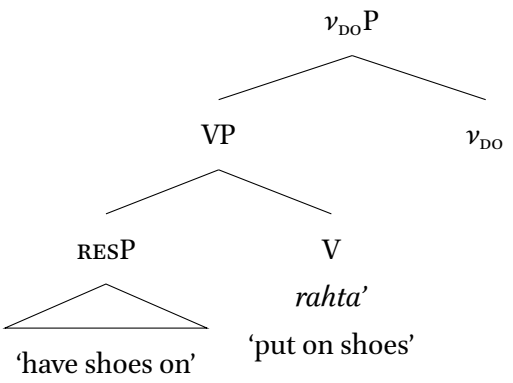
For our purposes, a structural account for the example in (119) involves two pieces. First, the meaning of the repetitive morpheme is monosemous; its meaning is the same as the meaning proposed for English *again*. In most accounts, the repetitive is a semantically vacuous element which introduces the presupposition that an event described by some property of eventualities has occurred before. This is given in (120).

(120) $[\![\text{s-}_{\text{REP}}]\!] = \lambda P_{<l,t>} \lambda e : \exists e'[e' \prec e \ \& \ P(e')].\ P(e)$

Second, the repetitive morpheme is treated as an adverbial particle which can be introduced at any point of the derivation with the right semantic type (Myers 2025). The repetitive and restitutive ambiguity is thus taken to arise from the various points in the clause at which this morpheme can take scope. Repetitive readings arise when the Repetitive takes scope over the verb phrase.

To account for these examples under the analysis of Myers (2025), we need to assume a syntactic position, where the scope of *again* can crucially take scope over a sub-lexical component (see von Stechow 1995, 1996). There have been numerous proposals for mapping a decomposed event semantics to the syntactic structure (e.g., Ramchand 2008, among many others). My goal is not to defend any particular theoretical commitment regarding such a mapping here; rather, for concreteness, consider the analysis in (121), where the decompositional event description in (121d) is mapped to the syntactic structure in (121a). Crucially, both RESP and VP are properties of eventualities (albeit sub-eventualities of the *v*P event).

(121) a.



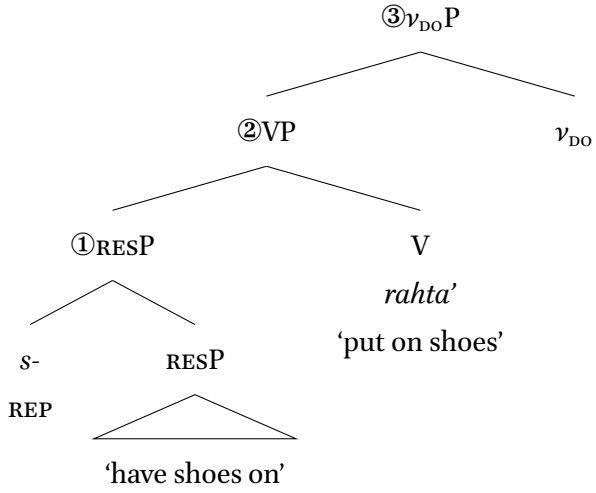
b. $[\![\text{RESP}]\!] = \lambda e_2.\text{have.shoes.on}(e_2)$

c. $[\![\text{VP}]\!] = \lambda e_1 \lambda e_2.\text{put.shoes.on}(e_1)$ & $\text{have.shoes.on}(e_2)$

d. $[\![v_{DO}\text{P}]\!] = \lambda e \exists e_1, e_2.\ \text{activity}(e)$ & $(e = e_1 \sqcup e_2)$ & $\text{put.shoes.on}(e_1)$ & $\text{have.shoes.on}(e_2)$

A restitutive reading arises from the adjunction of the repetitive to the property of eventualities denoting the result state, syntactically the RESP. This is shown in (122).

(122) a.



b. $[\![①]\!] = \lambda e_2 : \exists e_2'[e_2' \prec e_2$ & $\text{have.shoes.on}(e_2')].\ \text{have.shoes.on}(e_2)$

c. $[\![②]\!] = \lambda e_1 \lambda e_2 : \exists e_2'[e_2' \prec e_2$ & $\text{have.shoes.on}(e_2')].\ \text{put.shoes.on}(\text{e}_1)$ & $\text{have.shoes.on}(e_2)$

d. $[\![③]\!] = \lambda e \exists e_1 \exists e_2 : \exists e_2'[e_2' \prec e_2$ & $\text{have.shoes.on}(e_2')].\ \text{activity}(e)$ & $(e = e_1 \sqcup e_2)$ & $\text{put.shoes.on}(e_1)$ & $\text{have.shoes.on}(e_2)$

The final meaning of arrived at in (122d) is semantically identical to the meaning of the verb, with the added presupposition that there was another eventuality that satisfies the result state description in the past. Such a structure, of course, can only be derived if there is a RESP structure, and therefore (under the assumption of a strict mapping between event decomposition and the syntactic structure) a

result state. The restitutive reading available with the Repetitive of telic verbs, then, provides one more piece of non-aspectual evidence that telic verbs are distinguished by the presence of a result state.

3.3.3.4 Conclusion: telic roots have result states; atelic roots do not

We have seen above that the three independent phenomena above – culmination entailments, "un-do" readings of the Reversive suffix, and restitutive readings of the Repetitive prefix – all pick out the same class of verb roots. This is summarized in Table 3.3. The key assumption in the three accounts presented above was the asymmetric lexical specification of the the two classes of roots. Thus, I take these phenomena to illustrate a robust asymmetry in the event structural representations of these classes of predicates.

root	meaning of REV	meaning of REP
telic	un-do	repetitive/restitutive
atelic	stop	repetitive

Table 3.3: Summary of telicity diagnostics (final)

(123) a. *telic root* $\rightsquigarrow \lambda e.\exists e_1, e_2.\ (e = e_1 \sqcup e_2)$ & $\textsc{proc}(e_1)$ & $\textsc{res}(e_2)$

b. *atelic root* $\rightsquigarrow \lambda e.\textsc{proc}(e)$

Telic predicates, represented as in (123a), are heterogeneous in the sense that they are the sum of two distinct sub-parts, neither of which are within the extension of the verb. Atelic predicates, represented as in (123b), are homogeneous.

3.4 Motion roots

The final class of roots in Kanien'kéha are motion roots, which describe both the motion and the result of that motion, i.e., being at some location.[14] In this sense, they are similar to telic event verbs. On the other hand, they are sufficiently distinct in their behaviour to warrant a separate treatment. For example, motion roots do not have an ongoing reading in either the Habitual or the Stative, but rather use a separate aspectual category: the INTENTIVE. The distinguishing feature of this aspect is its optional co-occurence with the Factual prefix. I will spend the first part of this section discussing this class of motion roots.

In the second part of this section, I will discuss the PURPOSIVE suffix, which derives motion verb stems. These verbs have a four-way aspectual contrast, and are interpreted similarly to lexical motion

[14]This section develops upon collaborative work with Katya Morgunova, reported in Gatchalian and Morgunova (2024).

verbs with one difference. While lexical motion verbs have a culmination entailment in the Stative aspect, purposive stems do not. I end by providing a preliminary account of this asymmetry.

3.4.1 Lexical and derived motion verbs

Lexical motion roots are a small class. They do not encompass all descriptions of motion; rather, they comprise a small set of roots which describe motion towards a particular location *and* the undergoer's presence at that location.[15] The verb in (124a) describes a motion event towards Kahnawà:ke, as well as the resulting state of being there. This resulting state can be seen most clearly when used with the Past suffixes (see Chapter 5 for details on these suffixes). In the Remote Past marked form in (124b), the motion verb gives rise to the reading that the undergoer is no longer at that location – typically, this results in a further inference that they have returned from where they went.

(124) a. Kahnawà:ke wà:re' ne Kó:r
Kahnawake wa'-r-e-' ne Kor
Kahnawake FACT-MSGA-go-PUNC NE Kor
'Kor went to Kahnawake (and is currently there)'

b. Kanhawá:ke iehawenónhne' ne Kó:r (#tánon' shé:kon tho
Kahnawake ie-raw-e-non-**hne** ne Kor tanon' shekon tho
Kahnawake TRANS-MSGP-go-STAT-**REM.PST** NE Kor and still there
íthre's)
i-t-hr-e-'s
PROTH-CIS-MSGA-go-HAB
'Kor had gone to Kahnawake (#and he is still there)'

The characterizing morphosyntactic property of this class is their compatibility with the INTENTIVE aspect. While morphologically similar to the Punctual, this aspect differs in two ways. First, it is interpreted as ongoing. This leads some writers to call this aspect the "present" (Michelson et al. 2024: 17) or the "imperfective" (Baker 1996: 184 *inter alia*). Thus, the example in (125) only has an ongoing reading.[16]

[15]For example, *tekaráhtats* 'I run (habitually)' is not a motion verb, whereas *ktákhe'* 'I am running' is (Michelson et al. 2024: 462).

[16]This fact is slightly complicated by the interaction with the Locative pre-pronominal prefixes. For example, (Michelson et al. 2024) give both 'I am coming' and 'I came' as translations for *tá:ke'*, suggesting an ambiguity between the Factual and Intentive aspects. Further work is needed to clarify the full aspectual paradigm. I take the main interpretational and morphosyntactic differences given in the body to nonetheless point towards an analysis of these roots as a distinct class from event roots.

(125) Tho nonkwá:ti wà:ke'.
tho nonkwati wa'-k-e-'
there on.the.side.of FACT-1SGA-go-INT
'I **am going** there.' (Michelson et al. 2024: 107)

Second, the Intentive aspect is optionally compatible with the Factual prefix, whereas the Punctual aspect obligatorily has a modal prefix.

(126) a. í:-k-e-'
PROTH-1SGA-go-INT
'I am walking/going'

b. tho wà:-k-e-'
there FACT-1SGA-go-INT
'I am going there.'

Note that the Factual form appears to contribute the semantics of direction; speakers strongly prefer the adverbial particle *tho* 'there' with Factual forms. While this suggests that the Factual is doing additional work in these examples, further work is needed to elucidate this role. Nonetheless, these two differences – the ongoing interpretation and the optionality of Factual *wa'* – indicate that these forms stand apart from the Factual-Punctual forms of event verbs.

While lexical motion verbs are few, the PURPOSIVE derivational suffix results in a large number of derived motion verbs. However, there are two differences which arise between lexical and derived motion verbs that are worth noting. First, Purposive stems participate in a four-way aspectual distinction, further illustrating the difference between the Intentive and Punctual aspects.

(127) **Four-way aspectual distinction with Purposive verb stems (Michelson et al. 2024: 87)**

a. wa'katkennisa'à:nha'
wa'-k-atkennisa'-a-hnh-**a'**
FACT-1SGA-meet-JR-PURP-**PUNC**
'I went to a meeting.'

b. katkennisa'à:nhe's
k-atkennisa'-a-hnh-**e's**
1SGA-meet-JR-PURP-**HAB**
'I go to meetings (habitually).'

c. wakatkennisa'à:nhon
wak-atkennisa'-a-hnh-**on**
1SGP-meet-JR-PURP-**STAT**
'He have gone to a meeting.' (Martin 2023: 161)

d. (wa')katkennisa'à:nhe'
(wa'-)k-atkennisa'-à-hnh-**e'**
FACT-1SGA-meet-JR-PURP-**INT**
'I am going/am on my way to a meeting (there).'

The second difference between lexical and derived motion verbs concerns their interpretation vis-a-vis the result state. We will turn to this in the next sub-section.

3.4.2 Non-culmination of derived motion verbs

In this sub-section, I will show that derived motion verbs do not have a culmination entailment in the Stative aspect like telic event verbs, which are understood to obligatorily culminate. Thus, Purposive stems, but not event verbs generally, are non-culminating under the Stative. This fact also differentiates them from lexical motion verbs, as we will see.

As a point of departure, consider the examples in (128). These examples illustrate that lexical motion verbs like (128a) obligatorily culminate in the Stative aspect. This is illustrated with the continuation, which asserts that the speaker never reached the intended goal of motion – such examples give rise to contradictions. In contrast, Purposive verbs like (128b) can be felicitously followed by such a continuation. In this example, the Purposive verb *atawenh* 'go to swim' describes a motion event that leads to a swimming event. As we can see by the larger context, the swimming event need not be actualized.

(128) a. #Tsi iontenhninòn:tha' **iewakenónhne'** nek tsi onkwahsi'takaré:wahte' tánon'
Tsi iontenhninòn:htha' **wak-e-non** nek tsi wa'-wak-ahsi't-a-karewaht-e' tanon'
store 1SGP-go-STAT but FACT-1SGP-foot-JR-hurt-PUNC and
kheh ratetsèn:tsne iaha'-k-e-'
kheh ra-tetsen'ts-ne iaha'ke'
instead doctor-LOC TRANS.FACT-1SGA-go-INT
'I went to the store but hurt my foot and went to the doctor's instead.'

b. Tho **wakatawénhon** nek tsi kahnhó:ton tsi iontawenstahkwa' tánon' iah
tho **wak-atawen-h-on** nek tsi ka-hnot-on tsi iontawenstahkwa' tanon iah
there 1SGP-swim-PURP-STAT but N.A-close-STAT that pool and NEG

teiotòn:'on aonkwatá:wen.
te-io-ton-'-on a-k-atawen'
NEG-N.P-be.able-INCH-STAT OPT-1SGA-swim.PUNC
'I went to swim but the pool was closed so I couldn't swim.'

We can see this more strikingly in combination with the Past suffix. Recall that the Remote Past suffix on a lexical motion verb requires that the resulting being-at-the-place is over. This example is repeated in (129a). The same suffix on the purposive motion verb, however, does not impose culmination. Rather, as can be seen in (129b), the Remote Past only contributes that the motion event is over (with the same further inference that the subject has returned). The continuation shows that the goal of this motion event (a swimming event) was never actualized. If the Remote Past uniformly has a "cancelled result" reading, we would expect (129b) to obligatorily culminate, so that the result can be claimed to end, as it does in (129a). Instead, we observe the differential treatment of the results of lexical motion roots and derived Purposive motion roots.

(129) a. Kanhawá:ke iehawenónhne' ne Kó:r (#tánon' shé:kon tho
Kahnawake ie-raw-e-non-hne ne Kor tanon' shekon tho
Kahnawake TRANS-MSGP-go-STAT-REM.PST NE Kor and still there

íthre's)
i-t-hr-e-'s
PROTH-CIS-MSGA-go-HAB
'Kor had gone to Kahnawake (#and he is still there)'

b. Tho wakatawenhónhne' nek tsi kahnhó:ton tsi iontawenstahkwa'
tho **wak-atawen-h-on-hne** nek tsi ka-hnot-on tsi iontawenstahkwa'
there 1SGP-swim-PURP-STAT-REM.PST but N.A-close-STAT that pool

tánon' iah teiotòn:'on aonkwatá:wen.
tanon iah te-io-ton-'-on a-k-atawen'
and NEG NEG-N.P-be.able-INCH-STAT OPT-1SGA-swim.PUNC
'I had gone to swim (and I'm back) but the pool was closed so I couldn't swim.'

Thus, we have seen that the morphological properties of the Purposive – namely, the four-way aspectual paradigm, crucially including the Intentive aspect – suggest that they form a class with lexical motion verbs. Nonetheless, we have also observed that they differ from each other with respect to

their culmination into a result state (in the Stative aspect). While motion and telic event roots pattern together in obligatorily requiring culmination, seen by the cancellation of the results in (130), derived motion stems like (129b) stand apart.

(130) a. Thetén:re Kahnawà:ke iehawenónhne' ne Kó:r
thetenre Kahnawake **ie-haw-e-non-hne** ne Kor
yesterday Kahnawake TRANS-MSGA-arrive-STAT-REM.PST NE Kor
'Yesterday, Kor had gone to Kahnawake (and he's back).'

b. waktiòn:ne' ne akehnhotónkwa
wak-ati-on-hne' ne ake-hnhotonkwa
1SGP-lose-STAT-REM.PST NE 1SGPOSS-keys
'I had lost my keys (and found them).'

This mismatch is summarized in Table 3.4.

	MORPHOLOGY	SEMANTICS
verb class	**Intentive aspect?**	**result entailed?**
telic event	✗	✓
lexical motion	✓	✓
Purposive	✓	✗

Table 3.4: Morphology-semantics mismatch in the verb classes

I will argue here that the source of this mismatch should be attributed to the semantic contribution of the Purposive. I will not provide a formal analysis here, but instead show one further contrast indicating that the Purposive treats the motion component and result component of its event structure in a less integrated way than other complex predicates.

Recall that the Repetitive suffix is interpreted as introducing a presupposition that a previous event held in the past. When used with Purposive stems, this presupposition can be limited to the motion component. We can see this in (131), where the Repetitive picks out just the motion event of going to the (contextually salient) lake. Crucially, the base verb differs between the two conjuncts. As we saw above, the Repetitive presupposes that there is a prior event: in this example, the only available candidate is the motion event contributed by the Purposive.

(131) CONTEXT: *You go to a lake you've never been to before. You think that you might want to go fishing, but on the first day, you go there just to swim since you don't know whether there are fish in the lake. After, you realize that there are fish, so the next day you go back to the lake to fish.*

Thetén:re	wa'katawénhne'	tánon'	òn:wa	**sakahrhiohkawineha'**.
thetere	wa'-k-atawen-hn-e'	tanon'	on'wa	**s-a'-k-ahrhiohkawine-h-a'**
yesterday	FACT-1SGA-swim-PURP-PUNC	and	now	REP-FACT-1SGA-fish-PURP-PUNC

'Yesterday, I went there to swim, and today I went there again to fish.'

This example illustrates that *going-to-swim* counts as a prior event of *going-to-fish* for the presupposition contributed by the Repetitive. To make sense of this, I propose that the Purposive encodes a motion event description in both cases, which is picked out for the Repetitive; the event of the base verb (i.e., *swim* and *fish*), however, can be omitted from this event description.

The above contrast is striking given the *lack* of similar effects found with other event-related derivational suffixes. For example, the Causative suffix never permits a similar separation of base event from the complex event. While in principle we can imagine the Repetitive to be licensed in (132b), where we repeat a causing event despite the change in the caused event, we see that the only possible interpretation of (132b) is a restitutive reading.

(132) CONTEXT: *You are describing how to make cutlets.*

a. Ke-'wahr-atha-'t-ha' sok **wa'-ke-'wahr-a-'nhétska-ht-e**, thó: ne
1SGA-meat-dry-CAUS-HAB then FACT-1SGA-meat-JR-soften-CAUS-PUNC and.then
wa'-ke-'wahr-a-ri-ht-e'
FACT-1SGA-meat-be.cooked-CAUS-PUNC
'I dry the meat, then I soften it, and then I cook it.'

b. #Ke-'wahr-atha-'t-ha' sok **s-a'-ke-'wahr-a-'nhétska-ht-e**, thó: ne
1SGA-meat-dry-CAUS-HAB then REP-FACT-1SGA-meat-JR-soften-CAUS-PUNC and.then
wa'-ke-'wahr-a-ri-ht-e'
FACT-1SGA-meat-be.cooked-CAUS-PUNC
'I dry the meat, then I soften it again, and then I cook it.'
Comment: The meat was soft before, so you're making it soft again.

The class of motion roots, then, has at least two subclasses. While lexical motion roots and Purposive stems pattern together morphosyntactically in their inflection in the Intentive aspect, they differ in their interpretation with respect to the result state.

3.4.3 Consequences of Motion verbs

This section presented some initial motivation for the differentiation of motion verbs as a distinct lexical class in Kanien'kéha. The need for this has been noted in various descriptions of other Northern

Iroquoian languages, but has not generally been adopted in the discussion of Kanien'kéha. Some notable exceptions are the description of Purposives and motion verbs in Martin (2023: 160) and DeCaire (2023: 162). This section contributed to this description by forwarding one novel generalization: that Purposive-derived stems are distinct from lexical motion verbs in whether they come with culmination entailments in the Stative aspect.

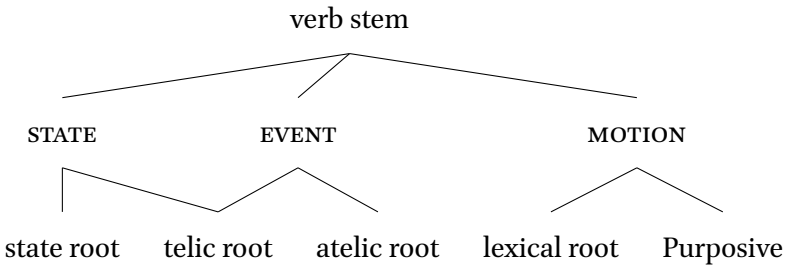
I will leave providing a full analysis of these forms for future work. One analytical direction suggested by both the culmination contrast and the Repetitive contrast is to introduce a low modal component into the meaning of the Purposive which takes scope over the result (similar to modal treatments of defeasible causation, see Martin and Schäfer 2017; Martin 2019). In contrast, lexical roots (motion and telic event roots) and other derivational suffixes like the Causative do not include a modal component and thus require actualization of both the motion/process and result in the evaluation world in the Stative aspect.

3.5 A summary of the verb class system

The discussion above revolved around differentiating three major classes of verbs. I argued that the aspectual paradigms, both their morphosyntax and their interpretation, motivate a three-way distinction in the verb classes: state verbs, event verbs, and motion verbs. This gross classification is represented by the middle, small-caps level of (133).

I further showed that there are some further distinctions within each class, and that telic event roots can in fact participate in the derivation of verb stems in multiple classes: a verb stem (syntactically a v/VoiceP) falls into one of three classes. The choice of root partially determines the verb class. For example, atelic event roots and state roots uniformly derive event and state verbs, respectively – in terms of the syntactic analysis of Chapter 2, atelic event roots only merge with v_{DO} to for event verb stems and state roots only merge with v_{BE} to form state verb stems. Telic roots may form either state verb stems (with a "passive"-like interpretation) or event verb stems, depending on which flavour of v head occurs in the structure.

(133)



In §3.2, I argued that state verbs can be differentiated into two distinct subclasses, based on the root they are built from. State roots are characterized as having only a Stative aspect form. On the other hand, I argued that telic event roots are underspecified for state/event-hood syntactically, and

can consequently participate in both state-like or event-like aspectual paradigms. These verbs, such as *hnhoton* 'be closed', have a four-way contrast across the three aspectual forms: their Stative aspect form have either a Patient pronominal prefix (thus instantiating their event-root use) or an Agent pronominal prefix (thus instantiating their state-root use).

In §3.3, I argued for a two-way distinction between telic and atelic events roots, building on earlier work on "consequentiality". Here, I propose two novel diagnostics which crucially do not rely on the interpretation of the viewpoint aspects. These two tests converge on a common analytical component: the presence of a result state. In the following chapter, I will show how this distinction can derive the ongoing interpretations in the Habitual aspect (for telic) and Stative aspect (for atelic).

Finally, in §3.4, I argued that the class of motion roots is a distinct morphosyntactic and semantic class. I then showed that lexical and derived motion roots (as diagnosed by the morphosyntactic criteria, i.e., inflecting for the Intentive aspect) in fact have distinct semantic properties. Specifically, I showed that derived motion stems do not entail culmination in the Stative aspect. I conjectured that there is a sub-lexical modal source for this asymmetry.

In each of these discussions, there is room for further elaboration. Having established the basic properties of each class and motivated the system in (133), I will leave this for future research. In the following chapters, I will build up the next level of structure relevant for temporal interpretation: namely, the (viewpoint) aspectual system and the tense system.

Chapter 4

The viewpoint Aspects: two paths to ongoing eventualities

4.1 Introduction: the on-going eventualities puzzle

In this chapter, I turn to the meanings of the three core aspectual suffixes which occur with event verbs. Briefly, each event verb is inflected for one of three aspects, called the Punctual (134a), the Habitual (134b), and the Stative (134c). These terms are commonly used in the Iroquoianist literature (Foster 1985, 1986; Mithun 2017a), and I adopt them here.[1]

(134) **Core aspectual suffixes of event verbs (Martin 2023: 109, 127)**

a. wa'kenóhare'	b. ke'nóhares	c. wakenóhare
wa'-ke-nohare-'	ke-nohare-s	wake-nohare
FACT-1SGA-wash-PUNC	1SGA-wash-HAB	1SGP-wash.STAT
'I washed it'	'I wash it (habitually)'	'I have washed it'

My empirical goal in this chapter will be to describe the range of interpretations available for each aspect, with particular focus on the Habitual and Stative. The Punctual will be dealt with most briefly here, because its full interpretation requires a study of the Modal prefixes with which it obligatorily co-occurs. A fully worked through analysis of the three Modal prefixes is beyond the scope of the current chapter, though I will have something to say about a subpart of this system, in particular how it contrasts with the Habitual and Stative. One reason for paying particular attention to the latter two (non-Punctual) aspects, is that the available descriptive literature does not provide sufficient detail to precisely understand their semantic contributions. I address some of these gaps here.

[1]The early and influential description of the closely-related Oneida aspects by Lounsbury (1953) terms these the "punctual", the "serial", and the "perfective" respectively; Chafe (1970) refers to the Habitual as the "iterative".

For example, while most literature on the Iroquoian languages agree that the Stative aspect are translational equivalents of the English perfect, no work to my knowledge systematically tests the range of readings which "perfects" comprise cross-linguistically (for an overview, see Chapter 3 of Comrie 1976, Binnick 1991, especially pp. 264*ff*, and the citations in §4.4 below). Examples of Stative aspect verbs with an experiential perfect interpretation are given in (135).

(135) **Stative aspect verbs have "perfect" meanings**

a. Nonwén:ton ken **sahiá:ton** ne kahiatónhsera'?
Nonwenton ken sa-hiaton ne kahiatónhsera'
ever Q 2SGP-write.STAT NE book
'Have you ever written a book?.' (telic)

b. CONTEXT: *'Does Kó:r smoke?'* (*Ratshókwas ken ne Kó:r?*)
Tóka nòn:wa enska tà:ni'ts kaié:ri **nihotshókwen.**
toka nonwa enska tà:ni'ts kaieri ni-ho-atshokw-en
maybe one until? four PRT-MSGP-smoke-STAT
'He has smoked maybe one to four times.' (atelic)

Similarly, while the Habitual aspect is typically described as conveying "habitual" meanings, as seen in (136), it isn't clear whether this comprises generics, dispositional ascriptions, or other meanings associated with habituality (for discussion, see Krifka et al. 1995, and citations in §4.5 below).

(136) **Habitual aspect verbs have "habitual" meanings**

a. tekohtáhrhos
te-k-ohtarhrho-s
DUPL-1SGA-clean-HAB
i. 'I clean (i.e., every day).'
ii. 'I am a janitor.' (habitual telic verb; Martin 2023: 92)

b. kekhónnis
ke-kh-onni-s
1SGA-food-make-HAB
i. 'I cook (i.e., every day).'
ii. 'I am a chef.' (habitual atelic verb; Martin 2023: 93)

What I mean by the scare quotes around "perfect" and "habitual" in the preceding is that there is at least some consensus in the literature on each that these terms group together multiple, more specific meanings which may or may not be amenable to a single analysis. Even setting these theoretical concerns aside, there remains a descriptive concern that simply calling something a "perfect" or "habitual" is

often insufficient to fully characterize the meaning a given form contributes (Bertrand et al. 2022; Carlson 2006). Settling some of these more basic properties of Stative and Habitual aspect forms will give us both a richer description of these constructions than available to date, and also provide a foothold for their semantic analysis.

Beyond this descriptive aim, the broader theoretical goal of this chapter will be to address one long-standing observation in the work on Iroquoian aspectual suffixes, namely the expression of progressive or on-going eventualities. The central puzzle arising from this observation concerns the distribution of this on-going meaning across the two non-Punctual aspects. As we saw in the previous chapter, the class of event roots can be divided into two subclasses: telic and atelic (Chafe 1980; Cross et al. 2023). For telic predicates, the on-going meaning is expressed by the Habitual aspect, as in (137a). For atelic predicates, this is found instead in the Stative aspect, as in (138b).

(137) a. tiénthos
k-ientho-s
1SGA-plant-HAB
i. 'I plant.' (Habitual)
ii. **'I am planting.'** **(ongoing)**

b. watiénthon
wak-ientho-on
1SGP-plant-STAT
'I have planted.' (perfect)

(138) a. katshókwas
k-atshokw-as
1SGA-smoke-HAB
'I smoke.' (habitual)

b. wakatshókwen
wak-atshokw-en
1SGP-smoke-STAT
i. 'I have smoked.' (perfect)
ii. **'I am smoking.'** **(ongoing)**

This pattern raises the following questions: ① how are the on-going readings derived with each aspect; ② what derives the restriction of the on-going readings. My strategy in answering these questions is to begin with a more fundamental one: ③ what are the semantic contributions of the HABITUAL and STATIVE aspects? The conclusion I draw is that, while the on-going readings in (137a)–(138b) are in a global sense interpreted as "imperfective" (that is, they locate the reference time within the runtime of an eventuality), this "imperfectivity" is derived from a more complex basic meaning. Thus, the on-going readings are *semantically heterogeneous*, derived in distinct ways. Nonetheless, I propose that each of the Habitual and Stative aspect are themselves semantically homogeneous – the semantic contribution of each will therefore be rather underspecified, with a pragmatic component for each responsible for deriving the final interpretation. The meanings I will defend are as follows:

① the STATIVE aspect introduces an underspecified **perfect state** (in the sense of Nishiyama and Koenig 2010) which holds at the reference time, and simultaneously asserts the anteriority of a subpart of the eventuality. The precise meaning of this underspecified perfect state, which derives

the subtypes of perfects, is arrived at through pragmatic reasoning about the relevance of the base eventuality to the present discourse.

② the HABITUAL aspect introduces a **state** which leads to the realization of the event described by the verb (in the spirit of Boneh and Doron 2013; Cable 2022), which holds at the reference time. In the case that the base event is atomic, then this state is understood as the process of the (telic) event itself, which is normally disposed to culminate. (I will motivate this intuition here, but leave the details for future work.)

The on-going readings will then be shown to arise from these basic, rather underspecified meanings together with the semantics of the root classes developed in Chapter 3. The inability of Stative on-going readings with telic verbs parallels the well-attested ban on continuative perfect readings with bounded predicates seen in languages like Bulgarian (Pancheva 2003). I suggest that the inability of Habitual on-going readings with atelic verbs can be attributed to the homogeneity of atelic events and a condition on the use of the Habitual where on-going events are not themselves within the extension of the base predicate.

I begin in §4.2, where I introduce the morphosyntactic theory of the aspects which I adopt here. I then present the details of each aspect in turn. In §4.3, I first turn briefly to the Punctual aspect. I show that we can characterize the Punctual as perfective, in contrast to the Stative and Habitual which result in imperfective meanings. In §4.4, I discuss the Stative aspect, which has both "perfect" and, with atelic predicates, on-going readings. I will show that the on-going reading is reducible to a continuative perfect. In other words, the on-going reading associated with *wakatshókwen* 'I have smoked (STAT)' can be conveyed more precisely with the translation 'I have been smoking (and continue to do so)'. In §4.5, I turn to the Habitual aspect, which has both habitual and, with telic predicates, on-going readings. I contrast the habituality conveyed by verbs in the Habitual aspect with a similar habitual reading which arises with verbs inflected in the FUTURE-PUNCTUAL. This allows us to delimit the necessary truth conditions of the Habitual aspect. Finally, §4.6 summarizes the system and the major claims made in this chapter.

4.2 The structure of the aspectual stem

The verb root determines the telicity class of the predicate, as argued in the previous chapter. The verb stem, consisting of the root along with its derivational suffixes and arguments, delimits the event description. Before proceeding with my discussion of the aspects, then, I recall some of the necessary morphosyntactic background and introduce some of the simplifying conventions I adopt.

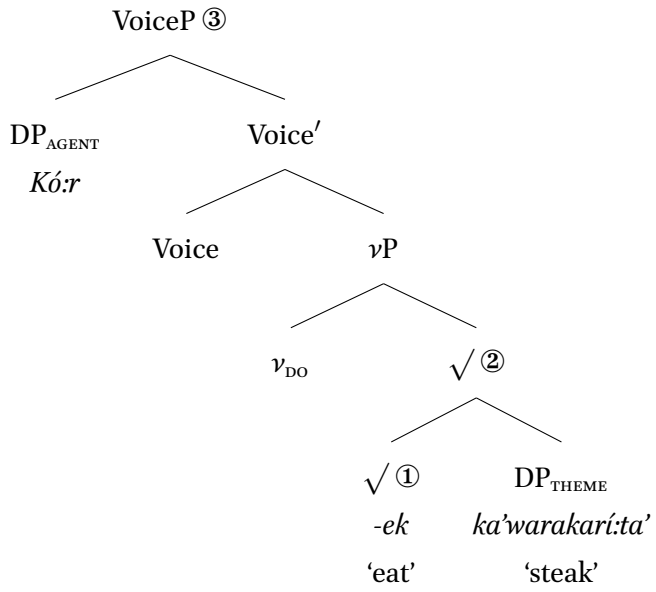
Following my discussion in Chapter 2, I assume that the verb stem consists of material up to the first syntactic phase (Chomsky 2000, 2008; Ramchand 2008), understood as the level at which all argu-

ments of the verb have been introduced and saturated; semantically, the verb stem denotes a property of eventualities, whose extension is the set of all eventualities that satisfy the event description. I will label this level of structure VoiceP; the precise syntax of this constituent is orthogonal for my purposes (for discussion of VoiceP-internal syntax in Kanien'kéha, see Chapter 2).

For most of my discussion, where the arguments are not relevant to the point at hand, I will incorporate the arguments into the meaning of the predicate and discuss the compositional semantics from the denotation of the VoiceP upwards. This should be understood as an expository convenience rather than a claim about the lexical meaning of verbs in Kanien'kéha; see the discussion in the previous chapter for the VoiceP-internal syntax. Underneath this simplification, I assume a broadly Neo-Davidsonian theory of argument introduction, where external arguments are introduced by independent predicates denoting thematic roles (Davidson 1967; Kratzer 1996). This is reflected in the syntax by a functional projection associated with each predicate and corresponding argument. Thus, to illustrate the derivation of a stem such as (139a), the syntactic structure in (139b) is properly interpreted by the meanings given in (141).

(139) a. Kó:r wà:rake' ka'warakarí:ta'
Kor wà:-[$_{\text{VoiceP}}$ ra-(e)k]-e' ka'warakarí:ta'
Kor FACT-MSGA-eat-PUNC steak
'Kó:r ate a steak.' Myers (2025)

b.



The lexical material and the functional structure under VoiceP then compose by Functional Application (Heim and Kratzer 1998) or Event Identification (Kratzer 1996), defined in (140). Thus, the meanings of the sentence in (139a) can be derived as sketched in (141); for the most part, I will abbreviate this as in (141d).

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

b. **Event Idenification (EI)** (adapted from Wood 2015: 24, Kratzer 1996: 122):
If α is a branching node, $\{\beta, \gamma\}$ is the set of α's daughters, and $[\![\beta]\!]$ is in $D_{<e,lt>}$ and $[\![\gamma]\!]$ is in $D_{<l,t>}$, then $[\![\alpha]\!] = \lambda x \lambda e.[\![\beta]\!](x)(e)$ & $[\![\gamma]\!](e)$.

(141) a. $[\![$ ① $]\!] = \lambda x \lambda e.$ eat(e) & $\exists e_1, e_2.(e = e_1 \sqcup e_2)$ & PROC(e_1) & RES(e_2) & THEME$(e) = x$

b. $[\![$ ② $]\!] = \lambda e.$ eat(e) & $\exists e_1, e_2.(e = e_1 \sqcup e_2)$ & PROC(e_1) & RES(e_2) & THEME(e) = steak

c. $[\![$ ③ $]\!] = \lambda e.$ eat(e) & $\exists e_1, e_2.(e = e_1 \sqcup e_2)$ & PROC(e_1) & RES(e_2) & THEME(e) = steak & AGENT(e) = Kor

d. $[\![$ ③ $]\!] = \lambda e.$ Kor.eat.steak(e) & $\exists e_1, e_2.(e = e_1 \sqcup e_2)$ & PROC(e_1) & RES(e_2)

One complication which in this system arises is the status of the Stative aspect, which I have proposed is a *v* head in §3.2 following others (Ormston 1993; Baker and Travis 1998; Coon 2025). Issues related to this will be dealt with further in §4.4 below.

I now turn to the body of my discussion. I address the aspectual system by looking at each aspect in turn: the Punctual in §4.3, the Stative in §4.4, and the Habitual in §4.5.

4.3 The Punctual aspect

I will turn first to the interpretation of the Punctual aspect. This section will be primarily descriptive, as a fully compositional analysis of Punctual aspect forms requires more detailed investigation of the system of Modal prefixes, with which Punctual aspect verbs obligatorily co-occur. See, for example, the modal paradigm of the verb *atkahtho* 'look at' in the Punctual aspect in (142).

(142) **Modal prefixes (Mithun 2016: 227, Michelson et al. 2024: 86)**

a. wa'katkáhtho'
wa'-k-atkahto-'
FACT-1SGA-look.at-PUNC
'I looked at it'

b. enkatkáhtho'
en-k-atkahtho-'
FUT-1SGA-look.at-PUNC
'I will look at it'

c. akatkáhtho'
a-k-atkahtho-'
OPT-1SGA-look.at-PUNC
'I might, could, should look at it'

d. *katkáhtho'
k-atkahtho-'
1SGA-look.at-PUNC

Nonetheless, I will make the following claims, which aim to situate the Punctual aspect into the broader aspectual system to be developed below. First, Punctual forms are interpreted perfectively. Second, Factual-Punctual forms (generally interpreted as past perfectives) do not entail the culmination of telic events. These are the focus of §4.3.1. In §4.3.2, I briefly touch on the interpretation of Future- and Optative-Punctual forms. These claims provide the general outlines of the truth conditions associated with the Punctual form and serve as the contrast for the non-Punctual forms, which form the main bulk of my discussion below.

4.3.1 Factual-Punctual forms are past perfective

Factual-Punctual forms are interpreted as past perfective forms. The primary diagnostic I will use for perfectivity is the obligatory sequential interpretation of the event relative to a *when*-clause. Such tests have been used as a preliminary diagnostic for a wide variety of languages (Smith 1997: 102, Bar-el 2005: 149). The reasoning typically proceeds as follows. Assuming that a *when*-clause provides an explicit description for the value of the reference time, we can see how the event described by the matrix clause is related to the eventuality described by the *when*-clause.

In Kanien'kéha, we see that the use of the Factual-Punctual uniformly places the event temporally following the event of a *when*-adverbial clause, here marked with the Coincident prefix *sh-* and the Factual-Punctual. Thus, regardless of the verb class, the Factual-Punctual forms in (143a) and (144a) are only felicitous in contexts where the start of the *cleaning* or *eating* event follows the *arriving* of the *when*-clause.

Looking first at the telic event root in (143a), we see that the Factual-Punctual form is only possible in a context (Context A) where the event of *cleaning* follows the arriving event expressed by the *when*-clause. In contexts where the cleaning surrounds the arrival (Context B) or where the arrival happens after the end of the cleaning (Context C), the Factual-Punctual form is ruled out in favour of the On-Going aspect (in this case the Habitual aspect; (143b)) and the Stative (143c) respectively.

(143) **Habitual on-going verb**

CONTEXT A: *Kó:r promised to help clean but he was late. We waited until he arrived to start cleaning.* (*start of cleaning precedes arriving*)

CONTEXT B: *Kó:r promised to help clean but he was late. We start without him, and he arrives in the middle of cleaning.* (*arriving precedes start of cleaning*)

CONTEXT C: *Kó:r promised to help clean but he was late. He gets here after we finish.* (*end of cleaning precedes arriving*)

a. Shiahà:rawe' ne Kó:r, wa'tiakwatohtáhrho'
sh-iaha'-ra-we-' ne Kó:r, wa'-t-iakwa-tohtahrho-'
COIN-TRANS.FACT-MSGA-go-PUNC NE Kor FACT-DUPL-1PL.EXA-clean-PUNC
'When Kó:r arrived, we started to clean.' (A: ✓, B: ✗, C: ✗)

b. Shiahà:rawe' ne Kó:r, tetiakwatohtáhrhos
sh-iaha'-ra-we-' ne Kó:r, te-iakwa-tohtahrho-s
COIN-TRANS.FACT-MSGA-go-PUNC NE Kor DUPL-1PL.EXA-clean-HAB
'When Kó:r arrived, we were cleaning.' (A: ✗, B: ✓, C: ✗)

c. Shiahà:rawe' ne Kó:r, teionkwatohtáhrhon
sh-iaha'-ra-we-' ne Kó:r, te-ionkwa-tohtahrh-on
COIN-TRANS.FACT-MSGA-go-PUNC NE Kor DUPL-1PL.EXP-clean-STAT
'When Kó:r arrived, we had (already) cleaned.' (A: ✗, B: ✗, C: ✓)

A similar pattern is found for atelic verbs, modulo the On-going aspect is the Stative (144b) and the Habitual is ruled out (144c) since it only has the habitual interpretation.

(144) **Stative on-going verb**
CONTEXT A: *We usually eat at noon. Kó:r arrived late at 1. We waited until he came to eat.* (*start of eating precedes arriving*)
CONTEXT B: *We usually eat at noon. Kó:r arrived late at 1. We didn't bother to wait. He arrived while we were in the middle of eating.* (*arriving precedes start of eating*)
CONTEXT C: *We usually eat at noon. Kó:r arrived late at 1. He arrived after we finished eating.* (*end of eating precedes arriving*)

a. Shiahà:rawe' ne Kó:r, wa'tiakwatskà:hon'
sh-iaha'-ra-we-' ne Kó:r, wa'-t-iakw-atska'hon-'
COIN-TRANS.FACT-MSGA-go-PUNC NE Kor FACT-DUPL-1PL.EXA-eat-PUNC
'When Kó:r arrived, we started to eat.' (A: ✓, B: ✗, C: ✗)

b. Shiahà:rawe' ne Kó:r, teionkwatskà:hon
sh-iaha'-ra-we-' ne Kó:r, te-ionkw-atska'hon
COIN-TRANS.FACT-MSGA-go-PUNC NE Kor DUPL-1PL.EXP-eat.STAT
'When Kó:r arrived, we were eating/we had (already) eaten.' (A: ✗, B: ✓, C: ✓)

c. #Shiahà:rawe' ne Kó:r, teiakwatskà:hons
sh-iaha'-ra-we-' ne Kó:r, te-iakw-atska'hon-s
COIN-TRANS.FACT-MSGA-go-PUNC NE Kor DUPL-1PL.EXA-eat-HAB
'When Kó:r arrived, we eat.' (A: ✗, B: ✗, C: ✗)

Thus, a basic characterization of the Factual-Punctual form is given in (145), where we treat it essentially as a plain perfective (e.g., Klein 1994).

(145) $[\![\text{FACT-}\phi\text{-PUNC}]\!] = \text{true } \textit{iff}$ there is an event e and a time interval t such that $\phi(e)$ & $\tau(e) \subset t$

There are, however, exceptions: in a small set of environments, the Factual-Punctual does not result in a past perfective interpretation. Baker and Travis (1997), drawing on Foster (1985: 404) show that in "performative contexts" (Austin 1962) such as a a christening ceremony, the Factual-Punctual form is used with present reference.

(146) a. Sák wa'konhsennon'.
Sak wa'-kon-hsenn-on-'
Sak FACT-1SG>2SG-name-give-PUNC
'I (hereby) give you the name Sak.' Baker and Travis (1997: 217)

Given the characterization of the Factual-Punctual as a perfective, this restriction to past reference and the exceptions look similar to the so-called "Present Perfective Paradox" which arises in, for example, English with the Simple Present (as well as in other languages; De Wit 2016). In English and Russian, for instance, present perfective verbs receive a shifted interpretation: in English, a habitual interpretation arises, whereas in Russian, a future interpretation arises. In both these languages, however, performative contexts exceptionally license present interpretations.

(147) a. I **run**.
(≠ I am running right now.)

b. I (hereby) **promise** to come on Wednesday. (see Searle 1989)

c. On **pri-det**.
he at.PFV-go.PRES.3SG
'He will come.'
(≠ He is coming right now.) (Russian)

d. A teper' **po-prošu** provodit' menja k karete.
and now PFV-request.PRES.1SG take me to coach
'And now I ask you to see me to the coach.' (De Wit 2016: 155)

I note these examples here to demonstrate that the exceptions to the past perfective interpretation with Factual-Punctual forms are common cross-linguistically with perfective aspect verbs. Thus, the Kanien'kéha Factual-Punctual behaves in line with the characterization of a perfective aspect, including in its exceptional interpretations. The (typically) enforced past reference can be understood to come

about from the same source as what ultimately explains the "Present Perfective Paradox", though I will not spell out an account here.

Finally, perfectivity itself has been shown by recent work to be a heterogeneous semantic category cross-linguistically (Filip 2017; Martin 2019). One particular point of variation is the interpretation of perfective Accomplishment verbs. The analogue of this class in this study of Kanien'kéha is the class of telic event predicates. Non-culmination of the Factual-Punctual can be illustrated with a continuation which explicitly contradicts a culmination inference, as in (148a) and (148b). Such examples are variably accepted, both across speakers and across elicitation sessions with the same speaker – as such, the acceptability is annotated with a % symbol.

(148) a. Theténre' **wa'katekhwahrha'tsherón:ni'**
theténre' wa'-k-ate-khw-a-hrha-'tsher-onni-'
yesterday FACT-1SGA-SR-food-JR-be.on-NMLZ-make-PUNC

ne'k tsi onkkarè:wahte' tánon' iah tewákshon.
ne'k tsi wa'-wak-kare'waht-e' tánon' iah te-wak-sh-on.
but FACT-1SGP-be.hurt?-PUNC and NEG NEG-1SGP-finish-STAT
'Yesterday I built a table but hurt myself and couldn't finish'

b. %Theténre' **wa'katekhwahrha'tsherón:ni'**
Thetenre' wa'-k-ate-khw-a-hrha-'tsher-onni-'
yesterday FACT-1SGA-SR-food-JR-be.on-NMLZ-make-PUNC

ne'k tsi ón:wa (wenhniserá:te) ienhskatahshonteren' tánon
ne'k tsi onwa wenhniserate i-en-hs-k-at-ahshonteren-' tánon
but now today TRANS-FUT-REP-1SGA-SR-continue-PUNC and
enksha'.
en-k-sh-a'
FUT-1SGA-finish-PUNC
'Yesterday I built a table, and today I will continue it to completion.'

Crucially, this differs from the Stative perfect interpretation, which enforces culmination for telic predicates. In (149), the explicit contradiction inference was never accepted by speakers.

(149) # Theténre' **wakatekhwahrha'tsherón:ni**
Thetenre' wak-ate-khw-a-hrha-'tsher-onni
yesterday 1SGP-SR-food-JR-be.on-NMLZ-make.STAT

ne'k tsi ón:wa (wenhniserá:te) ienhskatahshonteren' tánon
ne'k tsi onwa wenhniserate i-en-hs-k-at-ahshonteren-' tánon
but now today TRANS-FUT-REP-1SGA-SR-continue-PUNC and

enksha'.
en-k-sh-a'
FUT-1SGA-finish-PUNC

Intended: 'Yesterday I had built a table, and today I will continue it to completion.'

Given the variability of these judgements, I will not provide an account for non-culmination at this moment. Nonetheless, the basic interpretation of the Factual-Punctual established here will be crucial for the arguments made in the following sections, where we look at the non-Punctual aspects. Before this, I will provide a basic characterization of the two other forms in the Punctual paradigm – those marked with the Future and Optative pre-pronominal prefixes.

4.3.2 Future- and Optative-Punctual forms are modal perfectives

Traditionally, the Future and Optative are differentiated by the "degree of certainty" with which the base event is asserted to occur (Mithun 2014; Lukaniec 2018). The Future prefix thus provides a high degree of certainty that the base event will occur, whereas the Optative provides a lower degree of certainty. In matrix contexts, Future forms are interpreted as a plain future like in (150). Optatives, on the other hand, are sometimes felt to be infelicitous without a clear modal context, such as one provided by an embedding modal verb. Nonetheless, in out-of-the-blue word-level translation tasks, speakers will often accommodate with one of several modal translations, such as 'might/could/ought' in (150), or will provide an infinitival translation such as 'to swim'.

(150) a. enkatá:wen'
en-k-atawen-'
FUT-1SGA-swim-PUNC
'I will swim.' (telic; Martin 2023: 109)

b. tenkatskà:hon'
t-en-k-atska'hon-'
DUPL-FUT-1SGA-dine-PUNC
'I will eat.' (atelic; Martin 2023: 86)

(150) a. akatá:wen'
a-k-atawen-'
OPT-1SGA-swim-PUNC
'I ought to swim.' (Martin 2023: 109)

b. takatskà:hon'
t-a-k-atska'hon-'
DUPL-OPT-1SGA-dine-PUNC
'I ought to eat.' (Martin 2023: 82)

Verbs with the Optative prefix are typically embedded under modal verbs such as those in (151), which explicitly provide the force and flavour for the modal.

(151) a. teiotonhontsóhon akà:iake'
te-io-atonhontsoh-on a-k-ahi-a-k-e'
DUPL-NP-be.necessary-STAT OPT-1SGA-fruit-JR-eat-PUNC
'It is necessary for me to eat a fruit.' (Martin 2023: 218)

b. Aón:ton' ken ahshní:non' thí:ken?
a-on-ton-' ken a-hs-hninon-' thiken
OPT-NA-be.possible-PUNC Q OPT-2SGA-buy-PUNC this
'Could you buy it?' (Martin 2023: 216)

However, it is not possible to tie either the force of modality to the use of either Future or Optative, as might be suggested by descriptive intuition regarding the "degree of certainty". For example, under the necessity modal verb *teiotonhontsóhon* 'it is necessary that', the Optative is obligatory.

(152) a. Teiotonhontsóhon **ahshní:non'**.
te-io-tonhontsoh-on a-hs-hninon-'
DUPL-NP-be.necessary-STAT OPT-2SGA-buy-PUNC
'It is necessary for you to buy it.' (Martin 2023: 218)

b. *Teiotonhontsóhon **enhshní:non'**.
te-io-tonhontsoh-on en-hs-hninon-'
DUPL-NP-be.necessary-STAT FUT-2SGA-buy-PUNC
Intended: 'It is necessary for you to buy it.'

Second, the distribution of such forms is at least partially syntactically determined. This is most clearly illustrated by the verb *aton* 'be possible'. When this verb occurs with the Future, it selects a Future marked predicate, as shown in (153a). In the Optative, it selects for Optative predicates, as in (153b). Finally, when it occurs in the Habitual aspect, the Optative is selected, as in (153c).

(153) **Modals under *aton* 'be possible'**

a. Enwá:ton' ken é:ren **énhsehte'**?
en-w-aton-' ken eren en-hs-eht-e'
FUT-NA-be.possible-PUNC Q away FUT-2SGA-go.somewhere-PUNC
'Can you go away?' (Martin 2023: 216)

b. Aón:ton' ken **ahshní:non'** thí:ken?
a-w-aton-' ken a-hs-hninon-' thiken
OPT-NA-be.possible-PUNC Q OPT-2SGA-buy-PUNC this
'Could you buy it?' (Martin 2023: 216)

c. Wá:tons ne kèn:'en **ahontá:wen'**.
W-aton-s ne ken'en a-hon-atawen-'
NA-be.possible-HAB NE here OPT-MPLA-swim-PUNC
'They can swim here.' (Martin 2023: 218)

Finally, as we will see in more detail in §4.5, the Future and Optative forms may have a generic interpretation when embedded in the correct context, typically translated into English with the retrospective habitual *would*.

(154) a. Áhsen niwáhsen niiohserá:ke tsi náhe, kà:ron shes tsi ní:kon tká:ra's
ahsen ni-wahsen niiohserake tsi nahe ka'ron shes tsi ni-kon tkara's
three PRT-be.ten PRT-be.years that pass be.less used.to that PRT-be.amount TV
enhonterò:roke' ne ratiksa'okòn:'a.
en-hon-te-ro'rok-e' ne rati-ksa'-okon'a
FUT-MPLP-SR-gather-PUNC MPLA-be.child-DISTR
'Thirty years ago, children would watch less TV.'

b. Toká' aonkhwistaiéntake' akhní:non' ne ohsokwákeri
toka' a-wak-hwist-aient-a-ke' a-k-hninon-' ne ohsokwakeri
if OPT-1SGP-money-have-STAT-CONT OPT-1SGA-buy-PUNC NE coffee
iehnekonnià:tha', thia'tewenhniserá:ke **akhnekì:ra'**
ie-hnek-onni-a-'t-ha' thia'tewenhniserake a-k-hnek-ihr-a'
FI.A-liquid-make-JR-CAUS-HAB everyday OPT-1SGA-liquid-drink-PUNC
'If I had had money to buy a nice coffee machine, I would have drank coffee everyday.'

I will further develop my account of Future forms (and to a lesser degree Optative forms), in both their future episodic and generic readings, in §4.5, where I contrast the latter with the meaning of the Habitual aspect.

With respect to the Punctual's aspectual contribution, the perfectivity of Punctual forms is retained in the Modal-Punctual forms. This can be seen with the sequential readings test used above, where we observe how Modal-Punctual forms are aligned with events of a *when*-clause. This is most clearly seen in the contrast in (155), where the Future-Punctual form is interpreted "habitually". In contexts which call for an imperfective relation, the on-going aspect is required (in the following example, this is the

Habitual aspect). In a context which calls for each instance of crying to be preceded by the event of the *whenever*-adverbial clause, the Future is possible.

(155) **Future-Punctual verb describes perfective instances**

CONTEXT A: Kó:r is always crying. Every time that I see him, he has tears running down his face. (crying contains seeing)

CONTEXT B: Kó:r is always crying. Every time that I see him, he looks fine but inevitably bursts into tears a little while later. (seeing precedes crying)

a. Tsi ní:kon enhí:ken' Kó:r, tehahsénthos
tsi nikon en-hi-ken-' Kor te-ha-hsentho-s
whenever FUT-1SG>MSG-see-PUNC Kor DUPL-MSGA-cry-HAB
'Whenever I see Kor, he is crying.' (A: ✓; B: ✗)

b. Tsi ní:kon enhí:ken' Kó:r, tenhahsénthoʼ
tsi nikon en-hi-ken-' Kor t-en-ha-hsentho-'
whenever FUT-1SG>MSG-see-PUNC Kor DUPL-FUT-MSGA-cry-PUNC
'Whenever I see Kor, he cries.' (A: ✗; B: ✓)

In sum, I have shown that the Punctual forms are typically interpreted as perfective, with the temporal reference further determined by the modal prefix. With Factual prefixes, the typical interpretation is past-perfective, whereas with Modal prefixes, the interpretation is typically a future-perfective. This establishes the key properties needed for the discussion of the non-Punctual forms, which constitute the remainder of this chapter.

4.4 The Stative aspect: perfects and on-going

In this section, I discuss the interpretations of Stative aspect verbs. The two readings available with Stative aspect event roots are given below, with the "perfect" reading in (156a) and the on-going reading in (156b).[2]

(156) **Interpretations of the Stative aspect**

a. watiénthon
wak-ientho-on
1SGP-plant-STAT
'I have planted.' (telic; perfect)

[2]We will discuss the interpretation of state roots in §4.4.7.

b. wakatshókwen
wak-atshokw-en
1SGP-smoke-STAT
i. 'I have smoked.' (Perfect)
ii. **'I am smoking.'** **(atelic; ongoing episodic)**

I will first focus primarily on the "perfect" interpretation. The account that we develop will ultimately be extended to the on-going readings. I propose that the on-going readings in (156b) are simply a continuative perfect reading: in Kanien'kéha, then, expressing 'I am smoking' is essentially the same as expressing 'I have been smoking', which is then interpreted as continuing through the reference time; as such, it is restricted to atelic verbs.

As is common cross-linguistically, the range of what is labeled a "perfect" reading consists of multiple more specific interpretations. Typically, four interpretations are differentiated (McCawley 1971; Comrie 1976; Dahl 1985), though authors vary in how they are grouped. I will follow work differentiating four readings available in English, illustrated in (157).

(157) **English Present Perfect construals**

a. I have lived in Montréal since 2020. (CONTINUATIVE)
b. Have you ever been to New York? (EXPERIENTIAL)
c. The Canadiens have (just) won! (RECENT PAST)
d. Mary has lost her keys. (RESULTATIVE)

Continuative readings describe eventualities which occur throughout an interval, and crucially hold at the evaluation time. In the case of the present perfects in (157a), the state of *living in Montréal* is understood to persist to the utterance time. Experiential and recent past construals, in contrast, require the event to be strictly anterior to the utterance time, as seen in (157b) and (157c): the event which verifies these sentences must occur in the past, though how far in the past differs. In the case of the experiential (157b), we may be considering any event of *going to New York* within the lifespan of the subject to warrant a positive response. In contrast, the recent past interpretation (157c) tolerates only a very small interval to have passed between the event and the utterance. Finally, Resultative construals require the strictly anterior culmination of an event, and the present persistence of its result state. The resultative in (157d) describes a past event of *losing keys*, which led to a currently persisting state of *the keys being lost*. Examples of these four construals in Kanien'kéha are given in (158), with the Stative aspect form being used for each.

(158) **Kanien'kéha Stative aspect (perfect) construals**

a. Kó:r shiiohrhòn:ke **shatehononniáhkwen**
Kor shi-io-hrhon'ke sh-ate-ho-nonniahkw-en
Kor COIN-NP-be.morning.STAT COIN-DUPL-MSGP-dance-STAT
(tá:non' shé:kon tehononniáhkwen).
(tanon' shekon te-ho-nonniáhkw-en).
and still DUPL-MSGP-dance-STAT
'Kor has been dancing since this morning (and he is still dancing).' (CONTINUATIVE)

b. Nonwén:ton ken **satá:wen** ne kentho kaniataratákie?
nonwenton ken s-atawen ne kentho kaniataratakie?
ever Q 2SG.A-swim.STAT NE this river
'Have you ever swum in this river?' (EXPERIENTIAL)

c. Iotahkwáhswa' tsi iáh **teietshiwennará:'on**
io-tahkwahsw-a' tsi iah te-ietshi-wenn-a-r-a'-on
NP-dislike-PUNC that NEG NEG-2PL>FI-word-JR-be.in-INCH-STAT
'It's too bad that you didn't speak to her.' (Rawe:ras Ro:ne', DAT ID 62) (RECENT PAST)

d. **Wakátion** ne akehnhotónkwa
wak-ati-on ne ake-hnhotonkwa
1SGP-lose-STAT NE 1SGP-keys
'I have lost my keys.' (RESULTATIVE)

Not all readings are available for each verb, nor are all readings available in each language with a perfect construction. Specifically, continuative readings have been discussed as the most constrained form, appearing with only a subset of verbs in a subset of languages (Comrie 1976: 60, Iatridou et al. 2001. Pancheva 2003). I will show that the key property of the predicate determining the availability of perfect interpretations for a given form is the boundedness of described eventuality. This part of the proposal builds off of work by Iatridou et al. (2001) and Pancheva (2003), though language specific-properties of Kanien'kéha would require modification to the details of their generalizations and a substantial reworking of their analysis. Ultimately, I reject their proposal in favour of a Result State analysis, in particular the version developed by Nishiyama and Koenig (2010).

The main claims forwarded in this section are as follows. Empirically, I show that ① the Stative aspect is a PERFECT, in a way to be made precise in §4.4.6, sharing interpretations with perfect constructions cross-linguistically; ② the continuative interpretation of the Stative aspect is restricted to atelic verbs, with telic verbs using the Habitual aspect. Analytically, I argue that ③ it is the boundedness of events described by the verb which determines the availability of each interpretation, and, following the discussion in the last chapter, ④ that boundedness is a lexical property of roots in Kanien'kéha, whereas

it is a derived property in other languages such as English and Bulgarian. Overall, we see that this discussion leads us to the more general view articulated in Grønn and von Stechow (2020) and Bertrand et al. (2022) that the perfect is not a cross-linguistically unified category.

The empirical observations regarding the four interpretations typically associated with the (present) perfect to be seen are summarized in Table 4.1.

Table 4.1: Readings of the Stative aspect

Root property	CONTINUATIVE	EXPERIENTIAL	RESULTATIVE	RECENT PAST
state	✓	✗	✗	✗
atelic event	✓	✓	✗	✓
telic event	✗	✓	✓	✓

I begin in §4.4.1 by describing the range of variation in perfect constructions and in §4.4.2 show how Kanien'kéha's Stative aspect fits into this picture. I then show in §4.4.3 that the major parameter of variation, the boundedness of the eventuality being described, is distributed differently in Kanien'kéha from languages with analytic perfects. This syntactic difference motivates a more general approach to boundedness and the composition of perfects. In §4.4.4, I adopt an account of the Stative aspect from Result State theories, whereby the Stative aspect introduces both anteriority of some part of the eventuality described by the verb, and a state which holds at present. This is in contrast to Extended Now theories, which aim to capture the readings of the perfect through the introduction of an additional reference interval, the so-called "extended now". I show that a major weakness of this latter account as it is applied to Kanien'kéha is the inability to capture resultative readings in an empirically-grounded way. I extend this account to state verbs in §4.4.7, which are paradigmatically defective (only appearing in the Stative aspect), and conclude that a Perfect State theory is able to capture the interpretation of state verbs. Finally, I indicate some theoretical consequences of this discussion in §4.4.8.

4.4.1 Perfect interpretations in the literature

Across languages, the continuative, existential, resultative, and recent past meanings often cluster around a single morphosyntactic form, typically labeled the "perfect". However, as discussed in Bertrand et al. (2022) and elsewhere, "perfects" do not form a cross-linguistically homogeneous category. Rather, language-specific temporal properties conspire to give rise to various restrictions on the availability of these four readings.

In this section, I will briefly outline some of the relevant properties of perfect constructions cross-linguistically. This preliminary discussion serves two purposes. First, it introduces and illustrates the terminology I will be adopting throughout this section. Second, it illuminates one of the central analyt-

ical points made in the literature – both viewpoint aspect and telicity determine the availability of the three perfect readings. This sets the stage for the two analytical points I make here (in §4.4.3): the input to Kanien'kéha's perfect does have an aspectual contrast (though solely a *lexical* aspectual contrast), and the availability of perfect readings are determined fully by the telicity of the root.

Consider first the perfect forms found in Greek and Bulgarian. The perfect in both these languages is formed by a participial form of the base verb and an auxiliary. The aspectual properties of the participles in these languages differ, as noted by Iatridou et al. (2001). In Greek, participles are obligatorily marked for perfective aspect, whereas in Bulgarian, both perfective and imperfective participles are possible. Correspondingly, Greek perfects cannot be interpreted as continuatives, as seen in (159); the adverbial *panta* 'always' serves to bias the continuative reading and leads to ungrammaticality.

(159) **Greek perfects cannot be continuative**

*Exo panta zisi stin Athina.
have-1sg always lived in-the Athens
Intended: 'I have always lived in Athens.' (Iatridou et al. 2001: 170)

On the other hand, Bulgarian perfects can be interpreted as continuatives, so long as their underlying participles are inflected in the imperfective as in (160a). When the participle is perfective, the reading is experiential, as in (160b). Perfective statives are independently interpreted as inchoative, so this meaning is retained in the perfect.[3]

(160) **Bulgarian perfect readings depend on aspect**

a. Marija vinagi e **običala** Ivan
Maria always is love-IPFV.PART Ivan
'Maria has always loved Ivan.' (Continuative reading)

b. Marija (*vinagi) e **obiknala** Ivan
Maria always is love-PFV.PART Ivan
'Maria has fallen in love with Ivan.' (Experiential reading; Iatridou et al. 2001: 172)

The Bulgarian and Greek data above have been used to argue that the aspectual make-up of the underlying participle is what determines the availability of the continuative reading. Note that the verb class (Aktionsart) of the underlying verb does not matter (Pancheva 2003: 290); what matters here is the boundedness of the eventuality relative to the reference time, which is contributed entirely by viewpoint aspect. With states, as seen above, the Imperfective aspect results in a continuative (or, in her terms, a

[3]In fact, Iatridou et al. (2001: 173*f.*) show that Bulgarian has a three-way aspectual contrast between (im)perfective and neutral, where neutral aspect is tacit about the culmination of an achievement verb. The result is that perfects built off of a neutral aspect participle behave like the imperfective in permitting continuative readings.

universal) reading. With achievements and accomplishments, this is similarly the case – imperfective (and neutral) aspect participles result in a universal reading. In both cases, a perfective aspect participle results only in a resultative reading.

This is not to say that verb class has no effect on perfect constructions. Rather, languages that have viewpoint aspectual information embedded under the morpheme contributing perfect semantics (like Bulgarian and English) will be able to obviate the effects of verb class by adding aspectual information. We can see this most clearly in English. English differs from the Bulgarian examples in having different morphological forms based on the stativity of the verb. States are unmarked (161); events (telic or atelic) are marked with progressive morphology (162).

(161) **English state verb**

Jonny has (always) lived in Montréal. (continuative)

(162) **English event verb**

a. He has been writing a novel (for years). (continuative)

b. He has written a novel (*for years). (experiential, resultative)

What the above examples reveal is that the (obligatory) inclusion of viewpoint aspectual information is, in some sense, sufficient to "override" the lexical aspectual information contributed by the verb. The English Perfect groups together states with progressive events by the availability of the continuative reading. The sensitivity of perfect readings to the aspectual information of the embedded predicate has been taken as crucial evidence that the readings should be derived, at least partly, in the syntax. Specifically, continuative readings are treated distinctly from the other (so-called EXISTENTIAL) readings. Even in accounts which attempt to derive the various perfect construals pragmatically (Nishiyama and Koenig 2010), there is a grammatical means of handling this asymmetry between the continuative and the existential readings. I will discuss precisely how such accounts do so in §4.4.4.

4.4.2 Perfect interpretations in Kanien'kéha

In this section, I exemplify the four interpretations associated with perfects for Kanien'kéha. I make two central observations. The first observation, given the discussion in the previous section, is that continuative readings are restricted in Kanien'kéha. However, this restriction is due to the verb class: only atelic roots have continuative readings. Second, I show that all verbs have perfect readings. While Chafe (1980) has suggested that the Stative aspect form of (some) atelic verbs are absent, I build off of Cross et al. (2023) who show that with sufficient context, all verbs can be found in the Stative aspect with an existential (i.e., non-continuative) reading. I will supplement these observations with additional details

relevant for the study of perfects cross-linguistically. The full set of generalizations are given in (163)–(164).

(163) **Central generalizations for Kanien'kéha perfects**

a. **Continuative readings** are only available in the on-going aspect (i.e., Stative with atelics, Habitual with telics).

b. **Experiential readings** are compatible with the Stative aspect for all event roots, but require the adverbial *nonwén:ton* 'ever' or some strong contextual support.

(164) **Additional generalizations for Kanien'kéha perfects**

a. There are **no lifetime effects.**

b. **Atelic predicates do not have resultative readings**; when they are in the Stative, we get an "already" reading with *ò:nen* 'now'.

c. **Resultative readings** appear to have a culmination entailment and an on-going result inference.

d. **Recent past** interpretations tend to arise under negation (without additional adverbials that bias other readings).

Together, the above generalizations converge in showing that telicity (as determined by the verb root) determines the availability of the continuative and resultative readings.

4.4.2.1 Continuative readings are restricted to atelic event roots

To begin, consider the first generalization in (163a): continuative readings are only available in the on-going aspect. Recall from (156a) above that some verbs in the Stative aspect can express an on-going reading; we showed in §3.3.3 that these roots describe atelic events. The remainder of verbs use the Habitual aspect to express this on-going reading; we showed that these are telic verbs. It is precisely the former class of *atelic* verbs which permit continuative readings of the Stative. I will group together for now state verbs like (165a) and event verbs like (165b) under this label of *atelic verbs* which can express the continuative reading. I will use the more precise terms *state root* and *atelic event root* when the distinction is needed.

(165) **Continuative readings of atelic verbs use the Stative aspect**

a.

Tsi náhe	2021	shiiohserò:ten	Tiohtià:ke	**shikenákere'**
tsi nahe	2021	shi-io-hser-o'ten	tiohtia'ke	shi-ke-naker-e'
since	2021	COIN-NP-year-be.kind.STAT	Montreal	COIN-1SGA-reside-STAT

'I have lived in Montreal since 2021.' (state root)

b. Kó:r shiiohrhòn:ke **shihowenná:note'** kí:ken iewennahnotáhkhwa'.
Kor shi-io-hrhon'k-e shi-ho-wennanot-e' kiken iewennahnotahkhwa'
Kor COIN-NP-morning-STAT COIN-MSGP-read-STAT this book
'Kor has been reading this book all morning/since the morning.' (atelic event root)

For the remaining class of verbs, the Habitual aspect is used for the continuative reading (166). The Stative aspect can only be used to express the existential readings, with the resultative reading being most salient reading to arise in out-of-the-blue, elicitation contexts. That is, speakers readily accept forms like (166b) without the adverbial and provide resultative paraphrases.

(166) **Continuative readings of telic verbs use the Habitual aspect**

a. Kó:r shiiohrhòn:ke' **shatehahtotáhrhos.**
Kor shi-io-hrhon'k-e sh-a'te-ha-tohtahrho-s
Kor COIN-NP-morning-STAT COIN-DUPL-MSGA-clean-HAB
'Kor has been cleaning all morning.' (telic event root)

b. #Kó:r shiiohrhòn:ke **sha'tehotohtáhrhon.**
Kor shi-io-hrhon'k-e sh-a'te-ho-tohtahrh-on
Kor COIN-NP-morning-STAT COIN-DUPL-MSGP-clean-STAT
Intended: 'Kor has been cleaning all morning/since the morning.' (telic event root)

4.4.2.2 Experiential readings are freely available for event roots, banned with state roots

Stative forms of all event roots are possible with experiential readings, as per generalization (163b). More precisely, experiential readings are freely available but require either the adverbial *nonwén:ton* 'ever' or some strong contextual support. Thus, 'have you ever' questions are formed with the Stative aspect as in (**??**), showing a telic event root. In response to the question in (167b), asking about a habit, an experiential response is possible with an atelic event root.

(167) **Experiential reading of the Stative aspect**

a. ex:ever-write Nonwén:ton ken sahiá:ton ne iawennahnotáhkhwa' kahiatónhsera'?
Nonwenton ken sa-hiaton ne iawennahnotahkhwa' kahiatónhsera'
ever Q 2SGP-write.STAT NE book
'Have you ever written a book?.' (telic event root)

b. CONTEXT: *'Does Kó:r smoke?'* (*Ratshókwas ken ne Kó:r?*)

Tóka nòn:wa enska tà:ni'ts kaié:ri **nihotshókwen.**
toka nonwa enska tà:ni'ts kaieri ni-ho-atshokw-en
maybe one to four PRT-MSGP-smoke-STAT
'He has smoked maybe one to four times.' (atelic event root)

State roots, in contrast, do not permit experiential readings when used in the Stative aspect alone. They require the Former Past suffix in order to be used experientially.

(168) Context: *'Does Kó:r live in Montréal?'* (*Tiohtià:ke ken ranákere ne Kó:r?*)

a. #(Énska ia'ká:ienhte) Tiohtià:ke **thanákere** ne Kó:r
enska ia'kaienhte Tiohtia'ke t-ha-naker-e ne Kor
one be.times Montreal CIS-MSGA-reside-STAT NE Kor

nek tsi nòn:wa iah tho tha'tethanákere.
nek tsi nonwa iah tho th-a'te-t-ha-naker-e
but now NEG there CONTR-DUPL-CIS-MSGA-reside-STAT
Intended: 'Kó:r lived here in Montreal once, but he doesn't live here now.' (state root)

b. (Énska ia'ká:ienhte) Tiohtià:ke **thanákerehkwe'** ne Kó:r
enska ia'kaienhte Tiohtia'ke t-ha-naker-e-hkwe' ne Kor
one be.times Montreal CIS-MSGA-reside-STAT-FOR.PST NE Kor

nek tsi nòn:wa iah tho tha'tethanákere.
nek tsi nonwa iah tho th-a'te-t-ha-naker-e
but now NEG there CONTR-DUPL-CIS-MSGA-reside-STAT
'Kó:r lived here in Montreal once, but he doesn't live here now.'

One further constraint on the experiential reading cross-linguistically, illustrated here for the English Present Perfect, is that such forms may come with a repeatability requirement. These are typically written of under the label of "lifetime effects" given that the clearest cases arise when the subject of the perfect predicate is understood to be deceased. Thus, the form in (169a) is infelicitous. This infelicity is due not to the proposition being expressed, as the same proposition may be felicitously expressed in the passive (169b). Rather, this appears to be about the attribution of some property to a subject referring to a deceased individual. Furthermore, the example in (169c) shows that this is about the *Present* Perfect in particular, as the Past Perfect is judged to be fine.

(169) **Lifetime effects (Chomsky 1970)**

a. # Einstein has visited Princeton.

b. Princeton has been visited by Einstein.

c. Einstein had visited Princeton.

However, such effects are rather more general. Another example, noted by McCawley (1971, 1981) and further discussed by Katz (2003), illustrates this. Rather than relying on whether the subject is alive or not, this contrast relies on the repeatability in general of the underlying eventuality. Thus, the form in (170) is infelicitous because the possibility of enacting this event in the future is prevented by world knowledge.

(170) **Repeatability requirement**
Context: "the exhibition has closed, or, even if the exhibition is still running, if the addressee is known to be unable to visit it by virtue of illness or imprisonment:" (McCawley 1981: 82)

a. #Have you seen the Monet exhibit?

b. Did you see the Monet exhibit?

Languages vary in whether repeatability is a requirement for the use of their perfect (see Bertrand et al. 2022 for some discussion). In Kanien'kéha, such a requirement does not hold (generalization (164a)). These are illustrated in two ways below. In (171), we see a decessive marked subject. This suffix expresses that the referent of the subject, *rakeníha* 'my father', is deceased. Despite the impossibility of a deceased subject repeating the swimming event, the stative aspect is felicitous in this context.

(171) CONTEXT: 'Has anyone ever swam here?' (*Nonwén:ton ken ónkha iakotá:wen ne kén:tho?*)

Hén,	rakenihkénha	shihaksà:'a	kén:tho	**rotá:wen.**
Hen,	rake-nih=kenha	shi-ha-ksa:'a	kentho	ro-atawen
Yes	MSG>1SG-be.father=DECESS	COIN-MSGA-be.child.STAT	there	MSGP-swim.STAT

'Yes, my late father had swum here as a child.' (HAB Present)

In (172), we see the same fact illustrated by an event known to be non-repeatable in the context. In this example, both the Stative aspect (172a) and the Punctual aspect (172a) forms are possible, showing that there is no contrast in acceptability due to the repeatability of the base event.

(172) CONTEXT: *We're driving past an empty lot where there used to be a good restaurant.*

a.

Rotikhwakon'òn:ne'	ne	kèn:tho.	Nonwén:ton	ken	kén'en
roti-khw-a-kon'-on-hne'	ne	kentho	nonwenton	ken	ken'en
MPLA-food-JR-find.tasty-STAT-REM.PST	NE	here	ever	Q	here

tesatskà:hon?
te-s-atska'hon
DUPL-2SGP-dine.STAT

'They had really good food here. Have you ever eaten here?'

b. Rotikhwakon'òn:ne' ne kèn:tho. **Wa'tehsatskà:hon'** ken ne
roti-khw-a-kon'-on-hne' ne kentho wa-te-hs-atska'hon-' ken ne
MPLA-food-JR-find.tasty-STAT-REM.PST NE here FACT-DUPL-2SGP-dine-PUNC Q NE
kén'en?
ken'en
here
'They had really good food here. Did you ever eat here?'

In Ch. 5, I argue that these tenseless aspectual verbs are ambiguous between a past and present tense reading. It is possible, therefore, to analyze these as *past* perfects, which do not come with a repeatability requirement in English, see (169c). Finding independent tests for this hypothesis, however, has not been possible so far.

The discussion so far has established the two central points I would like to make. Namely, I have shown that, for Stative aspect predicates, the continuative readings are restricted to verbs made form atelic event roots, and that the experiential readings are restricted to event roots. The observed pattern is summarized in Table 4.2.

Root property	CONTINUATIVE	EXPERIENTIAL
state	✓	✗
atelic event	✓	✓
telic event	✗	✓

Table 4.2: Interim summary of perfect readings in the Stative aspect

4.4.2.3 Resultative readings are restricted to telic event roots

In the remainder of this section, I will discuss two additional sets of generalizations, those listed in (164). The first set of generalizations buttresses the conclusions of Chapter 3, in particular those of §3.3.3, and concerns the resultative reading of the Stative aspect. Recall that event roots were differentiated into two subclasses based on whether they included a result state in their lexical entry: these are given in (173).

(173) a. *telic root* $\rightsquigarrow \lambda e.\exists e_1, e_2.\ (e = e_1 \sqcup e_2)$ & $\textsc{proc}(e_1)$ & $\textsc{res}(e_2)$

b. *atelic root* $\rightsquigarrow \lambda e.\text{property}(e)$

The first generalization (164b) is that atelic event roots, because they lack result states as part of their event description, do not have resultative readings. Instead, the only available readings are continuative and experiential. In the latter experiential reading, speakers strongly prefer adverbial *ò:nen* 'already'. To

sidestep a possible confound of question-answer pairs matching in form, the question in (174) is posed implicitly. The question asks the addressee to identify the next singer; as we see in (174a), the Stative aspect form can be used to provide an indirect partial answer (something like "not me"). Nonetheless, Stative forms without the adverbial like (174b) are infelicitous. In such a context, the past perfective Factual-Punctual form is similarly ruled out (174c).

(174) Context: We're at a karaoke bar. The person singing has just finished and we need to pick the next person to sing. Someone asks: *Ónkha nòn:wa entsiontennó:ten?* 'Who's going to sing now?'. You have already sung, so you don't want to sing again.

a. Ó:nen wakaterén:note'
onen wak-aterennot-e'
already 1SGP-sing-STAT
'I've already sung.' (atelic)

b. #Wakaterén:note'
Wak-aterennot-e'
1SGP-sing-STAT
Intended: 'I've (already) sung.'

c. #Wa'katerén:noten'
Wa'-k-aterennot-en'
FACT-1SGP-sing-PUNC
Intended: 'I've (already) sung.'

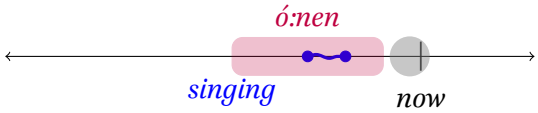
What distinguishes this example from a resultative reading is that the coherent contribution they make to discourse is not one related to the persistence of the result state at the reference time (since they do not assert a result state) but rather some other notion of "relevance" to the (present-referring) discourse. While some discussions of perfects suggest that all events, whether telic or not, introduce a permanent state of the event-having-happened (e.g., Klein 1994). Nishiyama and Koenig (2010: 617*ff*) critique this perspective for both its descriptive inadequacy and its ontological commitment that all instances of events lead to a state of the event-having-happened. The introduction of this kind of a state (call it the "post-state" of the event) can be illustrated in (175), where the red line indicates a permanent state of "having sung". If this were the case, it would not be immediately clear why the bare Stative (174b) cannot be used in a context where the question under discussion is whether an event of the speaker singing has happened. This is particularly striking given that the Stative form with the adverbial *ò:nen* 'already' can be used. The post-state should be equally available in both forms.

(175) **"Post-state" analysis fails to account for contrasts in (174)**



For this reason, I will assume that the example in (174) does not illustrate a resultative reading, but rather an experiential one. I will provide a full analysis below, but for now consider the illustration in (176). The grey circle indicates the present reference time (set by the context question). The experiential perfect claims that within some interval in the past, there was a singing event. This interval is illustrated as the red rectangle. As we saw above in *nonwén:ton ken* 'have you ever' questions like (167), the interval may be as long as the lifespan on the subject. I propose that the adverbial *ó:nen* 'already' (which may also be translated as 'now'; Michelson et al. 2024: 274), sets the bounds of the interval under consideration to a recent time.[4]

(176) a. ***ó:nen* picks a proximal "interval under consideration"**



b. ***nonwén:ton* picks a large "interval under consideration"**



In contrast, with telic event roots, a resultative reading is readily available. In the following examples, we see that under a resultative reading, the Stative forms come with a culmination entailment and an on-going result inference. The culmination entailment can be seen in (177). The Stative form in (177a) cannot be continued with a statement that contradicts the inference that the event of table-building has culminated. The same continuation is possible (for some speakers) with the Factual-Punctual form in (177b), suggesting that these forms are non-culminating perfectives (see Bar-el 2005; Martin 2019).

[4]This notion of "interval under consideration" is most easily stated in Extended Now (XN) analyses, but it need not be. An alternative description only requires that perfects come with the requirement that the event precedes the reference time. The role of the adverbial (like *now* or *then*) is used to restrict this interval to a certain period of time. The relation of this interval to the reference time need not be stated like it is in XN accounts, so the interval and reference time are illustrated here as deliberately disjoint. See §4.4.5 for details on the XN analysis.

(177) **Result perfects have a culmination entailment**

a. #Theténre' **wakatekhwahrha'tsherón:ni** ne'k tsi ón:wa (wenhniserá:te)
Thetenre' wak-ate-khw-a-hrha-'tsher-onni ne'k tsi onwa wenhniserate
yesterday 1SGP-SR-food-JR-be.on-NMLZ-make.STAT but now today
ienhskatahshonteren' tánon enksha'.
i-en-hs-k-at-ahshonteren-' tánon en-k-sh-a'
TRANS-FUT-REP-1SGA-SR-continue-PUNC and FUT-1SGA-finish-PUNC
Intended: 'Yesterday I had built a table, and today I will continue it to completion.'

b. %Theténre' **wa'katekhwahrha'tsherón:ni'** ne'k tsi ón:wa (wenhniserá:te)
Thetenre' **wa'-k-ate-khw-a-hrha-'tsher-onni-'** ne'k tsi onwa wenhniserate
yesterday FACT-1SGA-SR-food-JR-be.on-NMLZ-make-PUNC but now today
ienhskatahshonteren' tánon enksha'.
i-en-hs-k-at-ahshonteren-' tánon en-k-sh-a'
TRANS-FUT-REP-1SGA-SR-continue-PUNC and FUT-1SGA-finish-PUNC
'Yesterday I built a table, and today I will continue it to completion.'

In elicitation contexts, resultative readings also appear to give rise to the inference that the result holds at the utterance time. I call these "ongoing result inferences". Examples of such inferences are spelled out in (178).

(178) **On-going result inference**

a. Wakátion ne akehnhotónkwa tánon' shé:kon watiè:was.
wak-ati-on ne ake-hnhotonkwa tanon shekon wak-iehwa-s
1SGP-lose-STAT NE 1SGP-keys and still 1SGP-be.unable.to.find-HAB
'I lost my keys and I still can't find them.'

b. Wakenenhstaiénthon tánon' shé:kon taiohniótie'.
wake-nenst-a-ienth-on tanon shekon ta-io-hnio-tie'
1SGP-corn-JR-plant-STAT and still CIS-NP-grow.STAT-PROG
'I planted the corn and it is still growing.'

Examples like (179), however, show that on-going result inferences in Kanien'kéha are defeasible. This example illustrates that the event of buying a car, when expressed in the Stative aspect, does not necessarily entail that the car is currently in the subject's possession.

(179) **Context:** *We are trying to find out who can drive us on our road trip. Someone asks 'Does John own a car?'* (*Ro'serehtaien ken ne Shawá:tis?*)

Thétenre	ro'serehtahní:non	tánon'	ki	shiiohrhòn:ke	khná:
thetenre	ro-'sereh-t-a-hninon	tanon'	ki	shi-io-hrhon'ke	khna
yesterday	MSGP-car-NMLZ-JR-buy.STAT	and	just	COIN-NP-be.morning.STAT	already

wahate'serehtahní:non'.
wa-h-ate-'sereh-t-ahninon-'
FACT-MSGA-SR-car-NMLZ-JR-buy-PUNC
'He had bought a car yesterday but he just sold it this morning.'

Additionally, when the above predicates are marked with the Remote Past suffix (a "discontinuous past"; see Chapter 5), we get an "anti-on-goingness" entailment (see Zhao 2022 for a similar inference with the Mandarin perfective particle *-guo*).

(180) **Remote Past marked resultatives have obligatorily ceased results**

a.

#wakatiòn:ne	ne	akehnhotónkwa	tánon'	shé:kon	watiè:was
wak-ati-on-hne	ne	ake-hnhotonkwa	tanon	shekon	wat-iewa-s
1SGP-lose-STAT-REM.PST	NE	1SGP-keys	and	still	1SGP-be.unable.to.find-HAB

'Intended: I had lost my keys and they are still lost.'

b.

#wakenenhstaienthòn:ne	tánon'	shé:kon	taiohniotie'
wake-nenst-a-ienth-on-hne	tanon	shekon	ta-io-hnio-tie'
1SGP-corn-JR-plant-STAT-REM.PST	and	still	CIS-NP-grow.STAT-PROG

'Intended: I had planted the corn and it is still growing.'

Thus, telic predicates readily have resultative interpretations in the Stative aspect, whereas atelic predicates are only compatible with experiential readings. I will show that once the meaning of the Stative is settled, these two generalizations follow immediately from the event structure of the root. Before this, I will turn to one final interpretation of the Stative aspect which arises under negation.

4.4.2.4 Recent past readings of the Stative aspect

The Stative aspect in Kanien'kéha is obligatorily used for past-referring forms under negation. The past perfective Factual-Punctual form is ungrammatical under sentential negation; instead, the Stative aspect is used in its place.[5] A textual example of a Stative aspect with a past perfective reading is given in (181), where the surrounding context indicates that the desired past perfective meaning is retained despite the form change.

[5] I do not have an account for the ungrammaticality of negated Factual-Punctual forms at this moment.

(181) CONTEXT: *"Later, when they had told what had happened, the girl's fathers told them, ..."*

Iotahkwáhswa'	tsi	iáh	**teietshiwennará:'on**
io-tahkwahsw-a'	tsi	iah	te-ietshi-wenn-a-r-a'-on
NP-dislike-PUNC	that	NEG	NEG-2PL>FI-word-JR-be.in-INCH-STAT

'It's too bad that you didn't address her.' (Williams 1967: 14)

A second kind of example showing a recent past reading was cited by Baker and Travis (1998). The example is reproduced in (182). The test shows that the Stative aspect form is compatible with timepoint adverbials. Interpreting such a test, however, relies entirely on a restriction on the English Present Perfect (known as the "present perfect puzzle"), where they are incompatible with past-referring adverbials despite their use describing a past event.

(182) a.

Ó:nen	tehowénrie
Ónen	te-ho-awénrie
already	DUPL-MSGP-stir.STAT

'He has already stirred it.'

b.

Éntie	tehowénrie
Éntie	te-ho-awénrie
noon	DUPL-MSGP-stir.STAT

'He stirred it at noon.' (Baker and Travis 1998: 199)

As Baker and Travis (1998) themselves note, the interpretation of such examples must be taken with a grain of salt, in particular as the present perfect puzzle is not attested in many languages (Grønn and von Stechow 2020; Bertrand et al. 2022).

Finally, the clearest example relies on a contrast with an experiential form. In (183), the context setting 'have you ever' question calls for an experiential meaning. The corresponding negative answer is provided in (183a), with the adverbial *nonwén:ton* 'ever' being obligatory. Without the adverbial, the form is therefore judged infelicitous. I propose that this infelicity is due to a similar reason as seen in example (174c), where we saw the Factual-Punctual form being infelicitous in contexts where an experiential interpretation is needed. Together, these examples suggest that the form in (183b) is strongly interpreted as a negated past perfective, rather than a negated experiential.

(183) **Context**: *'Have you ever written a story book?'* (*Nonwén:ton ken sahiá:ton ne iawennahnotáhkhwa' kahiatónhsera'?*)

a. Iáh nonwén:ton **tewakhiá:ton**.
iah nonwenton te-wak-hiaton
NEG ever NEG-1SGP-write-STAT
'I have never written a book.'

b. #Iáh tewakhiá:ton.
iah nonwenton
NEG NEG-1SGP-write-STAT
Intended: 'I have never written a book.'
Actual: 'I didn't write a book.'

To conclude this discussion, I consolidate the generalizations summarized in Table 4.3 to facilitate the following discussion. Given that both the Experiential and Recent Past are available with all event verbs, I will collapse them into a single category and use the term EXISTENTIAL (McCawley 1971; Mittwoch 1988). We can understand the recent past reading to be a type of experiential reading. The experiential considers a rather large interval of time extending back from the evaluation time, perhaps up to the lifespan of its subject, and is felicitous when there has been one instance of the eventuality's occurrence within that interval. Similarly, recent past readings look to some interval, though the interval under consideration is much more recent. The need to determine the size of this interval, I have suggested, is one of the reasons why adverbials like *nonwèn:ton* 'ever' and *ó:nen* 'already' are obligatory to get the existential readings above.

Table 4.3: Readings of the Stative aspect (consolidated)

Root property	CONTINUATIVE	EXISTENTIAL	RESULTATIVE
state	✓	✗	✗
atelic event	✓	✓	✗
telic event	✗	✓	✓

While resultative readings are often also grouped together into the existential readings, I will keep this reading separate in my discussion as the account offered for it below will differ from the experiential reading in a non-trivial way. Furthermore, resultative readings will play a large role in adjudicating between the theories of the perfect below.

In the following two sections, I will develop my analysis for the readings of the Stative aspect. First, in §4.4.3, I show that the restriction on continuative readings in Kanien'kéha is analogous to that seen in languages like Bulgarian and English: they are only possible with unbounded event descriptions. Nonetheless, the *source* of this restriction is distinct, owing to the syntactic differences between these languages. Then, in §4.4.4, I consider two major analyses of the perfect, the eXtended Now (XN) theory

and the Perfect State theory. I argue that the syntactic commitments of an XN approach make it unsuitable for the properties seen in Kanien'kéha. I then provide an analysis in terms of the Perfect State analysis of Nishiyama and Koenig (2010).

4.4.3 Boundedness is a root property in Kanien'kéha

Given the picture of the Kanien'kéha Stative aspect's perfect readings in Table 4.3, I will first address the continuative-existential divide between the perfect readings. Kanien'kéha provides a particularly sharp contrast: verbs which do not permit the continuative reading with the Stative aspect do so with the Habitual aspect; verbs which permit continuative readings with the Stative are precisely those which have on-going readings with the Stative. Given this, I will argue that continuative readings are one and the same with on-going readings. To do so, we would like to understand why it is that atelic predicates in Kanien'kéha have these continuative/on-going readings in the first place.

In this section, I provide one answer. Looking at perfect constructions cross-linguistically, we see a similar set of restrictions. In languages where the perfect embeds viewpoint aspect (what I will call "high" perfects), perfective-marked forms are blocked from continuatives whereas imperfective-marked forms allow them. The theoretical claim is that we can generalize the property underlying restrictions on the perfect cross-linguistically, even to languages where the perfect does not co-occur with additional aspectual inflection ("low" perfects). The BOUNDEDNESS of the eventuality described by a given predicate, however determined in the language, determines which perfect readings are available. For some languages, boundedness as it is relevant to the perfect is predominantly determined by viewpoint aspect, with the verb class playing a more minor role. In Kanien'kéha, in contrast, verb class (or more precisely, telicity) is the only determining property.

4.4.3.1 Syntactic differences between "high" and "low" perfects

The idea I would like to develop here begins with a morphosyntactic observation, due to Iatridou et al. (2001) and Pancheva (2003). Consider again the set of languages with analytic perfect constructions, consisting of the base verb in a participial form and some auxiliary, represented here by Bulgarian and English (but see Dahl 1985 for many more).

(184) a. Marija vinagi e **običala** Ivan
Maria always is love-IPFV.PART Ivan
'Maria has always loved Ivan.' (Continuative)

b. Marija (*vinagi) e **obiknala** Ivan
Maria always is love-PFV.PART Ivan
'Maria has fallen in love with Ivan.' (Experiential; Iatridou et al. 2001: 172)

(185) a. I have read Moby Dick (*for months). (event: Experiential)

b. I have been reading Moby Dick (for months). (event: Continuative)

c. I have lived in Montréal since 2020. (state: Continuative)

d. I have been living in Montréal since 2020. (state: Continuative)

As we saw above, languages included in this set show restrictions on continuative readings based on the availability of imperfective participles. In Bulgarian, which has both perfective and imperfective aspect participles, continuative readings are available when the perfect embeds the imperfective. Similarly, English continuative readings require the progressive form for event verbs, though state verbs may use the non-progressive form. Thus, the aspectual information embedded under the perfect determines the available interpretations. The English examples also show that, while the verb class information is not fully absent from the determination of the perfect, it is the outer aspectual information that is crucial; incompatible lexical properties can be overridden by the proper aspectual marking.

Presupposed in the discussion of these languages is that the perfect *embeds* viewpoint Aspect. That is, the perfect is not part of the aspectual paradigm proper, but rather an *additional* element. I will call these "high" perfects, as they are relatively high in the functional structure of the verb; crucially, they embed AspP. Pancheva (2003) proposes the syntax in (186) to account for these analytic perfects, where the perfect is an additional category between Tense and Aspect. Similar proposals have been made by Rullmann and Matthewson (2018) who call this "ordering aspect", and Giorgi and Pianesi (1998) who discuss Romance and Germanic analytic perfects as bi-verbal.

(186) **A bi-aspectual syntax for high perfects (Pancheva 2003)**

$[_{\text{TP}}\ \textsc{tense}\ [_{\text{PerfP}}\ \textsc{perfect}\ [_{\text{AspP}}\ \textsc{Aspect}\ [_{\text{VP}}\ \phi\ ]]]]$

This syntactic presupposition is widespread in much of the literature on perfects. This matches the typological tendency: Dahl (1985: 129) notes that the perfect "is rather consistently marked periphrastically (about 85 per cent of the cases)... Typically, constructions involving a copula or some auxiliary together with some past participle or similar form of the verb are used." In fact, overviews of the perfect (Portner 2011; Grønn and von Stechow 2020) often restrict their discussion to such auxiliary-participle perfect constructions. Grønn and von Stechow (2020), for instance, suggest that "[at] the syntax–semantics interface, the perfects in Ancient Greek or Singapore English, or Russian – where the form is no longer called a perfect – must necessarily behave differently from the analytic perfect in English or Bulgarian", which have the syntax in (186).[6]

In §4.4.2, I have established that Kanien'kéha's Stative aspect, decidedly not an analytic form, has all the readings associated with perfects. More importantly, the perfect readings show a similar restriction

[6]Ancient Greek, Singapore English, and Russian "perfects" are crucially synthetic forms.

to languages with analytic perfects such as those in (184) and (185). Nonetheless, the syntax of the Stative aspect looks like (187), so these readings and restrictions cannot be tied to a contrast in the embedded *aspectual* marking in the same way.

(187) **A mono-aspectual syntax for low perfects**
$[_{\text{TP}}\ \textsc{tense}\ [_{\text{PerfP}}\ \textsc{perfect}\ [_{\text{VP}}\ \phi\ ]]]$

What I hope to do here, then, is to spell out precisely how the difference between analytic perfects (like Bulgarian) and synthetic perfects (like Kanien'kéha's Stative aspect) differ at the syntax-semantics interface. I will claim that the perfect in both sets of languages is sensitive to "boundedness", and that in this respect they differ only in the locus of boundedness. In Bulgarian, the locus of boundedness is the value of embedded Asp; in Kanien'kéha, it is the verb root.

4.4.3.2 Generalizing boundedness

As we have seen above in §4.4.2, the restriction on continuative readings in Kanien'kéha is due to the telicity of the predicate. Whereas in Bulgarian, these restrictions arose from the value of the embedded aspectual value of the participle, the morphosyntactic properties of the Stative aspect leave no room for additional aspectual information to modulate the properties of the root. As such, the available perfect readings are determined entirely by the telicity of the root.

When discussing the aspectual restrictions on continuative readings in Bulgarian, Iatridou et al. (2001) and Pancheva (2003) opt for the more mnemonically useful labels of (UN)BOUNDED for the aspects, rather than the usual (IM)PERFECTIVE. What is crucial in their discussion, though, is that the imperfective aspect does not make claims about the endpoint of an eventuality. In principle, this can come about in two ways: firstly, the eventuality may not have a natural endpoint. This is the case with English state verbs (*live, know,* etc.), which can express continuative perfect readings without the progressive form.[7] I will argue that this is the sole way boundedness can come about in Kanien'kéha.

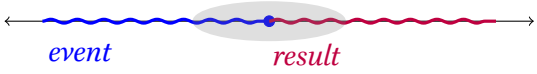
The second way for an eventuality to lack an endpoint is to take an event which does have a natural endpoint (i.e., a telic event) and present it imperfectively – that is, make no claims about the attainment of that endpoint. This is how the boundedness referenced by the perfect in Bulgarian and English is constructed. Regardless of the boundedness of the event specified by the root, the imperfective aspect can present this event as unbounded with respect to the reference time.

To see briefly how this is, consider an imperfectively-viewed telic event illustrated in (188). Such an event has a natural endpoint as part of its lexical meaning (and thus, for example, may entail culmination in the perfective); this is represented here as a result state. Nonetheless, it may be unbounded relative to the reference time about which we make assertions. If we understand imperfectivity as a containment

[7] Some further refinements are needed here, since the progressive reading of state verbs are possible, despite their incompatibility with the Progressive being widely assumed as a diagnostic for stativity.

relation, where the runtime of the event includes the reference time, the complex event-structure of a telic verb root provides two possibilities for this to be satisfied. In principle, an imperfective aspect might place the reference time spanning the transition between process and result, as in (188a). This would lead to a culminated event but on-going result reading. The second possibility in (188b), the one we are interested in, places the reference interval within the runtime of the process. Informally, the imperfective permits one to "zoom into" the process and ignore the result.

(188) **Possible imperfective meanings of telic predicates**

a. 

(✗culminated event, ongoing result)

b. 

(✓ongoing event)

In fact, the first possibility in (188a) is ruled out in practice. I will not go into the details of how this is accomplished, though I assume that this is partly the role of the Progressive in English Perfects; see Landman (1992), for instance. The crucial point here is that, regardless of the inherent boundedness of the root, aspect serves to "de-telicize" it. It does so by asserting that some stage of the event holds throughout the reference interval; when this stage does not include the result, we have a homogeneous process. This homogeneity is what permits the continuative reading, though the precise way in which this is done varies with analysis.

Turning now to low perfects with the syntax of (187), we note solely that the above grammatical strategy for homogenizing telic predicates is unavailable for independent syntactic reasons. Because of this, the locus of the restriction placed on continuative readings must be more general than viewpoint aspect. My proposal then is that the notion of boundedness as it is referenced by the perfect is specified solely by the verb root, in the absence of viewpoint aspectual contrasts. Kanien'kéha is a language that does so. In the following section, we will see how this intuitive notion of boundedness is leveraged by two analytical approaches to the perfect.

4.4.4 An account: between XN and Perfect State Theories

So far, I have shown that readings of Kanien'kéha Stative aspect verbs pattern similarly to non-continuative (existential) perfects across languages, and that boundedness is a lexical phenomenon in Kanien'kéha. In this section, I will apply to Kanien'kéha two of the major approaches to the analysis of perfects: the Extended Now approach and the Perfect State approach. Throughout, I will make reference to the following empirical desiderata for a theory of perfects:

(189) **Empirical desiderata for a theory of perfects**

a. **Anteriority:** perfects describe anteriority of the base eventuality

b. **Relevance to RT:** perfects describe some notion of relevance (to be elaborated upon) to the reference time

c. **Aspectual sensitivity:** perfects are sensitive to the boundedness of the embedded event description (determined by lexical and, when available, viewpoint aspectual properties of their base eventuality)

Different families of analyses will put the burden of accounting for these three main desiderata on different components of the grammar, and differ in whether they consider each to be part of the semantics of the perfect or part of the pragmatic inferences associated with its use. For example, Portner (2003) places much of the "current relevance" component of the perfect into the pragmatics.

I will first outline an XN approach to the Kanien'kéha perfect (McCoard 1978; Dowty 1979; Iatridou et al. 2001; Pancheva 2003), which encounters several (primarily syntactic) difficulties. These primarily arise because of the assumption that perfects are due to a temporal operator (rather than an aspectual one). In doing so, I will make explicit my claim introduced above that the general notion of event boundedness, rather than the more specific grammatical categories of (viewpoint) aspect or telicity which encode it, is what determines the available perfect readings. The XN-based analysis of Pancheva (2003) make this point especially salient, but I will show that it struggles in accounting for resultative readings in an empirically well-motivated way for Kanien'kéha. Specifically, telic predicates have both resultative and non-resultative uses; attempting to capture one reading under this analysis leads to the inability to capture the other reading in a principled manner.

I then turn to Perfect State approaches (Kamp and Reyle 1993; Nishiyama and Koenig 2010; Cable 2017). I focus particularly on the analysis by Nishiyama and Koenig (2010). I show that this has clear benefits over XN-based approaches for Kanien'kéha. Their account is able to predict the restrictions on what interpretations are available in the Stative aspect form, and provide some direction towards unifying the ongoing reading with the continuative reading.

I ultimately adopt the latter, Perfect State approach for my analysis of the Stative aspect. Regardless of the particular analysis, I show that resultative readings of low perfects serve as a means to adjudicate between XN and Perfect State theories. More precisely, I show that the syntactic requirements of contemporary instances of XN approaches do not match the impoverished functional structure in low perfects. Kanien'kéha, in particular, does not have any additional functional structure between the Stative and the *v*P. I agree with the intuition of Grønn and von Stechow (2020) that such low perfects "must necessarily behave differently from the analytic perfect in English or Bulgarian" (2), insofar as the XN approach is to be maintained in the analysis of these latter perfects.

4.4.5 XN accounts

One family of analyses designed to handle perfects are the Extended Now (XN) accounts (McCoard 1978; Dowty 1979; Pancheva 2003, among others). This approach treats perfect forms as introducing an additional reference interval (the extended now interval), which is related to the reference interval denoted by tense – the perfect is, in this sense, an "extended tense" (Grønn and von Stechow 2020: 18). The typical analysis is given in (190a), where XN is the function defined in (190b).

(190) a. $[\![\text{PERF}_{\text{XN}}]\!] = \lambda P_{<i,t>} \lambda t' \exists t.\text{XN}(t, t') \ \& \ P(t)$

b. $\text{XN}(t, t') = 1$ iff t' is a final subinterval of t

The perfect, then, asserts anteriority of the eventuality by placing it in the XN interval, which extends backwards from the Reference Time (here, t'). It treats the relevance to the reference time of this assertion by extending this XN interval to the reference time. Following Pancheva (2003); Grønn and von Stechow (2020), the different construals of the perfect are captured through the interaction of the meaning in (190a) and the aspectual value of the embedded AspP denoting $P_{<i,t>}$. Because the XN interval *contains* the higher reference interval t' contributed by tense, an imperfective-aspect predicate holding at t will entail that the runtime of the eventuality include this reference time, thus deriving the continuative reading. As desired, perfective-aspect predicates will derive the existential readings and block continuative readings. Since the XN interval includes the runtime of the eventuality, the runtime of the eventuality can be thought of as occurring anywhere within the XN interval.

For example, consider the English Present Perfect sentences in (191). Assume for the purpose of this illustration that the bare verb in (191a) is perfective, and the progressive verb in (191b) is imperfective, as indicated.

(191) a. I have [read Moby Dick]$_{\text{AspP}}$.
$[\![[\textit{I read Moby Dick}]]\!] = \lambda t.\exists e.$ I.read.MD(e) & $\tau(e) \subset t$

b. I have [been reading Moby Dick]$_{\text{AspP}}$.
$[\![[\textit{I be reading Moby Dick}]]\!] = \lambda t.\exists e.$ I.read.MD(e) & $t \subseteq \tau(e)$

The perfect morpheme *have* takes the AspP meanings in (191) as inputs.

(192) a. I have [read Moby Dick]$_{\text{AspP}}$.
$[\![\textit{have}_{\text{PERF}} [\textit{I read Moby Dick}]]\!] = \lambda t' \exists t \exists e.\ \text{XN}(t, t')$ & I.read.MD(e) & $\tau(e) \subset t$

b. I have [been reading Moby Dick]$_{\text{AspP}}$.
$[\![\textit{have}_{\text{PERF}} [\textit{I be reading Moby Dick}]]\!] = \lambda t' \exists t \exists e.\ \text{XN}(t, t')$ & I.read.MD(e) & $t \subseteq \tau(e)$

The meanings in (192) then serve as inputs to tense (modelled in (193) as an absolute and quantificational tense), where t^* refers to the speech time. The resulting meanings are given in (194).

(193) $[\![\text{PRES}]\!] = \lambda P_{<it,t>}.\exists t.\ P(t)\ \&\ t \circ t^*$

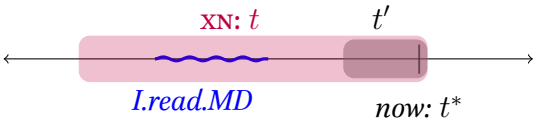
(194) a. I have [read Moby Dick]$_{\text{AspP}}$.
$[\![\text{PRES } [have_{\text{PERF}}\ [I\ read\ Moby\ Dick]]]\!]$
$= 1$ *iff* $\exists t \exists t' \exists e.\ \text{XN}(t, t')\ \&\ \text{I.read.MD}(e)\ \&\ \tau(e) \subset t\ \&\ t' \circ t^*$

b. I have [been reading Moby Dick]$_{\text{AspP}}$.
$[\![\text{PRES } [have_{\text{PERF}}\ [I\ be\ reading\ Moby\ Dick]]]\!]$
$= 1$ *iff* $\exists t \exists t' \exists e.\ \text{XN}(t, t')\ \&\ \text{I.read.MD}(e)\ \&\ t \subseteq \tau(e)\ \&\ t' \circ t^*$

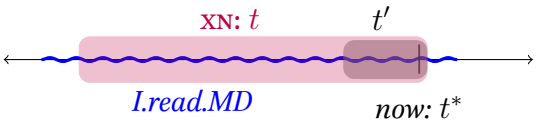
This derives, in both cases, the anteriority of the event *I read Moby Dick*, though in different ways. The perfective (194a) requires that the runtime of the event is contained within the XN interval, which includes the reference time as its final sub-interval. Since the extended now interval reaches backwards from the reference time, this anteriority is encoded in the meaning of the perfect. The relevance to the reference time is similarly encoded in the meaning of the perfect: the reference time is defined as the final part of the larger extended now interval. In the imperfective (194b), there is anteriority of part of the event, since the runtime of the event exhausts the XN interval, but it also requires that the even continues beyond the utterance time. In other words, it describes an event which holds over a prior XN interval, but *also* holds at present; this is a continuative reading.

Finally, the aspectual sensitivity is derived in the manner described above. Since the imperfective aspect in (194b) requires the runtime of the event to contain the full XN interval, this entails a continuative reading where the runtime of the event extends beyond the reference time (i.e., the final interval in the XN interval). In contrast, no such entailment arises in the perfective case. This can be illustrated in (195).

(195) a. **XN Perfect of a perfective base verb (= (194a))**



b. **XN Perfect of an imperfective base verb (= (194b))**



Thus we see how the basic XN approach to perfects can capture all three empirical desiderata under consideration here. Nonetheless, there is a major issue with XN accounts when attempting to extend this analysis to the Kanien'kéha Stative. These are issues are primarily syntactic in nature. The Stative is syntactically at least as low as AspP (I will revise this assumption in §4.4.7 below along the lines of

the argumentation in §3.2 above that it is a *v* head). The general argument is that Kanien'kéha never includes overt morphological material between the stem (*v*P) and the Stative. Furthermore, the basic denotation of an XN perfect requires a property of times (syntactically an AspP), but the Stative aspect appears to select *v*P-complements (or lower, see §4.4.7) which denote properties of eventualities (type $<l, t>$).

The dilemma is a type-clash. We can adopt one of two solutions, neither of which appear desirable. The syntactic fix is to introduce a covert aspectual projection. This permits a uniform syntax across languages, though the morphological evidence for this structure in Kanien'kéha is absent.

We might wish to resolve the semantic side of the dilemma. One such resolution can be found by requiring *v*Ps to denote properties of times. While this may be reasonable for states (see, e.g., Katz 2003), this is less appealing for events. It has the further consequence of requiring the other aspectual forms to be functions from properties of times to properties of times, $D_{<i,t>} \rightarrow D_{<i,t>}$, or else taking verbs to be either properties of times or events. Either departure from rather standard approaches to aspectual or verbal meanings seems undesirable here.

Alternatively, we can revise the semantics in (190) to include aspectual information. An attempt is made in (196), which I will adopt here for illustrative purposes.

(196) a. $[\![\text{PERFECT}_{\text{IPFV}}]\!] = \lambda P_{<l,t>} \lambda t_i . \exists t'_i \exists e [\text{XN}(t', t) \,\&\, \text{P}(e) \,\&\, t' \subseteq \tau(e)]$

b. $[\![\text{PERFECT}_{\text{PFV}}]\!] = \lambda P_{<l,t>} \lambda t_i . \exists t'_i \exists e [\text{XN}(t', t) \,\&\, \text{P}(e) \,\&\, \tau(e) \subseteq t']$

This solution requires two lexical entries for the perfect. A single entry, which incorporates either perfective or imperfective aspect into the meaning of the perfect results in the inability to distinguish between continuative and non-continuative uses of the perfect. As such, this solution commits one to a polysemous analysis of the Stative aspect. Similarly, the polysemous, aspectual enrichment of the meaning of the perfect must stipulate a selectional restriction between the perfect and predicate, based on the telicity of the predicate (though this is necessary to some extent even in monosemous accounts like Pancheva 2003): the imperfective perfect can only select atelic verbs. Without this selectional requirement, we lose the distinction between the set of readings available with atelic verbs and those available with telic verbs. In other words, this solution adequately captures the range of meanings available in the Stative aspect, but at the expense of the syntactic/semantic uniformity of perfects which makes the XN analysis of Pancheva (2003) analytically and theoretically appealing.

The continuative reading is captured by the imperfective aspectual relation holding between the XN interval, which includes the reference time as its final subinterval, and the runtime of the event. Thus, if the runtime of an event includes the XN interval, the ongoingness of the event is entailed. As noted above, a selectional restriction must be imposed for the imperfective perfect in order to adequately capture the absence of continuative readings for telic predicates: $\text{PERFECT}_{\text{IPFV}}$ selects for atelic predicates.

In sum, the dilemmas faced when attempting to capture the readings of the Kanien'kéha Stative as an Extended Now perfect militate against it.

4.4.6 Perfect State accounts

Perfect State accounts of perfect readings typically take the position that the perfect form introduces into the discourse a state related to the eventuality described by the base verb (often called a perfect state, result state, or consequent state). Much of the variation between specific Perfect State accounts arises in answering the question of precisely *what* this state is, and *how* these states derive the main types of perfects readings surveyed above. Relative to our empirical desiderata, the relevance of the RT is handled by an assertion of a perfect state. Anteriority of the base eventuality may be either asserted (Nishiyama and Koenig 2010; Giorgi and Pianesi 1998) or derived inferentially.

For concreteness, I will focus on the particular Perfect State proposal of Nishiyama and Koenig (2010). One major benefit of their particular analysis, as we will see, is that it is able to account for continuative readings without resorting to coercion (Kamp and Reyle 1993: 579*ff.*). Additionally, the restriction of continuative readings to unbounded events follows nicely from their account.

Nishiyama and Koenig (2010) propose an account for perfect readings which relies heavily on Gricean inferential rules for determining the content of the "perfect state". In brief, their account consists of two major claims about the semantic contribution of the perfect. First: perfect forms introduce an anteriority condition, whereby some subpart of the eventuality is asserted to be anterior to the reference time. As we will see, exactly how this anteriority is defined is language-dependent, and this derives some of the variation in the aspectual restrictions seen above, for instance, in Greek and English. Second, perfect forms introduce a state, the content of which is determined pragmatically and, in this respect, it is semantically underspecified. In other words, the semantic contribution of a verb in the "perfect" form requires pragmatic inference about the kind of state being forwarded before one arrives at the full interpretation of the sentence.

I will adopt and exposit their proposal here. Nishiyama and Koenig (2010) present their forms using the Discourse Representation Structures (DRS) of Discourse Representation Theory (Kamp and Reyle 1993). I adapt the meaning they propose for PERFECT forms into the function in (197).[8] There are two crucial points in the meanings below. First, the anteriority condition in (197a) is an explicit statement of the eventuality's pastness relative to the reference time.[9] Ultimately, the way this condition is stated (in

[8] I have changed their variable names to be consistent throughout the discussion. I use $\sqsubseteq$ to mean a mereological subpart. States and homogeneous predicates denote events which are "uniform", so any proper part of their extensions are also within the extension of the same predicate. Non-homogeneous predicates are non-uniform; subparts which do not include the result state (i.e., non-culminated subparts) are not in the extension of the predicate. I take atelic verbs in Kanein'kéha to denote homogeneous events and telic verbs (due to their lexical result state) to denote non-homogeneous events.

[9] This is a necessary component of the condition, because the possible (temporal and causal) disjointedness of the state s from the event e does not permit the entailment of the anteriority of e to be an inferable part of the perfect (see Nishiyama and Koenig 2010: pp for arguments and discussion on this point).

terms of subparts of eventualities) will have consequences for how this theory accounts for continuative perfects, which are not intuitively not interpreted as "anterior" to the the utterance time but rather as *persisting at* the utterance time. Second, the stativity condition in (197b) introduces a state s with an contextually determined meaning, represented here with *X*. That is, the content of the state s is determined pragmatically. The runtime of s is specified as overlapping with the utterance time. This is used to ensure discourse coherence of perfect forms. I will refer to this state for now as the "perfect state".

(197) **The Stative aspect is a PERFECT**

$[\![\text{STAT}]\!] = \lambda P_{<l,t>} \lambda t \lambda s \exists e \exists e'.$

a. $P(e)$ & $P(e')$ & $e' \sqsubseteq e$ & $\tau(e') \prec t$ (anteriority condition)

b. $X(s)$ & $\tau(s) \circ t$ (stativity condition)

I begin my discussion with the point about the anteriority condition. Notice that the anteriority is actually defined for the temporal trace of a *subpart* of the event denoted by the predicate ($\tau(e') \prec t$). Notice also that the subpart may be non-proper ($e' \sqsubseteq e$), i.e., it may be equivalent to the whole event (so $e' = e$). Because of this second fact, we will have to consider the meanings of perfect forms in two cases, each with two sub-cases for telic and atelic roots. We will see, as Nishiyama and Koenig (2010) show, that in the case of a proper subpart, we end up with continuative readings; and in the case of mereological identity, we end up with a non-continuative reading (with the precise reading depending on the inferred value of X). The summary of the cases is provided in Table 4.4, which will be amended with further details following my discussion.

Table 4.4: Summary of Perfect State account (to be amended)

mereological parthood	reading
$e' = e$	existential
	resultative
$e' \sqsubset e$	continuative

4.4.6.1 Case 1a: $e' = e$ for atelic roots (experiential reading)

When the subpart e' is identified with the full eventuality e, we derive experiential readings. We first look at atelic roots. The crucial point of this reading is that the event is strictly anterior to the reference time, and this is captured by letting the anteriority condition be defined over the full eventuality itself. Thus, we derive the desired meaning that the eventuality is strictly prior to the reference time. The introduced perfect state is whatever pragmatically inferred state that can coherently relate this past eventuality to the discourse about the reference time.

To see this for atelic roots, consider the case in (198a). Recall (from example (167b)) that such a form has an existential reading, satisfied if for any time in the relevant interval under discussion, there was an event of 'him smoking'. This smoking event, however, needs to hold strictly before the reference time in order to get an experiential reading. In other words, continuative readings are ruled out. For concreteness, I will assume below and throughout the remainder of the discussion that there is a covert PRES tense (see Chapter 5 for justification). Note that for this case, the subpart condition is superfluous; thus the meaning in (198c) can be equivalently written as in (198d). I will assume that, in the absence of a higher aspectual head, the open eventuality variable is existentially closed after *v*P (see §2.3.4 for discussion about the lack of AspP in Statives). Thus, the state variable s is existentially closed to arrive at the meanings in (198). Finally, the reference time variable is identified with the speech time $t*$ by the end of the derivation.

(198) a. ro-atshokw-en
MSGP-smoke-STAT
'He has smoked.'

b. [$\varnothing_{\text{PRES}}$ [STAT [he.smoke]]]

c. $[\![\text{(198b)}]\!] = 1$ *iff* $\exists s \exists e \exists e'.\ \text{smoke}(e)\ \&\ \text{smoke}(e')\ \&\ e' = e\ \&\ \tau(e') \prec t^*\ \&\ X(s)\ \&\ \tau(s) \circ t^*$

d. $[\![\text{(198b)}]\!] = 1$ *iff* $\exists s \exists e.\ \text{smoke}(e)\ \&\ \tau(e) \prec t^*\ \&\ X(s)\ \&\ \tau(s) \circ t^*$

e. X $\rightsquigarrow \lambda s.$there-is-smoke-in-the-air(s) (for example)

The strict anteriority of the event is asserted by taking the base event to be equivalent to the subpart we define the anteriority condition over. What this means is that, in the case that we pick mereological equivalence between the two events, we get experiential readings; what drives us to make this choice will ultimately be a matter of context. In other words, while the semantics of the perfect in (197) is underspecified, the choice of mereological equivalence leads to the meaning in (198d) and thus provides the foundation for an experiential reading, i.e., the strict anteriority of the base event.

The second part of the experiential reading is the inferred content of the Perfect State X. This state introduced by the perfect is asserted to hold at the utterance time. The underspecified content of this ongoing state is filled in pragmatically. Given a wider context, such as that in (167b) repeated here as (199a), speakers must fill in the "relevance" of this strictly anterior event for the present discourse. Since the content of this state is determined by context, the full meaning of the Stative aspect perfect in (199a) is determined by the inferred state (199b); this differs from the value given above.

(199) a. CONTEXT: *'Does Kó:r smoke?'* (*Ratshókwas ken ne Kó:r?*)

Tóka nòn:wa	enska	tà:ni'ts	kaié:ri	**nihotshókwen**.
toka nonwa	enska	tà:ni'ts	kaieri	ni-ho-atshokw-en
maybe	one	until?	four	PRT-MSGP-smoke-STAT

'He has smoked maybe one to four times.'

b. X $\rightsquigarrow \lambda s$.Kor-knows-what-smoking-is-like(s)

4.4.6.2 Case 1b: $e' = e$ for telic roots (experiential or resultative reading)

Consider now what happens with telic roots. The experiential reading is derived just as in the case for atelic roots. This is seen in (200c), with the simplified anteriority condition. The relevance for asking such a question depends on the preceding context. For instance, say we are walking through a bookstore and notice an acquaintance's name on the cover of a book. The question in (200a) might be related by asking about whether the addressee's name can be found on a cover somewhere (as a result of a prior book-writing event).

(200) a.

Nonwén:ton	ken	**sahiá:ton**	ne	iawennahnotáhkhwa' kahiatónhsera'?	
Nonwenton	ken	sa-hiaton	ne	iawennahnotahkhwa' kahiatónhsera'	
ever	Q	2SGP-write.STAT	NE	book	

'Have you ever written a book?.' (telic event root)

b. [$\varnothing_{\text{PRES}}$ [STAT [you.write.book]]]

c. $[\![$ (200b) $]\!]$ = 1 *iff* $\exists s \exists e$. you.write.book(e) & $\tau(e) \prec t^*$ & $X(s)$ & $\tau(s) \circ t^*$

d. X $\rightsquigarrow \lambda s$.your-name-is-on-a-book-cover(s) (for example)

Note that these truth conditions also predict the culmination entailments we see for telic event roots in the Stative aspect.[10] The full event e is strictly anterior to the evaluation time. In order for this to be possible, the event must have culminated; otherwise, the event e will not be in the extension of the verb as required by the meaning in (200c), specifically the first conjunct (i.e., you.write.book(e)).

Resultative readings are a special case, when the inferred state is the result of the telic event. Firstly, recall that telic predicates culminate into a result state when in the Stative aspect. We argued for a denotation like in (201b) for telic predicates (see §3.3).

[10]Recall that non-culminated telic events are possible only in the Punctual aspect; in the Stative aspect, telic events are obligatorily culminated.

(201) a. Kó:r **tehotohtáhrhon**.
Kor te-ho-tohtahrh-on
Kor DUPL-MSGP-clean-STAT
'Kó:r has cleaned it (and it is currently clean).'

b. ⟦ *tohtahrh* 'clean'⟧ =
λe. Kor.clean.it(e) & $\exists e_1, e_2.(e = e_1 \sqcup e_2)$ & Kor.cleans.it$_{\text{PROC}}(e_1)$ & it.be.clean$_{\text{RES}}(e_2)$

In the Stative aspect, the meaning of the predicate is given in (202b), again with the simplified anteriority condition. A resultative reading obtains when the choice of X is the result state of the predicate. The choice of the result state for X appears to be the default case, and Nishiyama and Koenig (2010) propose that this is the result of a trivial inference: we assume that the situation presented persists unless we have reason to believe otherwise (p. 632).

(202) a. [$\varnothing_{\text{PRES}}$ [STAT [Kor.clean.it]]]

b. ⟦ (202a) ⟧ = 1 *iff*
$\exists s \exists e$. Kor.clean.it(e) & $\exists e_1, e_2.(e = e_1 \sqcup e_2)$ & Kor.cleans.it$_{\text{PROC}}(e_1)$ & it.be.clean$_{\text{RES}}(e_2)$ &
$\tau(e) \prec t^*$ & $X(s)$ & $\tau(s) \circ t^*$

c. X $\rightsquigarrow \lambda s$.RES-of-$e$(s) $\Leftrightarrow \lambda s$.it-be-clean(s)

One complication arises here. The content of X may be identified with the RES component, but not the PROC component of the event. This is crucial since identifying X with the content of PROC will lead to a continuative reading. There are two ways around this. First, we might require the content of X to be a proper *state*; we will see below that this assumption will contradict a crucial part of the derivation of continuative readings in general. The second way, which I adopt here, reveals itself by looking more closely at the meaning that an inference of X as the PROC component results in.

(203) a. ⟦ (202a) ⟧ = 1 *iff*
$\exists s \exists e$. Kor.clean.it(e) & $\exists e_1, e_2.(e = e_1 \sqcup e_2)$ & Kor.cleans.it$_{\text{PROC}}(e_1)$ & it.be.clean$_{\text{RES}}(e_2)$ &
$\tau(e) \prec t^*$ & $X(s)$ & $\tau(s) \circ t^*$

b. X $\rightsquigarrow \lambda s$.PROC-of-$e$(s) $\Leftrightarrow \lambda s$.Kor-cleans-it(s)

The full meaning in (203), including the inference in (203b), says that there is some culminated event of Kó:r cleaning something in the past and an ongoing event of Kó:r continuing to clean it. Such a meaning, according to the logic of the analysis, will be pragmatically ruled out as non-inferable since it is contradictory (see Nishiyama and Koenig 2010: 632 for discussion). While the meaning of (203) itself is fine semantically, the inference of (203b) is not one that is readily available for speakers to make because it leads to a contradiction.

4.4.6.3 Case 2a: $e' \sqsubset e$ for atelic roots (continuative reading)

I turn now to the cases where the anteriority condition is chosen to be a proper subpart of the event described by the root. These cases derive continuative readings. Crucially, we will see that while the semantics and the pragmatic inference about the perfect state X associated with continuative readings are possible for atelic roots because of their homogeneous event structure, telic roots will derive a contradiction.

Consider the Stative aspect atelic root in (204a), which has a continuative use illustrated in (204b).

(204) a. ro-wennanot-e'
MSGP-read-STAT
'He has read/has been reading'

b. Kó:r shiiohrhòn:ke **shihowenná:note'** kí:ken iewennahnotáhkhwa'.
Kor shi-io-hrhon'k-e shi-ho-wennanot-e' kiken iewennahnotahkhwa'
Kor COIN-NP-morning-STAT COIN-MSGP-read-STAT this book
'Kor has been reading this book all morning/since the morning.' (atelic event root)

The meaning of the verb (204a) is given in (205). Note that for this case, the anteriority condition cannot be simplified as above because it is defined over a subpart e' of the whole event. Further, in contrast to the XN approach, the perfect meaning has no conditions on the runtime of the event of reading e itself. Rather, the continuative reading arises as part of the further inference that the "perfect state" is the event itself.

(205) a. $[\![(204a)]\!] = 1$ *iff*
$\exists s \exists e \exists e'$. he.read.book$(e)$ & he.read.book(e') & $e' \sqsubset e$ & $\tau(e') \prec t^*$ & $X(s)$ & $\tau(s) \circ t^*$

b. X $\rightsquigarrow \lambda s.$ he.read.book(s)

This means that, in order to maintain Nishiyama and Koenig (2010), we need to understand "perfect state" rather as "perfect eventuality", since it is possible for its value to be a property of *homogeneous events*. Furthermore, the eventuality e must be made to equal s as in (205b). This requirement is needed so that we are not interpreting (205) as two separate events which each satisfy the base predicate.

In their proposal, as far as I can tell, Nishiyama and Koenig (2010) are vague on this first point. While they illustrate continuative readings for state verbs like *Ken has lived in London*, they do not do so for Progressive event verbs. They note "when the input eventuality description is stative, the value of X *may* be of the same category as that of the base eventuality" (623; emphasis mine). I take their use of the term "stative" to mean homogeneous eventuality, which in Kanien'kéha are the denotations of state and atelic event roots.

As for the identity between s and e, Nishiyama and Koenig (2010) rely on an "inference of persistence", whereby the atelic event of Kó:r's book-reading e is inferred to persist until we are told otherwise – the perfect of atelic verbs, then, does not provide sufficient reason with respect to the non-persistence of e. The further step of equating s with e thus occurs as follows: we are talking about a currently ongoing eventuality s, which is inferentially related to a past event e of Kó:r reading. Since we have no reason to believe this atelic event has ended (the semantics of the perfect does not entail this), we presume by default that it persists. Thus, the ongoing eventuality we are talking about may be e itself.

To facilitate comparison with what happens for telic roots, observe that the anteriority condition is defined for an arbitrary subpart of the event of Kó:r's reading. Because the reading event is homogeneous, in the sense of its event description consisting of only a single homogeneous process, any arbitrary subpart is itself an event within the extension of the main predicate. Thus, an arbitrary subpart e' of an event of e and the event e itself are describable by the predicate.

4.4.6.4 Case 2b: $e' \sqsubset e$ for telic roots (ruled out)

The final case to consider is what happens with telic roots when the anteriority condition is chosen to be defined over a sub-part of the event. Recall that, empirically, telic event roots do not have continuative readings in the Stative Aspect. Analytically, then, we will show that the only possible interpretation of the anteriority condition available for telic event roots is defined over the whole event – as we saw in **case 1b**. To do so, consider the meaning derived with a telic event root in (206). This meaning is contradictory, as we will spell out below.

(206) a. #wakenenhstaiénthon
wake-nenst-a-ienth-on
1SGP-corn-JR-plant-STAT
'I have planted (the) corn.' (resultative/experiential only)

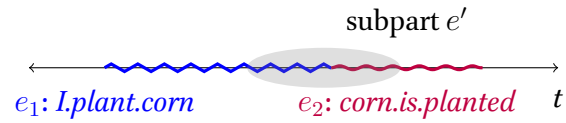
b. $[\![$ (206a) $]\!] = 1$ *iff*
$\exists s \exists e \exists e'$. I.plant.corn$(e)$ & $\exists e_1, e_2 . (e = e_1 \sqcup e_2)$ & I.plant.corn$_{\text{PROC}}(e_1)$ & corn.is.planted$_{\text{RES}}(e_2)$
& I.plant.corn(e') & $e' \sqsubset e$ & $\tau(e') \prec t^*$ & $X(s)$ & $\tau(s) \circ t^*$

c. X $\rightsquigarrow \lambda s$. I.plant.corn$(s)$

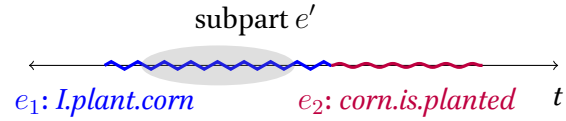
The arbitrary subpart condition is undefined for the telic roots due to the heterogeneity of their event structure. That is, the only subparts e' which are *also* within the extension of the base predicate (the root) are those which include at least some of the result state. Thus, the meaning fragment in (207a) is satisfied by the subpart illustrated in (207b), but this is not in general true: the subpart illustrated in (207c) does not satisfy the second condition (I.plant.corn(e')).

(207) a. ...I.plant.corn(e) & I.plant.corn(e') & $e' \sqsubset e$...

b. **Subpart which satisfies (207a)**



c. **Subpart which does not satisfy (207a)**



However, a continuative reading requires that the process of the event is on-going at the reference time. Thus, to get a continuative reading, we require the subpart in (207c). However, recall that the definition of the telic event described by *nenstaienth* 'plant corn' requires both sub-events to be part of it. In other words, the subpart illustrated in (207c) is ruled out by the first truth condition in (207a). All subevents which satisfy these truth conditions, then, preclude the continuative meaning since they require culmination.

In this way, the analysis proposed by Nishiyama and Koenig (2010) captures the inability of telic roots in Kanien'kéha to have a continuative reading.

4.4.6.5 Summary of the analysis

I have shown above that the Perfect State analysis of Nishiyama and Koenig (2010) is naturally suited to explain the empirical picture of the Stative aspect in Kanien'kéha. Furthermore, it requires minimal syntactic assumptions about the syntactic make-up of the input property of events. This is ideal for "low perfect" languages.

Notice further that, in some sense, the runtime of the eventuality defines an analogue to the extended now interval. The perfect state s introduced by the Stative aspect is viewed, essentially, as imperfective with respect to the reference interval. Since the base eventuality runtime precedes the reference time and the runtime of the perfect state is asserted to include the reference time, the reference interval is properly contained by the sum of the runtime of the base eventuality e and the perfect eventuality s. Note that the runtimes need not abut (see Nishiyama and Koenig 2010: 616). This is important when considering the continuative/ongoing uses of the Stative, since interaction with *when*-clauses show that the runtime of a Stative aspect ongoing event fully contains the reference time.

Thus, we can drive the three readings of the Stative aspect from a single meaning. This discussion so far is summarized in Table 4.5. Moreover, the Result State theory has the benefit of being directly compatible with the syntax of low perfect languages like Kanien'kéha.

Finally, I have shown that the restriction seen on Stative aspect ongoing readings (i.e., to atelic event

Table 4.5: Summary of Perfect State account (to be amended)

parthood	choice of X	telicity	reading
$e' = e$	any	telic	existential
		atelic	existential
	RESULT(e)	telic	resultative
		atelic	#
$e' \sqsubset e$	X=P	telic	#
		atelic	continuative
	other	atelic	existential

verbs) is identical to those continuative readings. In other words, they are semantically identical. Thus, in discussing the perfect readings available for Stative aspect verbs, we also arrived at an account for the both how ongoing readings are derived and for why they are restricted to atelic event roots.

4.4.7 State-only verbs

The Stative aspect is used in one final context. As we have shown in §3.2, it is used with state verbs and some telic verbs to derive a result state reading. For both these classes of verbs, the Stative aspect has an ongoing temporal interpretation. Recall that the differences between the two classes of verbs are in their aspectual paradigms: state verbs occur only in the Stative aspect (208a), whereas telic eventualities like (208b) additionally participate in the event paradigm, inflecting for all three core aspects.

(208) a. Tsi náhe 2021 shiiohserò:ten Tiohtià:ke **shikenákere'**
tsi nahe 2021 shi-io-hser-o'ten tiohtia'ke shi-ke-naker-e'
since 2021 COIN-NP-year-be.kind.STAT Montreal COIN-1SGA-reside-STAT
'I have lived in Montreal since 2021.' (State root)

b. Rotihnó:ton
roti-hnot-on
MNSGP-close-STAT
'They have locked them in." (event root, perfect)

As shown in §3.2, these latter verbs also show a morphosyntactic alternation in the Stative aspect (Mithun 2006; Coon 2025): the pronominal prefix shifts with a concomitant alternation in meaning. I will refer to the agent-prefix form in (209a) instead as a *state* reading, and the patient-prefix form in (209b) as a *perfect* reading.[11]

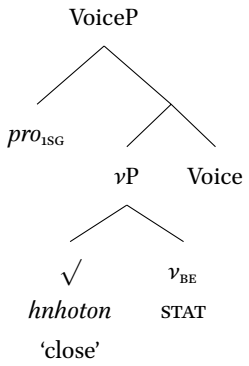
[11] Mithun (2006: 205*f*) describes the agent-prefix bearing verb in (209a) as a "resultative", though we will see here that this terminology is misleading in the larger context of perfect readings.

(209) a. Ratihnó:ton
rati-hnot-on
MNSGA-closed.in-STAT
'They are locked up.' = 'prisoners' (event root, state use; Mithun 2006: 206)

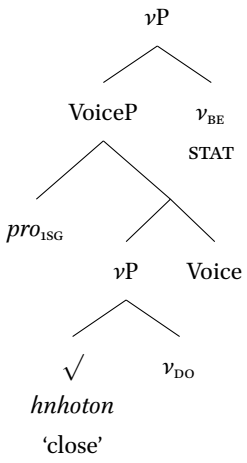
b. Rotihnó:ton
roti-hnot-on
MNSGP-closed.in-STAT
'They have locked them in.' (event root: resultative perfect)

I will extend the account developed above for the perfect readings to the meanings of state verbs and telic event verbs, focusing first on the telic event verbs in (209). I will argue that the state use in (209a) is a simply a continuative reading (as discussed in 4.4.6.3). The other reading in (209b) is a resultative perfect reading (as discussed in 4.4.6.2). Syntactically, then, the structure of state-only roots in the Stative aspect and event roots in their state use (i.e., Stative aspect with A-prefixes) are identical: they involve a single v_{BE}. On the other hand, resultative perfect readings of event roots involve two vP projections. Note also the relative position of the *pro* argument with respect to the v_{BE}; this ultimately allows us to derive the contrast in the pronominal marking which differentiates these forms.

(210) a. **State reading (=209a)**



b. **Resultative reading (=209b)**



Turning first to the syntax corresponding to a state reading in (210a). This structure only includes a Stative aspect form (Mithun 2006), whether they are built from a state root or an event root. I follow Baker (1992, 1996) in analyzing the Stative aspect as a verbalizing head, v, rather than an Aspectual head, Asp.[12] The result is that the state reading is "non-eventive" in the following way: structures built in such a way describe non-dynamic, homogeneous, and unbounded eventualities. Second, the syntax that corresponds to a resultative perfect reading in (210b) differs in the presence of a lower eventive v head (see,

[12]See §3.2 for details.

e.g., Harley 2017 for an overview, and Coon 2025 on Kanie'nkéha), distinct from the v instantiated by the Stative aspect. The interpretive consequence of this additional eventive projection is something like an inchoative state (Bar-el 2005; Kiyota 2008), where the state described by the root is brought about by some preceding process. In other words, we have a non-homogeneous, dymanic, telic event interpreted resultatively.

The interpretive contrasts follow directly from this syntax. Recall that state verbs do not have existential or resultative perfect interpretations. In terms of the analysis in Nishiyama and Koenig (2010), this means that the only pragmatically available value for the perfect state X is the predicate itself. For state verbs, this results in a continuative reading being the sole well-defined meaning of the Stative aspect.

(211) a. $[\ \varnothing_{\text{PRES}}\ [\text{STAT}\ [\sqrt{\text{closed.in}}]]]$

b. $\lambda s \exists e \exists e'.\ \text{closed.in}(e)\ \&\ \text{closed.in}(e')\ \&\ e' \sqsubset e\ \&\ \tau(e') \prec t^*\ \&\ X(s)\ \&\ \tau(s) \circ t^*$

c. $\text{X} \rightsquigarrow \lambda s.\text{closed.in}(s)$

For telic event verbs, however, the continuative reading is unavailable, as shown above. In terms of the analysis defended here, the anteriority of the entire P-event is asserted, including both the process and the result.

(212) a. $[\ \varnothing_{\text{PRES}}\ [\text{STAT}\ [\ v\ [\sqrt{\text{closed.in}}]]]]$

b. $\lambda s \exists e \exists e'.\ \text{close.x.in}(e)\ \&\ \text{close.x.in}(e')\ \&\ e' = e\ \&\ \tau(e') \prec t^*\ \&\ X(s)\ \&\ \tau(s) \circ t^*$

c. $\text{X} \rightsquigarrow \lambda s.\text{we-cannot-see-them}(s)$ (e.g.)

The full picture of perfect readings is summarized in Table 4.6.

parthood	choice of X	telicity	reading
$e' = e$	any	telic	existential
		atelic	existential
	RESULT(e)	telic	resultative
		atelic	#
$e' \sqsubset e$	X=P	telic	#
		atelic	continuative
		state	continuative
	other	atelic	existential
		state	#

Table 4.6: Summary of Perfect State account (final)

4.4.8 Summary of claim and consequences

In this section, I have made the following claims about the interpretations of Kanien'kéha's Stative aspect:

1. Kanien'kéha's Stative aspect interpretations are determined by the telicity of the verb root.
2. The semantic contribution of telicity of the root in Kanien'kéha corresponds to Aspect in languages with high perfects in deriving boundedness.
3. Kanien'kéha Stative aspect stativizes the root by introducing a perfect state and asserting the anteriority of (a subpart of) the root's eventuality.
4. The restriction of the Stative ongoing reading to atelic roots has precisely the same source as the restriction on continuative readings of perfects across languages. That is, Stative aspect ongoing readings and continuative readings are one and the same.

I will end on a more broadly theoretical note, which aims to shed light on the nature of cross-linguistic variation with perfects. As noted above, the general state of the literature appears to be pessimistic regarding the possibility of arriving at a unified analysis of perfects across languages:

> Based on these findings, we conclude that there is no such semantic universal as 'the perfect'. While one could, in principle, decide to call the hybrid group as 'the perfect', doing so does not seem to contribute to our understanding of the tense–aspect forms under investigation. There is no empirical motivation to prioritize the hybrid group over the others, and such an approach risks masking the differences within the hybrid group as well as the similarities with the other groups. (Bertrand et al. 2022: 22)

> There is something special about the present perfect. Maybe one reluctantly has to accept multiple ambiguities across and within languages, reserving XN only for the present perfect in English/Scandinavian/Spanish (Grønn and von Stechow 2020: 25)

The discussion above has attempted to investigate exactly the way in which languages vary does matter considerably for the available analytical options. The distinction between high and low perfects suggests that the presence or absence of a syntactic Asp projection intervening between the morpheme instantiating the PERFECT and the verb is crucial for adjudicating analyses.

The XN-analysis of Pancheva (2003) handles cases of aspectual embedding and the restriction on the continuative reading naturally, but fails to explain the same restriction in a language like Kanien'kéha, where embedded viewpoint aspectual information is absent from the perfect, without stipulation. We have seen this play out for Kanien'kéha in §4.4.5.

On the other hand, a Perfect State analysis like Nishiyama and Koenig (2010) explicitly introduces aspectual semantics with the perfect. The anteriority condition allows for some variation in the availability of continuative readings. To handle languages where continuative readings are entirely absent (Greek, French, German; see Comrie 1976), the anteriority condition is parameterized to require anteriority of the entire event (Nishiyama and Koenig 2010: 620). Thus, the situation discussed in **case 2** where anteriority is defined over a *proper* subpart simply does not apply. A further (possibly syntactic) parametrization is still needed to account for cases where *aspectual inflection* of the participle modulates the availability of the continuative, such as Bulgarian.

The conclusion to draw from this case study of the Kanien'kéha Stative aspect is that the morphosyntactic distinction between high and low perfects sketched in §4.4.3 has semantic import, if primarily through the syntactic concomitants of the two major semantic theories of the perfect.

4.5 The Habitual aspect: habituality and dispositions

In this section, I turn to the interpretation of the Habitual aspect. The central empirical observation that grounds the discussion in this section is that the expression of "habituality" in Kanien'kéha (to be defined more precisely below) is shared by two morphosyntactic forms: the Habitual aspect in (213a) and the Punctual aspect when it occurs with either the Future modal prefix in (213b) or the Optative modal prefix in (214). I will refer to these latter two collectively as Modal-Punctual forms. By contrasting the contexts in which each aspectual form is felicitous, we will arrive at a more precise set of truth conditions for each, showing that the "habituality" in (213a) arises in a distinct way from (213b) and (214).

(213) a. Tsi nón:we shens iakwen'terón:tahkwe iakotkwiratshénrion ne
Tsi nonwe shens iakwen-'teront-a-hkwe' iako-t-kwir-a-tshenri-on ne
that where used.to 1EX.PLA-reside-STAT-FOR.PST FI.P-SR-tree-JR-find-STV NE
ióntstha shens aienonhkwatsherón:ni.
ion-atst-ha shens a-ie-nonhkwa-tsher-onni
FI.A-use-HAB used.to OPT-FI.A-medicine-NMLZ-make.PUNC
'Where we used to live, we found a tree which she would use to make medicine.'

b. Kwah é:neken **nenieié:ra'te** tsi **enie'nikónhewe**.
Kwah eneken n-en-ie-iera't-e' tsi en-ie-'nikonh-hew-e'
EMPH above PRT-FUT-FI.A-turn-PUNC that FUT-FI.A-bark-get-PUNC
'She would scrape upwards and get the bark.' (Scott 1991: 2)

(214) Toká' aonkhwistaiéntake' akhní:non' ne ohsokwákeri
toka' a-wak-hwist-aient-a-ke' a-k-hninon-' ne ohsokwakeri
if OPT-1SGP-money-have-STAT-CONT OPT-1SGA-buy-PUNC NE coffee
iehnekonnià:tha', thia'tewenhniserá:ke **akhnekì:ra'**
ie-hnek-onni-a-'t-ha' thia'tewenhniserake a-k-hnek-ihr-a'
FI.A-liquid-make-JR-CAUS-HAB everyday OPT-1SGA-liquid-drink-PUNC
'If I had had money to buy a nice coffee machine, I would have drank coffee everyday'

In all the above examples, we end up with a description involving a plurality of events. That is, the sentences make a claim that there were multiple medicine-making events (213a), multiple scraping and bark-acquiring events (213b), or multiple coffee-drinking events (214). The difference lies in how this plurality comes about. I propose that Habitual aspect forms describe dispositional states to enact eventualities of the type described by the verb. Habitual aspect verbs are, in this sense, a claim about a single disposition: this disposition is evidenced by something in the evaluation world, holds in the evaluation world, and makes a claim about what the world should be like in accordance with this disposition. Uttering the sentence in (213a) therefore asserts that there is a disposition for the speaker's mother to make medicine that is made evident and holds in the evaluation world, and also claims that events of medicine-making will occur in the worlds which accord with this disposition.

On the other hand, I will argue that the Modal-Punctual form of the predicate is used here to describe correlations between the event described and some other contextually salient condition. In reference to (213b), what I mean by this is that, for each instance of a salient event (in this case of medicine-making), there is *generally* a correlated event of scraping a tree and acquiring bark.

In other words, the position of Krifka et al. (1995) where habitual and characterizing sentences (e.g., those with a verb in the English simple present) are fundamentally generic requires some further discussion. While it is true that *habituality* can be expressed with generic sentences, it is not true the case that all instances of reference to habitualities can be analytically reduced to generics (understood here as restricted universal quantification). The difficulty, at least empirically, is well known: languages have multiple ways to make reference to habituality, and the precise truth conditions of these different strategies differ. Kanien'kéha is one of these languages.

What is needed, then, is a differentiated analysis for the subtypes of habituality. One might imagine the heterogeneity of habituals (and other characterizing sentences, like generics, reference to kinds, etc; Carlson 2006) could be derived with small parametric changes to a single GENERIC strategy, thereby unifying them analytically. However, recent work has begun to explore and defend an alternative position: the various morphosyntactic strategies used to express habituality correspond to markedly different semantic outcomes, with sufficient similarity on the surface to be grouped together (Green 2000; Boneh and Doron 2013; Cable 2022; Boneh 2019). I show that this seems to be the right analytical path for the

empirical generalizations we see in Kanien'kéha.

Finally, let us recall the central puzzle of this chapter: just in the case of telic verbs, the Habitual aspect may also describe an on-going event. In this way, Kanien'kéha's Habitual aspect shares much with imperfective/habitual markers cross-linguistically (Comrie 1976), though not necessarily the telicity effect. We would like any account of the Habitual aspect to be able to account for this on-going meaning with minimal stipulation.

(215) a. tiénthos
k-ientho-s
1SGA-plant-HAB
i. 'I plant.' (Habitual)
ii. 'I am planting.' (On-going episodic)

b. watiénthon
wak-ientho-on
1SGP-plant-STAT
'I have planted.'

(216) a. katshókwas
k-atshokw-as
1SGA-smoke-HAB
'I smoke.' (Habitual)

b. wakatshókwen
wak-atshokw-en
1SGP-smoke-STAT
i. 'I have smoked.' (Perfect)
ii. 'I am smoking.' (On-going episodic)

This section is organized as follows. In §4.5.1, I give an overview of the forms of habituality in Kanien'kéha. In §4.5.2 through to §4.5.4, I introduce the sets of examples that will differentiate the Modal-Punctual forms form the Habitual aspect forms. Then, I end in §4.5.5 by providing an analytical sketch for the readings of the Modal-Punctual and Habitual aspects.

4.5.1 Basics of habituality

As the name of this aspectual category suggests, the most salient meaning of the Habitual aspect is that of expressing iterated instances of the kind of eventuality described by the verb; this meaning is available for all verb classes, in (217). A related meaning is available for verbs which denote activities that can be understood as occupations or professions. In this use, the Habitual aspect verb may be used to predicate a profession of the subject, as seen in the second free translation to each example. To foreshadow the analysis given to these slightly, I will ultimately argue that these are in fact the same reading.

(217) a. tekohtáhrhos
te-k-ohtarhrho-s
DUPL-1SGA-clean-HAB
i. 'I clean (i.e., every day).'
ii. 'I am a janitor.' (telic verb; Martin 2023: 92)

b. kekhónnis
ke-kh-onni-s
1SGA-food-make-HAB
i. 'I cook (i.e., every day).'
ii. 'I am a chef.' (atelic verb; Martin 2023: 93)

Furthermore, the Habitual aspect is frequently used to form referential expressions from verbs.[13] The "profession" reading discussed above is also seen in the derivation of the corresponding nominal, as seen in the textual examples in (218).[14]

(218) a. Nek tsi ó:nen shithonatáhsawe **ne rontétsen'ts** ákte' nón:we
Nek tsi onen shi-t-hon-at-ahsaw-e ne ron-ate-tsen't-s akte' nonwe
but now COIN-CIS-MPLP-SR-begin-STAT NE MSGP-SR-heal-HAB elsewhere where
iekonwanatenniéhthahkwe ne konnón:kwe.
ie-konwan-atennieht-ha-hkwe ne konnonkwe
TRANS-3>FZSG-send-HAB-FOR.PST NE FZ.PLA-human
'But now, **doctors** are starting to send people elsewhere.' Scott (1991: 6)

b. Shontaiakwatáhsawen tsi sha'akwatenenhrón:ni
sh-onta-iakw-at-ahsaw-en tsi sha'-akw-ate-nenhr-onni-'
COIN-CIS.FACT-1EX.PLA-SR-begin-PUNC that COIN.FACT-1EX.PLA-SR-crowd-make.PUNC
ne ron'swáhtha, entiéhne ohná:ken thí:ken tkanónhsote
ne ron-'swaht-ha' entie-hne ohnaken thiken t-ka-nonhs-ote
NE MPLA-extinguish-HAB south-LOC behind this.DEM CIS-NA-house-stand.STAT
ie'serehtaientáhkwa.
ie-'ereht-aient-a-hkwa'
NP-car-have-STAT-INSTR-PUNC
'When the firefighters started to form a group, it was located in the south in this garage.' Scott (1991: 14)

Furthermore, the Habitual aspect has a generic reading. This is illustrated for both animate and inanimate subjects in (219). Generics differ from the previous cases in not making reference to specific events; rather, they express statements of general facts like (219a) or capacities/functions like (219b) (see

[13] Additional examples include instrument and location nominalizations, which are typically formed using a stem derived with the causative or instrumental suffix in the Habitual aspect. Examples include *kawistóhtha'* 'it makes things cold' = 'refrigerator' or *watennhohaniiontáhkhwa'* 'it door-hangs with it' = 'hinge' (Mithun 2001a: 148).

[14] While this use is called the "profession" meaning (Martin 2023: 92), it is more general – goats, for instance, are *kaia'tákerahs* 'it's body stinks (habitually)' (Mithun 2006: 209).

Krifka et al. 1995; Carlson 2006 for discussion on the different shades of meaning associated with characterizing sentences). In other words, the sentences in (219) are true regardless of whether there are contextually salient events of barking, or whether the boat has ever had four people sitting in it.

(219) a. È:rhar ratihní:ha.
e'rhar rati-hni-ha
dog MPLA-bark-HAB
'Dogs bark.'

b. Ne ki' kahonwé:ia kaié:ri niionkwè:take' khok rontí:ta'as.
ne ki' kahonweia kaieri ni-io-onkwe't-a-ke' khok ron-at-it-a-'-as
NE this boat four PRT-NP-people-be.size-STAT only MPLA-SR-be.in.vehicle-JR-INCH-HAB
'This boat fits four people.'

Finally, with telic verbs, the the Habitual is also used to express on-goingness at the reference time, either present (220a) or past (220b). (Recall that, despite their translations, *atawen* 'swim' and *ahsentho* 'cry' are telic in Kanien'kéha.)

(220) a. Ó:nenk ken iesewatá:wens?
onenk ken ie-sew-atawen-s
now Q TRANS-2PLA-swim-HAB
'Are you swimming now?'

b. Thetén:re' shahí:ken' Kó:r, tehahsénthos.
thetenre sh-a-hi-ken-' Kor te-h-ahsentho-s
yesterday COIN-FACT-1SG>MSG-see-PUNC Kor DUPL-MSGA-cry-HAB
'Yesterday when I saw Kó:r, he was crying.'

These interpretations of the Habitual aspect are summarized in Table 4.7. I will exemplify these readings further below. Ultimately, we would like an account which handles all four cases, as well as explains why atelic verbs cannot receive an on-goingness reading. Finally, we would like to integrate this analysis into the wider temporal system of Kanien'kéha we have been developing.

The Habitual aspect, as we saw, is not the only means of expressing habituality in the language. As has been noted by Baker and Travis (1997), the Modal-Punctual can also be used, in certain contexts, to describe habitualities in the past.[15] They note that, in narrative contexts (like those in (213b)), Factual-Punctual verbs "are used to describe unique, specific events, whereas "future" verbs are used to describe

[15]A similar phenomenon is seen across the Northern Iroquoian languages; for examples, see Woodbury (2018: 98*f*) for Onondaga examples.

Interpretation	telic	atelic
habit	✓	✓
profession	✓	✓
generic	✓	✓
on-going	✓	✗

Table 4.7: Interpretations of the Habitual aspect

general practices" (218). Furthermore, in conditionals, the future can be used to describe law-like characterizations (among other readings). An example which we will return to below is given in (221), using the Future-Punctual.

(221) Tóka' enkenénsko' akarè:t, enionkhré:wahte' ake'nisténha
toka en-ke-nenskw-' akare't en-ionk-hrewaht-e' ake-'nistenha
if FUT-1SGA-steal-PUNC cookie FUT-FI>1SG-punish-PUNC 1SGP-mother
'If I steal a cookie, my mother punishes me.' ("lawlike conditional") (Baker and Travis 1997: 220)

Examples of this type are particularly instructive for our purpose, and form the basis of the discussion in §§4.5.2–4.5.4. In past discourses, the Habitual and Future-Punctual are used with similar frequency. For example, in the following excerpt from Scott (1991), the speaker alternates between the two aspectual forms to describe past habitualities.

(222) a. Á:ke shens tsi **nieniakwatekhón:ni**, akwé:kon
Á:ke shens tsi n-i-en-iakw-ate-kh-onni-', akwé:kon
EMPH used.to that PART-TRANS-FUT-1EX.PLA-SR-food-make-PUNC all

shens ò:ni' **ieniakwáhawe** thí:ken kanà:taro "réntskote"
shens ò:ni' i-en-iakwa-hawi-e' thí:ken kanà:taro "réntskote"
used.to too TRANS-FUT-1EX.PLA-bring-PUNC that.DEM bread réntskote

ratina'tónhkhwa.
rati-na'tón-hkw-ha
MPLA-point.out-INST-HAB

'We all used to make food, and we all used to bring that bread there, which we called 'réntskote'.' (Scott 1991: 8)

b. Ronnón:kwe **ratiwísia'kskwe** tánon' tho **iehontahkwenniá:ienskwe**
ronn-onkwe rati-wis-ia'k-s-kwe' tanon' tho ie-hont-ahkwenni-aien-s-kwe'
MPLA-person MPLA-ice-break-HAB-FOR.PST and there TRANS-MPLA-pantry-have-HAB-FOR.PST
ne ó:wise akenhnhà:ke **aóntston**.
ne owise akenhnh-ake a-on-atst-on
NE ice summer-place.in OPT-NA-use-STAT
'The men used cut the ice and then keep it in the pantry to use in the summer.' (Scott 1991: 26)

Nonetheless, a contrast between the Habitual and Modal-Punctual forms arises in certain contexts. In the remainder of this chapter, I will develop an analysis of these two morphosyntactic strategies to describe habitualities. For the latter strategy of using the Modal-Punctual form, I will essentially follow Baker and Travis (1997), though many of the details will differ. More specifically, I will develop their line of argumentation that Future-Punctual forms involve generic quantification. This analysis will set the stage for analyzing habitualities described by verbs in the Habitual aspect. By comparing the contexts in which they occur, I propose that Habituals, rather than describing iterated eventualities, describe actual dispositions to enact eventualities (Boneh and Doron 2010, 2013).

I will first establish two key contrasts between the Habitual and Future-Punctual forms. I show that they differ in their distribution in counterfactual contexts and in modally subordinated contexts.

4.5.2 Counterfactual habits

The first contrast concerns the actuality of the habit. As we saw above, the Habitual aspect is used for habits and occupations. Without further context, speakers understand these habits as holding at the utterance time, but they can be shifted to past evaluation times in appropriate contexts. In out-of-the-blue contexts with past-reference, the Former Past suffix -(*h*)*kwe'* is preferred but not obligatory (as we will see in more detail in Chapter 5). What's crucial here is that these forms appear to express habits which are or have been actualized in the evaluation world.

(223) a. Katya khiateiahia'khserà:ke **iontá:wens**.
Katya khiateiahia'khsera'ke ie-atawen-s
Katya every.week FI.A-swim-HAB
'Katya swims every week.'

b. Shikekhsá'a **katá:wens**(kwe').
Shi-k-ekhsá'a ka-atawen-s-kwe'
COIN-1SGA-child 1SGA-swim-HAB-FOR.PST
'When I was a child, I used to swim.'

In the case that the entire habit is not actualized, as in counterfactual or future habits, the pattern is slightly more complex. Habitual aspect verbs are compatible with these contexts, but require a modal prefix and an additional CONTINUATIVE suffix.[16] I will not provide an account for why this suffix is required, as there is some variation in its distribution that I have been unable to clarify for the moment.

(224) a. akhiatónhseke'
a-k-hiatonh-s-eke'
OPT-1SGA-write-HAB-CONT
'I should be a writer.'

b. enkhiatónhseke'
en-k-hiatonh-s-eke'
FUT-1SGA-write-HAB-CONT
'I will be a writer.' (atelic; Martin 2023: 140)

(225) a. akatorièsheke'
a-k-atorie'-s-eke'
OPT-1SGA-drive-HAB-CONT
'I should be a driver.'

b. akatorièsheke'
en-k-atorie'-s-eke'
FUT-1SGA-drive-HAB-CONT
'I will be a driver.' (telic; Martin 2023: 140)

We now turn to the crucial set of examples, which contrasts *bare* Habitual aspect verbs (i.e., without the modal prefix and continuative) and Modal-Punctual verbs. Consider first the pair in (226). The context here describes a past time, *thirty years ago*, wherein the habit of *watching less television* (relative to now) held in the evaluation world. I will refer to these contexts as making reference to a *realis* habituality. We see that such reference can be made with a verb in the Habitual, shown in (226a), or in the Future-Punctual, shown in (226b).

(226) a. Áhsen niwáhsen niiohserá:ke tsi náhe, kà:ron shes tsi ní:kon tká:ra's
ahsen ni-wahsen niiohserake tsi nahe ka'ron shes tsi ni-kon tkara's
three PRT-be.ten PRT-be.years that pass be.less used.to that PRT-be.amount TV

ronterò:roks ne ratiksa'okòn:'a.
ron-te-ro'rok-s ne rati-ksa'-okon'a
MPLP-SR-gather-HAB MPLA-be.child-DISTR

'Thirty years ago, children watched less TV.'

[16] For atelic verbs, the Habitual aspect verb with a modal prefix only has the habitual reading. With telic verbs, these have an additional "keep doing" reading associated with the progressive reading. See Martin (2023) for additional examples.

b. Áhsen niwáhsen niiohserá:ke tsi náhe, kà:ron shes tsi ní:kon tká:ra's
ahsen ni-wahsen niiohserake tsi nahe ka'ron shes tsi ni-kon tkara's
three PRT-be.ten PRT-be.years that pass be.less used.to that PRT-be.amount TV

enhonterò:roke' ne ratiksa'okòn:'a.
en-hon-te-ro'rok-e' ne rati-ksa'-okon'a
FUT-MPLP-SR-gather-PUNC MPLA-be.child-DISTR

'Thirty years ago, children would watch less TV.'

In contrast, the pair in (227) illustrates a counterfactual habit. The *if*-clause headed by *toká'* describes the condition under which the counterfactual habit would hold, namely *having enough money to buy a nice coffee machine*. Crucially, the Habitual aspect verb is infelicitous here, as shown in (227a). Instead, the only way of expressing this is given in (227b), using a Modal-Punctual form. In this case, the Optative is used (as is typical of counterfactual contexts generally).

(227) a. #Toká' aonkhwistaiéntake' akhní:non' ne ohsokwákeri
toka' a-wak-hwist-aient-a-ke' a-k-hninon-' ne ohsokwakeri
if OPT-1SGP-money-have-STAT-CONT OPT-1SGA-buy-PUNC NE coffee

iehnekonnià:tha', thia'tewenhniserá:ke **khnekì:rha**
ie-hnek-onni-a-'t-ha' thia'tewenhniserake k-hnek-ihr-ha
FI.A-liquid-make-JR-CAUS-HAB everyday 1SGA-liquid-drink-HAB

Intended: 'If I had had money to buy a nice coffee machine, I would be drinking coffee everyday'

b. Toká' aonkhwistaiéntake' akhní:non' ne ohsokwákeri
toka' a-wak-hwist-aient-a-ke' a-k-hninon-' ne ohsokwakeri
if OPT-1SGP-money-have-STAT-CONT OPT-1SGA-buy-PUNC NE coffee

iehnekonnià:tha', thia'tewenhniserá:ke **akhnekì:ra'**
ie-hnek-onni-a-'t-ha' thia'tewenhniserake a-k-hnek-ihr-a'
FI.A-liquid-make-JR-CAUS-HAB everyday OPT-1SGA-liquid-drink-PUNC

'If I had had money to buy a nice coffee machine, I would drink coffee everyday.'

The following example from Baker and Travis (1997) shows the similar behaviour of Future-Punctuals. According to them, the example in (228) has three possible readings.

(228) Tóka' enkenénsko' akarè:t, enionkhré:wahte' ake'nisténha.
toka en-ke-nenskw-' akare't en-ionk-hrewaht-e' ake-'nistenha
if FUT-1SGA-steal-PUNC cookie FUT-FI>1SG-punish-PUNC 1SGP-mother
i. 'If I steal a cookie, my mother will punish me.' ("future prediction")
ii. 'If I steal a cookie, my mother punishes me.' ("lawlike conditional")
iii. 'If I stole a cookie, my mother would punish me.' ("purely past") (Baker and Travis 1997: 220)

In (i)/(iii), the reading is a plain "future prediction", relative to a present or past reference time respectively. More formally (though not yet symbolically), in the set of words where the condition in the antecedent obtains, the consequent will obtain in that world. What matters here is that the event (here, of punishing) has not occurred in the evaluation world as of the evaluation time – in that sense, it has future reference. However, note that this is about a single event of cookie stealing and consequent punishment. For the present discussion, the relevant reading is the one given in (ii). This is what Baker and Travis (1997: 220) call a "timeless, lawlike conditional". Importantly, this links all possible events of cookie-stealing to a consequent punishment; said in another way, for each instance in the set of (possibly unrealized) cookie-stealings, there is a corresponding (possibly unrealized) instance of punishment. For this to be true, there need not have been any cookie stealings in the evaluation world.

Note that the Habitual, either with or without the Future prefix, is not possible in such contexts.

(229) a. *Tóka' enkenénsko' akarè:t, ionkhré:wahtha' ake'nisténha
toka en-ke-nenskw-' akare't ionk-hrewaht-ha ake-'nistenha
if FUT-1SGA-steal-PUNC cookie FI>1SG-punish-HAB 1SGP-mother
Intended: 'If I steal a cookie, my mother punishes me.'

b. *Tóka' enkenénsko' akarè:t, enionkhré:wahthake' ake'nisténha
toka en-ke-nenskw-' akare't en-ionk-hrewaht-ha-ke' ake-'nistenha
if FUT-1SGA-steal-PUNC cookie FUT-FI>1SG-punish-HAB-CONT 1SGP-mother
Intended: 'If I steal a cookie, my mother punishes me.'

A summary of the key contrast seen here is given in Table 4.8. The crucial cell (highlighted) shows the inability of Habitual aspect verbs to describe unrealized events.

	realis	*counterfactual*
HAB	✓	✗
MOD-PUNC	✓	✓

Table 4.8: Summary of distribution for habitual forms (to be amended, 1)

4.5.3 Modal-Punctual forms describe "habitual correlations"

We saw above that the realis-counterfactual distinction allows us to partially determine the distribution of Habitual and Modal-Punctual forms; in counterfactual contexts, Habitual forms are ruled out. However, both forms are felicitous in the realis contexts we have seen so far. The second contrast, which allows us to fully differentiate the distributions, concerns whether a habit is asserted outright, or is dependent on a "triggering event" (I will call this 'the restrictor'; Krifka et al. 1995). This allows us to tease apart the different truth conditions of Habitual and Modal-Punctual forms in realis contexts. I will show that Modal-Punctual forms differ from Habitual forms in being obligatorily related to some other (contextually salient) eventuality.

Put another way, the preferred translation for many speakers of Future-Punctual forms in this context into English using *would* is a particularly apt one. To illustrate this contrast, consider first the English pair in (230).

(230) **English *would* and *used to* (Boneh and Doron 2013)**

a. George used to wait for her outside school. They would walk up the mountain road together.

b. George used to wait for her outside school. They used to walk up the mountain road together.

The intuition drawn out from these examples (following Boneh and Doron 2013) is this: the example in (230a) states that George had the habit of waiting for someone outside of school, and furthermore, for each instance of waiting outside, there is an associated subsequent event of walking up the mountain road. Boneh and Doron (2013) refer to these as describing "intertwined habits", wherein there is a habitual correlation between the two events. The alternative in (230b) asserts no such link: it simply states that George has a habit of waiting for someone, and that the two of them had a separate habit of walking up the mountain. As can be seen from the English examples, the contrast between *used to* and *would* is typically not one of strict ungrammaticality or infelicity. More specifically, when describing such correlations, one is always able to present them as separate habits (230b), with the link between them arrived at through some notion of, say, discourse coherence or cohesion; I won't spell out such a link here. Instead, I will focus on the explicit semantic cohesion that arises from the meaning of *would*-habituals.

Given the two ways in which habitualities are expressed in Kanienk'éha, the aim here is to show that a parallel contrast holds between Habitual and Modal-Punctual forms. To motivate this idea for Kanien'kéha, consider the example in (231). In Kanien'kéha, when the restrictor is introduced by *tsi ní:kon* 'whenever', the habit is expressed with a Future-Punctual. A Habitual form is felt to be disjoint, or uninterpretable as a habit restricted by another triggering event.

(231) Context: Kor is a beach-comber and likes to look for stuff in the sands He's quite good at it. He is always finding money on the beach

a. Tsi ní:kon ki' enhahwistatshénri', ice cream **enhahninòn:ra'.**
tsi ni-kon ki' en-ha-hwist-a-tshenri-' ice cream en-ha-hninon-hr-a'
that PRT-be.amount just FUT-MSGA-money-JR-find-PUNC ice cream FUT-MSGA-buy-PURP-PUNC
'Every time he finds money, he buys ice cream.'

b. #Tsi ní:kon ki' enhahwistatshénri', ice cream **rahninòn:re's.**
tsi ni-kon ki' en-ha-hwist-a-tshenri-' ice cream ra-hninon-hr-e's
that PRT-be.amount just FUT-MSGA-money-JR-find-PUNC ice cream MSGA-buy-PURP-HAB
Intended: 'Every time he finds money, he would buy ice cream.'

Moreover, in the following pair, the Future-Punctual form is tied to instances of the previous clause. In (232a) the sentence is used to describe two separate habits. In other words, the pie-baking and swimming are not linked, except for the fact that the two dispositions (to bake pies and to swim) are attributed to the same referent. On the other hand, in (232b), the Future-Punctual marked verb *eniontawen'* describes events of swimming that are linked to events of pie-baking. The comment provided by one speaker here is telling: for each pie-baking event, there was a subsequent swimming event.

(232) **Context:** *Oh niiontiérhahkwe' shes sa'nisténha shiseksà:'a?*'What did yourmother do when you were a child?'

a. istèn:'en shes tewà:ia iontena'tarón:niskwe tánon' iontawenskwe'
isten:'en shes tewa'ia ion-ate-na'tar-onni-s-kwe tánon' ion-atawen-s-kwe'
my.mother used.to fruit.pie FI.P-SR-bread-make-HAB-FOR.PST and FI.P-swim-HAB-FOR.PST
'My mother used to bake pies and she used to swim.'

b. istèn:'en shes tewà:ia iontena'tarón:niskwe tánon' eniontawen'
isten:'en shes tewa'ia ion-ate-na'tar-onni-s-kwe tánon' en-ion-atawen-'
my.mother used.to fruit.pie FI.P-SR-bread-make-HAB-FOR.PST and FUT-FI.P-swim-PUNC
'My mother used to bake pies and she used to swim.'
Speaker comment: *Every time she finished a pie, she would go swimming. If you saw her making pies, you knew she was going swimming.* (*MM*)

Another indication that Future-Punctual forms rely on a contextually salient eventuality to which they can be correlated is that they typically do not start discourses. Rather, discourses about past habitualities are "grounded" by a HAB aspect form or some appropriate context which sets up the restrictor.[17]

[17]These are what Baker and Travis 1997 call "reminiscence contexts", though as we have seen, this phenomenon is rather more general.

Once this restrictor is contextually accessible, habitualities may be referred to with Modal-Punctual forms. For example, the sentence in (233a) is the first line of a narrative, where the speaker describes his grandmother, who made cataract medicine. This topic-setting, as well as the introduction to the process of making medicine in (233b), are described with the Habitual aspect. Subsequent steps in the process of making medicine are all described with the Future-Punctual, with one illustration in (233c).

(233) **Narrative example from *Old Kahnawà:ke* (Scott 1991: 2)**

a. Wahón:nise akhsótha shens **ienonhkwatsherón:nis.**
w-ahon:nis-e ak-hsotha shens ie-nonhkwa-tsher-onni-s
NA-long.ago-STAT 1SGP-grandmother used.to FI.A-medicine-NMLZ-make-HAB
'Long ago, my grandmother used to make medicine.'

b. Tsi nón:we shens iakwen'terón:tahkwe iakotkwiratshénrion ne
Tsi nonwe shens iakwen-'teront-a-hkwe' iako-t-kwir-a-tshenri-on ne
that where used.to 1EX.PLA-reside-STAT-FOR.PST FI.P-SR?-tree-JR-find-STV NE
ióntstha shens aienonhkwatsherón:ni.
ion-atst-ha shens a-ie-nonhkwa-tsher-onni
FI.A-use-HAB used.to OPT-FI.A-medicine-NMLZ-make.PUNC
'Where we used to live, we found a tree which she would use to make medicine.'

c. Kwah é:neken **nenieié:ra'te** tsi **enie'nikónhewe.**
Kwah eneken n-en-ie-iera't-e' tsi en-ie-'nikonh-hew-e'
EMPH above PRT-FUT-FI.A-turn-PUNC that FUT-FI.A-bark-get-PUNC
'She would scrape upwards and get the bark.'

The two verbs in (233c) describe the repeated events which would make up a medicine-making habit. The remaining steps in the process are all described with the Future-Punctual in the same way. Given the discussion above, the Future marked forms are intertwined with each event of medicine-making that comprise the overall habit of medicine-making. That is, for each event in that habit, there in a corresponding event of scraping a tree, a corresponding event of acquiring bark, etc.

Thus, we have seen that verbs in the Habitual aspect and verbs in the Future-Punctual aspect are in fact in complementary distribution with respect to the type of *realis* habituality they describe. In this section, we have seen that Future-Punctual forms are modally subordinated, and describe a relation between two sets of eventualities. In particular, they describe correlations between two sets of eventualities, where each instance of the "habitual" eventuality is related to a corresponding eventuality, given either explicitly or implicitly in the discourse context. The generalization drawn from these examples is summarized in Table 4.9. Anticipating the discussion below, I will label contexts where the Habitual aspect is felicitous as those which express "dispositions", in a way to be made precise shortly. The inability

of Modal-Punctual forms to describe dispositions will be discussed in the following section.

	realis		*counterfactual*
	disposition	intertwined habit	
HAB	✓	✗	✗
MOD-PUNC	✗	✓ (FUT)	✓ (OPT)

Table 4.9: Summary of distribution for habitual forms (to be amended, 2)

4.5.4 Non-actual habits can be expressed with Modal-Habituals

Finally, we turn to a set of examples which show that expressing a non-actual habit, either counterfactual or future, *is* possible with the Habitual aspect but requires a modal prefix on the Habitual aspect verb. We can see this in a wider context in (234).

(234) CONTEXT: *I live far from water, so I do not swim very often despite wanting to. I would swim, if I lived within some walking distance to a body of water where I could do so.* (*For (b): In fact, I've already bought a new house by the water, so once I move I'll start swimming.*)

a. Toká' akta' aki'teróntake' ne atià:kta tewa'nòn:wa', **akatawénseke'**.
toka akta a-k-i'teront-a-ke' ne atia'kta tewa'non'wa' a-k-atawen-s-eke'
if near OPT-1SGA-reside-STAT-CONT NE beach at.that.time OPT-1SGA-swim-HAB-CONT
'If I lived near the beach, I would swim (=be a swimmer).'

b. Nó:nen atsià:kta ienkákien', **enkatawénseke'**.
nonen atsià:kta i-en-k-aki-en' en-k-atawen-s-eke'
when beach TRANS-FUT-1SGA-? FUT-1SGA-swim-HAB-CONT
'When I move to the beach, I will swim (=be a swimmer).'

The other side of this generalization is that claims about presently non-actual habits are the *only* contexts where Modal-Habitual forms are licit. Returning to sentences like those in (226)–(227) above, which established the realis/irrealis contrast, we see that Modal-Habitual verbs are not possible in this context. In the realis case in (235b), the Modal Habitual is completely ruled out (this is despite the Future-Punctual form being fine in this context, see the repeated example in (235a)).

(235) a. Áhsen niwáhsen niiohserá:ke tsi náhe, kà:ron shes tsi ní:kon tká:ra's
ahsen ni-wahsen niiohserake tsi nahe ka'ron shes tsi ni-kon tkara's
three PRT-be.ten PRT-be.years that pass be.less used.to that PRT-be.amount TV

enhonterò:roke' ne ratiksa'okòn:'a.
en-hon-te-ro'rok-e' ne rati-ksa'-okon'a
FUT-MPLP-SR-gather-PUNC NE MPLA-be.child-DISTR

'Thirty years ago, children would watch less TV.'

b. *Áhsen niwáhsen niiohserá:ke tsi náhe, kà:ron shes tsi ní:kon tká:ra's
ahsen ni-wahsen niiohserake tsi nahe ka'ron shes tsi ni-kon tkara's
three PRT-be.ten PRT-be.years that pass be.less used.to that PRT-be.amount TV

enhontero'rókseke ne ratiksa'okòn:'a.
en-hon-te-ro'rok-s-eke ne rati-ksa'-okon'a
FUT-MPLP-SR-gather-HAB-CONT NE MPLA-be.child-DISTR

Intended: 'Thirty years ago, children watched less TV.'

We can think of this contrast in the following way. The sentences in (235) are meant to describe a habit which is claimed to hold in the real world at the past reference time. The Future-Punctual form is fine here since we are defining this habit inductively, that is generalizing over multiple events of television-watching. The bare Habitual is fine as well (in (226a) above) – based on our discussion so far, this is because the habit of watching less television actually holds in the real world at this reference time. The Future-Habitual form given in (235b) is ruled out. Since the habit of watching less television holds at this past reference time, expressing this habit as holding of the future is odd. Note that future forms are not ruled out here: Future-Punctual forms are perfectly fine in this context to express (past) realis habits. Future-Habituals, on the other hand, only express future habits. I will argue below that this is because of the different way in which we arrive at a habitual interpretation in each case. In the Future-Punctual form, the habitual interpretation is a generalization over multiple events. In the (Future-)Habitual form, the habitual interpretation is rather a claim about some "habitual state" of the subject. The only interpretation of Future-Habituals like (235b), then, is a future-shifted state.

The same generalization holds of counterfactual habits, though the contrast is less strong. In these context, the Optative prefix is used. There is an interpretation available for (236b), though speakers note that this is an unnatural or awkward way to phrase this. The preferred interpretation roughly corresponds to the free translation into English, where the Optative-Habitual form expresses the non-actual state of being a coffee drinker.

(236) a. Toká' aonkhwistaiéntake' akhní:non' ne ohsokwákeri
toka' a-wak-hwist-aient-a-ke' a-k-hninon-' ne ohsokwakeri
if OPT-1SGP-money-have-STAT-CONT OPT-1SGA-buy-PUNC NE coffee
iehnekonnià:tha', thia'tewenhniserá:ke **akhnekì:ra'**
ie-hnek-onni-a-'t-ha' thia'tewenhniserake a-k-hnek-ihr-a'
FI.A-liquid-make-JR-CAUS-HAB everyday OPT-1SGA-liquid-drink-PUNC
'If I had had money to buy a nice coffee machine, I would drink coffee everyday.'

b. ?Toká' aonkhwistaiéntake' akhní:non' ne ohsokwákeri
toka' a-wak-hwist-aient-a-ke' a-k-hninon-' ne ohsokwakeri
if OPT-1SGP-money-have-STAT-CONT OPT-1SGA-buy-PUNC NE coffee
iehnekonnià:tha', thia'tewenhniserá:ke **akhnekì:rhake'**
ie-hnek-onni-a-'t-ha' thia'tewenhniserake k-hnek-ihr-ha-ke'
FI.A-liquid-make-JR-CAUS-HAB everyday OPT-1SGA-liquid-drink-HAB-CONT
'If I had had money to buy a nice coffee machine, I would be a drinker of coffee.'

Given these facts, summarized in Table 4.10, we can think of Modal-Habitual form as taking a "habitual state" and asserting it holds in ideal worlds. In other words, the interpretation of these forms is fully compositional. In the next section, we turn to an brief description of a future analytical path for this data.

	realis		*counterfactual*	
	disposition	intertwined habit	disposition	intertwined habit
HAB	✓	✗	✗	✗
MOD-PUNC	✗	✓	✗	✓
MOD-HAB (+CONT)	✗	✗	✓	✗

Table 4.10: Summary of distribution for habitual forms (final)

4.5.5 Summary of claims and consequences

In this section, I have shown that habituality can be expressed with two strategies: either with a Modal-Punctual aspect verb or with a Habitual aspect verb. The Modal Punctual strategy describes habitualities that are universally correlated with another (contextually salient) eventuality. Habitual aspect verbs, on the other hand, describe habitualities that hold in the evaluation world.

Briefly, I sketch an intuition for how these differing distributions can be accounted for by the distinct semantic contributions of these aspectual forms. Modal-Punctual forms are modal futures, and thus describe future episodic eventualities. In a past context, given some contextually salient state of affairs,

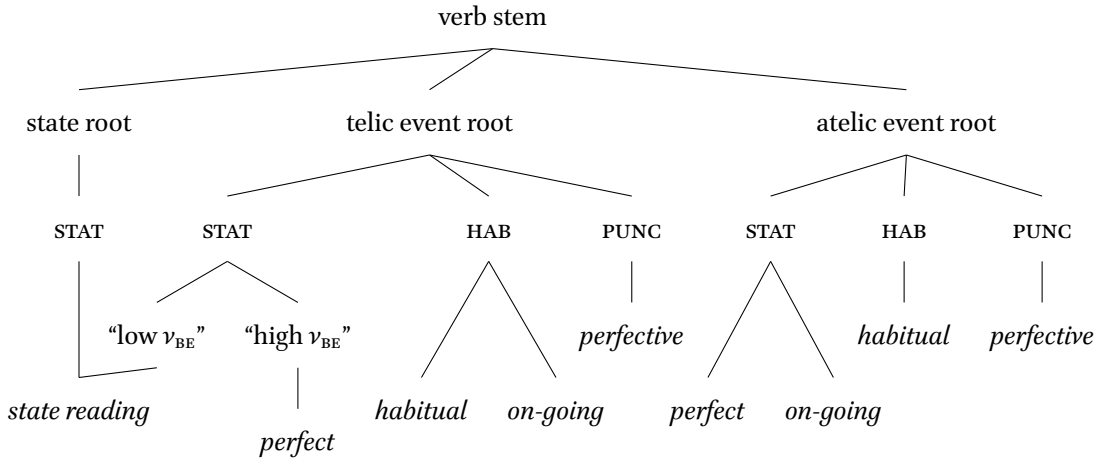
Modal-Punctuals can be taken to be modal claims grounded in a past state of affairs. In combination with a universal generalization operator (Krifka et al. 1995), we can derive the habitual use. That is, given some state of affairs, there is generally an event of the type described by the verb. On the other hand, the Habitual aspect describes a state which, in ideal worlds, develops into eventualities described by the base predicate. Following proposals in Ferreira (2016), we can thereby capture both the habitual and on-going readings through a number distinction in the domain of events. Working out the details for this formally is left for the future.

4.6 A summary of the Aspectual system

In this chapter, I have given an overview of the three core Aspects for event verbs in Kanien'kéha. The Punctual aspect, which requires one of the Modal prefixes, is treated as a perfective suffix. The Habitual and Stative aspects, in which telic and atelic verbs respectively get an on-going episodic reading, were understood as, in some sense, "imperfective". This flavour of "imperfectivity" was spelled out more by looking at the other interpretations available for these suffixes: the Stative aspect gets perfect interpretations and the Habitual aspect gets habitual interpretations.

The full system I arrived at is summarized in (237). In this diagram, the italicized leafs are the interpretations given each aspect (in small caps) and root class.

(237) **Summary of the interpretations of the Aspects**



In §4.3, I briefly discussed the Punctual aspect and differentiated it from the Habitual and Stative. I showed that the Punctual is interpreted perfectively, whereas the latter aspects are interpreted imperfectively.

In §4.4, I focussed on the Stative aspect. I showed that in general, the Stative aspect has a "perfect" reading, the particular flavour of which is determined by both the telicity of the verb and the context. Furthermore, I have shown that the restriction of on-going episodic readings is identical to the general

restriction of "continuative perfect" readings, thus unifying these two interpretations and their restrictions. Then, the *state reading* of the Stative aspects was detailed in §4.4.7. The Stative aspect, being syntactically a *v* head, may appear in a "low" position selecting the root, or a "high" position selecting an eventive VoiceP. In the former case, available for both state roots and telic events, the resulting interpretation is a *state reading*; in the latter, the resulting interpretation is a perfect.

In §4.5, I turned to the interpretations of the Habitual aspect, and of habituality in general. I discussed how the Habitual aspect differs from the Modal-Punctual verbs in the particular requirements of the habituality being described. This discussion led to several new generalizations about the expression of habituality in Kanien'kéha, and suggested in-roads to a fully compositional analysis of its semantic contribution.

Finally, we began the chapter with the on-going episodic puzzle: depending on the telicity class of a given verb, an on-going episodic interpretation is expressed either by the Stative or the Habitual aspect. I have tried to illustrate here how this interpretation is arrived at, and furthermore how the restriction from the other telicity class is derived. I have spelled this out explicitly for the Stative aspect, following Nishiyama and Koenig (2010), and made some indication for how this is to be analyzed with the Habitual aspect, following Boneh and Doron (2013) and Cable (2022). A full analysis of the latter is left for future research. Nonetheless, the empirical contribution of this section was to describe precisely how the habitualities described by the Habitual aspect and the Modal-Punctual aspects differ. The overall view of the aspectual system is one wherein the Habitual and Stative aspects are stativizers: they introduce a state which holds at the reference time and relate this state to the eventuality described by the base predicate in different ways.

Chapter 5

Optional Tense

This chapter turns to the final layer of temporal structure, the tense system. While Kanien'kéha is typically discussed as an example of a TENSELESS language (Baker and Travis 1997, 1998), there are in fact two stem-final morphemes which I will argue in this chapter are tense. Thus, Kanien'kéha is rather an OPTIONAL TENSE language.[1] These suffixes, the FORMER PAST *-(h)kwe'* and the REMOTE PAST *-hne'*, are illustrated in (238).

(238) a. Ohna'kénhaton shahí:ken' ratóʔratskwe'
Ohna'kenhaton sh-a'-hi-ken-' ra-atorat-s-**kwe'**
last.time COIN-FACT-1SG>MSG-see-PUNC MSGA-hunt-HAB-**FOR.PST**
'When I saw him last, he was hunting.'
⇝ He is not currently hunting.

b. Shawátis shahí:ken' rotshokwèn:ne.
Shawatis sh-a'-hi-ken-' ro-atshokw-en-**hne**
John COIN-FACT-1SG>MSG-see-PUNC MSGP-smoke-STAT-**REM.PST**
'John was smoking when I saw him.'
⇝ He is not currently smoking.

Languages with optional tense morphology have been recently discussed with respect to one particular parameter of semantic variation with respect to the interpretation of PAST tense across languages. Namely, use of the PAST tense in some languages gives rise to the inference that the event described does not hold at present, as seen in the examples above. I will refer to this as a *cessation inference* (Musan 1997; Thomas 2012, 2014; Altshuler and Schwarzchild 2013). These inferences are similarly found in tensed languages such as English, where the use of a past tense with stative predicates gives rise to the inference that the eventuality being described does not hold at utterance time. This is seen in (239).

[1]For discussions of other optionally tensed languages, see Bochnak (2016); Cable (2017).

(239) a. How is Scotty doing?

b. He was anxious.
⇝ He is not currently anxious. (Altshuler and Schwarzchild 2013)

A body of work has begun to examine how best to account for such *cessation* interpretations. Three approaches have been taken. There has been work which lexically encodes it into the meaning of the tense (Plungian and van der Auwera 2006). Another strategy is to derive it through scalar reasoning, either entirely pragmatically (Altshuler and Schwarzchild 2013; Chen et al. 2021) or grammatically (Kusliy and Vostrikova 2024), and yet another to derive it through non-scalar pragmatic reasoning (Cable 2017).

In this chapter, I will use the discussion in Cable (2017) as a comparison for the Kanien'kéha examples. Cable (2017) shows that Tlingit, also an optionally tensed language, has a past tense form which comes with a cessation inference, though it has a slightly different character from the Kanien'kéha facts. Empirically, cessation inferences in Tlingit appear to be more resistant to cancellation than their English counterparts. Nonetheless, he shows that the Tlingit inferences should be understood as implicatures. Moreover, he shows that the tense inventory of Tlingit requires a significant rethinking from a pragmatic account like that of Altshuler and Schwarzchild (2013) to explain for how this implicature is derived.

Apart from the number of past suffixes, there are additional key differences between Kanien'kéha and previously discussed languages which make a detailed account worth pursuing. Firstly, I will show that between the two Kanien'kéha suffixes, the strength of the inferences they give rise to differs. The cessation inference seen with the FORMER PAST suffix in (238a) is defeasible, whereas the one seen with the REMOTE PAST suffix in (238b) is not. I will account for the defeasible inference as an implicature, and the non-defeasible inference as a lexical entailment of a "discontinuous past" tense (Plungian and van der Auwera 2006). Secondly, Kanien'kéha looks very similar to Tlingit and other languages which permit morphologically tenseless clauses in that the unmarked, "tenseless" clause is restricted to non-future reference. While this property motivated Cable's rethinking of how cessation inferences should be analyzed in such systems, I will take a different approach here. I show that the similarities between Kanien'kéha and Tlingit's tense systems are only apparent. Looking deeper, we find evidence of an ambiguity with unmarked clauses: they are marked with *either* a covert PAST or a covert PRESENT tense rather than a single NON-FUTURE tense. This second property permits a straightforward analysis of cessation inferences, along the lines of Altshuler and Schwarzchild (2013).

As a final consequence, it is by now well-known in the literature that tenseless clauses may look different across languages: while some appear to be restricted to non-future references (St'át'imcets, Matthewson 2006), others are unrestricted (Washo, Bochnak 2016). I argue for one more way in which tenseless clauses may differ: they may be ambiguous between two covert tenses. While this conclusion is intended to be about the proper analysis of Kanien'kéha and not about other languages, this kind of variation underlines a crucial methodological point: following Matthewson (2006), investigation into

tenseless clauses in tenseless and optionally tensed languages need to explicitly rule out the possibility of covert ambiguities before positing a NFUT tense (for similar findings of a covert PST/PRES distinction, see Reis Silva and Matthewson 2007 on Blackfoot and He 2020 on Mandarin).

My argument will be organized as follows. In §5.1, I present the central set of examples from Kanien'kéha. In §5.2, I give an overview of how defeasible cessation inferences have been accounted for in the past, firstly focussing on the scalar implicature analysis. I then show how languages with similar surface properties as Kanien'kéha, in particular Tlingit, are not amenable to a scalar implicature analysis due to their inventory of tenses. Then, in §§5.3–5.4, I show that the difficulties arise from what are indeed *surface* properties. A closer look at Kanien'kéha's tense system reveals that morphologically tenseless clauses are ambiguous between strictly past and present; that is, Kanien'kéha has two covert tenses (§5.3). Together with assumptions about the aspectual system in Kanien'kéha (§5.4), this provides the foundation for a straightforward account of defeasible cessation inferences arising with the Former Past, which is spelled out explicitly in §5.5. Finally, I end in §5.6 by proposing a lexical analysis for the Remote Past. I conclude in §5.7 by summarizing my claims and noting some of their broader implications.

5.1 Cessation inferences with the optional past suffixes

In this section, I will establish the empirical generalizations to be accounted for in this chapter. Central to this will be establishing the kind of inference that arises with the past suffixes in Kanien'kéha, introduced in (238). What immediately sets Kanien'kéha apart from other languages with optional past tenses is that Kanien'kéha has two past tenses. In the Iroquoianist literature, these suffixes are called the FORMER PAST (*-(h)kwe'*) and the REMOTE PAST (*-hne'*), with the terminology going back to Lounsbury (1953). I will continue to use these terms, but will note that there does not seem to be a robust remoteness distinction between these suffixes. There is similarly no robust remoteness distinction between morphologically tenseless clauses, and those with one of the past suffixes.

Despite considerable work on the morphosyntax of the language, with particular attention to the aspectual suffixes, there is little work discussing these two suffixes. In §5.1.1, I address this situation in part, expanding the morphosyntactic description of these suffixes to set the following analytical discussion on firm footing. This leads to illustrations of the two central observations: in §5.1.2, I show that the cessation inference arising with the Former Past (238a) is defeasible. In §5.1.3, I show that the cessation inference arising with the Remote Past (238b) is non-defeasible. This is summarized in Table 5.1.

5.1.1 The morphosyntax of the two past suffixes

The two past suffixes in Kanien'kéha are optional markers of anteriority. They restrict the reference time of the clause to the past, as indicated by their free translation into English obligatorily using the past

	form	cess. inf.?	defeasible?
FOR.PST	-(*h*)*kwe'*	✓	✓
REM.PST	-*hne'*	✓	✗

Table 5.1: Summary of generalizations

tense. The past markers, as seen in (240), are verbal suffixes which follow the Aspect suffix.

(240) **Past suffixes**

a. ratóːrats**kwe'**
r-atorat-s-kwe'
MSGA-hunt-HAB-FOR.PST
'He *is/was hunting.' (Former Past -(*h*)*kwe'*)

b. rotshokwèn**ːne'**.
ro-atshokw-en-hne'
MSGP-smoke-STAT-REM.PST
'He *is/was smoking.' (Remote Past -*hne'*)

In contrast, Kanien'kéha verbs which are unmarked for tense information (but marked for aspect) are compatible with a wider range of temporal interpretations, as we have seen in Chapter 4. While in general there are three aspects available for each event verb, the Punctual (perfective) aspect does not participate in the tense inflection system (see Baker and Travis 1997). For this reason, the Punctual aspect will mostly be set aside here, except when it provides a necessary contrast with the other two aspects. Examples of the Habitual and Stative aspects are given in (241) and (242). The most relevant observation at this point in the discussion is that the same verb form can be used for both present on-going events (in the (a) examples) and past ongoing events (in the (b) examples). When marked with the past suffixes, as in (240) above, past reference is enforced.[2]

(241) **Morphologically Tenseless Clause with Habitual Aspect**

a. Ratóːrats.
r-atorat-s
MSGA-hunt-HAB
'He is hunting.' (present ongoing)

[2]I illustrate this primarily with the ongoing episodic interpretation of the aspects, but we will see examples of past habitual interpretations below. The Remote Past enforces past perfect readings (with a cancelled result) or past ongoing (with obligatory cessation) as will be detailed in §5.6.

b. Oh na'kénhaton shahí:ken' **rató:rats.**
Oh na'kenhaton sh-a'-hi-ken-' ra-atorat-s
last.time COIN-FACT-1SG>MSG-see-PUNC MSGA-hunt-HAB
'When I saw him last, he was hunting.' (past ongoing)

(242) **Morphologically Tenseless Clause with Stative Aspect**

a. Shawátis **rotshókwen.**
Shawatis ro-atshokw-en
John MSGP-smoke-STAT
'John is smoking.' (present ongoing)

b. Shawátis shahí:ken' **rotshókwen.**
Shawatis sh-a'-hi-ken-' ro-atshokw-en
John COIN-FACT-1SG>MSG-see-PUNC MSGP-smoke-STAT
'John was smoking when I saw him.' (past ongoing)

The optionality of the past suffixes can be seen most clearly when the subject is marked with the decessive suffix, which is used to express that the referent is deceased. The decessive suffix ensures that the eventuality described by the predicate cannot hold in the present. In such cases, both the Former Past and the Remote Past are preferred but not obligatory, as illustrated in (243).

(243) **Optionality of Past with Decessive suffix**

a. Ake'nisten'kénha iehnén:ies(kwe').
ake-'nistenha-kenha ie-hneni-es-kwe'
FZSG>1SG-mother-DECESS FISGA-be.tall-HAB-FOR.PST
'My late mother was tall.'

b. Ake'nisten'kénha athéhsa' niakononhkiwsero'tén(hne').
ake-'nistenha-kenha athehsa' ni-a-kon-onhkwi-ser-ot-en-hne'
FZSG>1SG-mother-DECESS brown PRT-FZSGA-hair-NMLZ-have.colour-STAT-REM.PST
'My late mother had brown hair.'

So far, we have seen that both past suffixes are optional in past-referring contexts. I turn now to their morphosyntactic distribution, which differentiates the two. As mentioned above, the past suffixes follow the aspectual suffix. Earlier descriptions across the Iroquoian languages claim that the Former Past is used with the Habitual aspect and the Remote Past is used with the Stative aspect (see Lounsbury 1953 on Oneida, Postal 1962 for Kanien'kéha). This suggests a complementary distribution of the two past

suffixes relative to the aspect; the two have been explicitly analyzed as allomorphs of a single past suffix in some past work (Ormston 1993). However, this complementary distribution (at least in Kanien'kéha) is not the whole picture. As early as Hopkins (1988), it has been noted that the Former Past can be used with the Stative aspect of some verbs, given in (244).

(244) a. thotaweià:tonhkwe'
t-ho-at-aweia't-on-hkwe'
CIS-MSGP-SR-enter-STAT-FOR.PST
'He had been coming in.'

b. rohiákwenhkwe'
ro-ahi-a-kw-en-hkwe'
MSGP-fruit-JR-pick-STAT-FOR.PST
'He had been picking fruit.' (Hopkins 1988: 158)

Indeed, the Remote Past appears to be much more restricted in its distribution than previously discussed. There are some Stative-marked predicates for which the Remote Past is ungrammatical for the speakers I work with (see the (b) examples). For such predicates, the Former Past is used instead (see (c) examples).[3]

(245) a. Ieksà:'a teiakonniáhkwen.
ieksa'a te-iako-nonniahkw-en
child DUPL-FI.P-dance-STAT
'The child is/was dancing.'

b. *Ieksà:'a teiakononniahkwèn**:ne'**
ieksa'a te-iako-nonniahkw-en-hne
child DUPL-FI.P-dance-STAT-REM.PST
Intended: 'The child was dancing.'

c. Ieksà:'a teiakononniahkwen**hkwe'**
ieksa'a te-iako-nonniahkw-en-hkwe'
child DUPL-FI.P-dance-STAT-FOR.PST
'The child was dancing.'

(246) a. rowennà:note'
ro-wennahnot-e'
MSGP-read-STAT
'He is/was reading.'

b. *rowennà:note**hne'**
ro-wennahnot-e-hne'
MSGP-read-STAT-REM.PST
Intended: 'He was reading.'

c. rowannahnóta**hkwe'**
ro-wennahnot-a-hkwe'
MSGP-read-STAT-FOR.PST
'He was reading.'

The revised generalization I forward here is that the Remote Past is restricted to a *subset* of Stative aspect verbs. For those verbs where the Remote Past is ungrammatical, speakers instead opt to use the

[3]I have found significant variation in the acceptability of Remote Past forms across the speakers I have worked with, mirroring the variation reported in the literature. As such, I cannot at this point make a generalization about the precise distribution and any analysis will have to be tentative. For my purposes here, which primarily focuses on the Former Past, this is not crucial; I leave this work to the future when larger corpus study is feasible.

Former Past with the Stative aspect. Thus, the Remote Past is distributionally more restricted than previously noted, and the Former Past is less so (see Table 5.2). This makes an analysis of these suffixes as allomorphs unappealing; we will see shortly further differences which make such an analysis untenable.

	form	cess. inf.?	defeasible?	distribution
FOR.PST	*-(h)kwe'*	✓	✓	HAB, STAT aspect
REM.PST	*-hne'*	✓	✗	STAT aspect

Table 5.2: Summary of generalizations

A detailed description of the distribution will require further work. In particular, there is some indication that the verb's lexical semantics plays a role in the acceptability of using the Remote Past. While I do not pursue this line of inquiry here, I will note that the predicates which permit the Remote Past describe right-unbounded properties. These include number predicates (247a), and result states that are notionally unbounded, such as being lost (247b) or being married (247c).

(247) a. **Áhsen nikontíhne'** akohsá:tens ronáhskwaientahkwe'
ahsen ni-konti-hne akohsatens ro-nahskwaient-a-hkwe'
three PRT-be.number-REM.PST horse MSGP-have.horse-STAT-FOR.PST
'He had three horses.

b. **Wakatiòn:ne** ne akehnhotónkwa.
wak-ati-on-hne ne ake-hnhotonkwa
1SGP-lose-STAT-REM.PST NE 1SGP-keys
'I lost my keys.'

c. Sue **rotiniakòn:ne'**.
Sue roti-niak-on-hne
Sue M.DU.P-marry-STAT-REM.PAST
'He was married to Sue.'

I will develop this intuition further in my analysis of the Remote Past in §5.6, where I claim that the Remote Past is a "discontinuous past" tense (Plungian and van der Auwera 2006) which introduces a right-bound. For now, we turn to establishing the central generalization of this chapter, which further reinforces the view that the two suffixes make distinct semantic contributions.

5.1.2 Cessation inferences with *-(h)kwe'* are cancellable

The use of the Former Past carries an additional inference beyond the anteriority of the reference time: namely, it is understood readily as expressing that the eventuality does not hold at the utterance time.

This is illustrated in (248), for both a habitual construal (248a) and an ongoing episodic construal (248b).

(248) **Former Past on Habitual gives rise to a cessation inference**

a. Shikekhsà:'a **katá:wenskwe'**
Shi-k-ekhsá'a ka-atawen-s-kwe'
COIN-1SGA-child 1SGA-swim-HAB-PAST
'When I was a child, I used to swim.'
⇝ I no longer swim now.

b. Ohna'kénhaton shahí:ken' **ratóratskwe'**
Ohna'kénhaton sha'-hi-ken-' r-atorat-s-kwe'
last.time COIN-1SG>MSG-see-PUNC MSGA-hunt-HAB-PAST
'When I saw him last, he was hunting.'
⇝ He is no longer hunting.

Like in English, these cessation inferences are defeasible. They may be cancelled by a continuation which explicitly denies that the eventuality ceases. This is shown in (249a). Another strategy for cancelling this inference is to follow up with a continuation which explicitly states the speaker's ignorance of whether the eventuality continues or not. This is shown in (249b).

(249) **Cancellation of inference via explicit denial of cessation and ignorance statement**

a. Shikekhsà:'a **katá:wenskwe'** tánon' shé:kon katá:wens.
Shi-k-ekhsá'a ka-atawen-s-kwe' tánon' shé:kon k-atawen-s
COIN-1SGA-child 1SGA-swim-HAB-PAST and still 1SGA-swim-HAB
'When I was a child, I used to swim and I still do.'

b. Ohna'kénhaton shahí:ken' **ratóratskwe'** nek tsi iah
Ohna'kénhaton sha'-hi-ken-' r-atorat-s-kwe' nek tsi iah
last.time COIN-1SG>MSG-see-PUNC MSGA-hunt-HAB-FOR.PST but NEG
tewakaterièn:tare' tóka' shé:kon ratóratsrats.
te-wak-aterientar-e' toka' shekon r-atorat-s.
NEG-1SGP-know-PUNC if still MSGA-hunt-HAB
'When I saw him last, he was hunting but I don't know if he's still hunting.'

Finally, we can see the defeasibility of the inference in discourses such as (250). In this example, Speaker A asserts that there was some past habitual occurrence (in this context, of burying the dead). This predicate is marked with the Former Past, giving rise to an inference that the custom is no longer in place. However, Speaker B can felicitously ask about the present occurrence of this custom. If Speaker

A's use of the Former Past-marked predicate is tantamount to an assertion that the custom has ceased, Speaker B's question should sound infelicitous, contrary to the reported judgement.

(250) **Defeating inference by felicitous questioning of cessation**
Context: *After explaining an old custom for burying the dead.*

Speaker A.	Tho	shes	niiá:wens**kwe'**.	
	tho	shes	ni-ia-wen-s-kwe'.	
	that	used.to	PRT-FIsgA-happen-HAB-FOR.PAST	
	'That's what used to happen.'			
Speaker B.	Shé:kon	ken	tho	nihatiiéhrha'?
	shekon	ken	tho	ni-hati-iehr-ha'?
	still	Q	that	PRT-MplA-do-HAB
	'Do they still do that?'			

The above examples show that the use of the Former Past with the Habitual aspect leads to a defeasible cessation inference. We see identical properties when the Former Past is used with the Stative aspect on verbs such as *wennahnot* 'read' in (251).

(251) **Former Past on Stative gives rise to cessation inference**

Kahiatónhsera	rowennahnó:t**ahkwe'**
kahiatonhsera	ro-wennahnot-a-hkwe'
book	MsgP-read-STAT-FOR.PST

'He was reading the book.'
⇝ He is not currently reading

As before, we see that the inference is cancellable, shown here with an explicit denial in (252a) and by an ignorance statement in (252b).

(252) **Cancellation of inference via explicit denial of cessation and ignorance statement**

Shontakatáweia'te	rowennahnó:ta**hkwe'**
Shon-ta-k-ataweia't-e	ro-wennahnot-a-hkwe'
COIN-CIS.FACT-1sgA-enter-PUNC	MsgP-read-STAT-FOR.PST

'He was reading when I entered…'

a.

… tánon	shé:kon	rowennà:note'	ó:nen'k
… tanon'	shekon	ro-wennahnot-e'	onen'k
… and	still	MsgP-read-STAT	right.now

'…and he is still reading right now.'

b. ... nek tsi iah tewakateriéntare' tóka shé:kon rowennà:note'
... nek tsi iah te-wak-aterientar-e' toka shekon ro-wennahnot-e'
... but NEG NEG-1SGP-know-STAT if still MSGP-read-STAT
'...but I don't know if he's still reading.'

Taken together, we arrive at the following generalization. Predicates marked with the Former Past, regardless of the viewpoint aspect of the verb, leads to a defeasible cessation inference.

5.1.3 Cessation inferences with *-hne'* are not cancellable

Similar to the Former Past, the Remote Past gives rise to a cessation inference. This is true for both the on-going episodic construal in (253a) and the (result) perfect construal in (253b).

(253) **Remote Past on Stative gives rise to a cessation inference**

a. Shawátis **rotshokwèn:ne**.
Shawatis ro-atshokw-en-hne
John MSGP-smoke-STAT-REM.PAST
'John was smoking.'
⇝ John is not currently smoking

b. **Context:** *Paul and Sue got married in the 80s. Someone asks me whether I know Paul*
Hen riienté:ri'. Sue **rotiniakòn:ne'**.
Hen ri-ienteri-'. Sue roti-niak-on-hne
Yes 1SG>MSG-know-PUNC. Sue MDUP-marry-STAT-REM.PST
'Yes, I know him. He was married to Sue.'
⇝ They are not married anymore

Unlike the Former Past, the cessation inference arising with the Remote Past *cannot* be cancelled, either with an explicit denial of the cessation (254a) or with a statement asserting the speaker's ignorance of the present state of affairs regarding the eventuality (254b).

(254) **Remote Past cessation inference cannot be cancelled**

a. #Shawátis **rotshokwèn:ne** {tánon'/nek tsi} shé:kon rotshókwen.
Shawatis ro-atshokw-en-hne tanon'/nek tsi shekon ro-atshokw-en
John MSGP-smoke-STAT-REM.PAST and/but still MSGP-smoke-STAT
Intended: 'John was smoking and/but he is still smoking .'

b. #Sue rotiniakòn:ne' nek tsi iah tesewakaterièn:tare' tóka' shé:kon
Sue roti-niak-on-hne nek tsi iah te-se-wak-aterien:tar-e' toka' shekon
Sue MDUP-marry-STAT-REM.PAST but NEG NEG-REP-1SGP-know-PUNC if still
rotiniá:ken
roti-niak-en
MDUP-marry-STAT
Intended: 'He was married to Sue, but I don't know if they're still married.'

This contrast is made clearer with cases such as (255), which show continuations that contradict the cessation inference by other means. The Remote Past marked verb in example (255a) gives rise to the inference that the keys *had been* lost. In other words, the cessation inference is that the state of the keys being lost has ceased, and therefore that they have been found – a continuation which contradicts this, as seen here, is judged to be infelicitous. Similarly, the example in (255b) expresses a past and ceased state of corn being planted. Since this state is ceased, the corn cannot still be growing; speakers note that the statement of the Remote Past marked predicate *ienthòn:ne* 'had planted' requires the corn to have been removed from the ground.

(255) **No cancellation for result perfects**

a. #wakatiòn:ne ne akehnhotónkwa tánon' shé:kon watiè:was
wak-ati-on-hne ne ake-hnhotonkwa tanon shekon w-at-iehwa-s
1SGP-lose-STAT-REM.PST NE 1SGP-keys and still NP-look.in.vain-HAB
'Intended: I had lost my keys and I still can't find them.'

b. #wakenenhstaienthòn:ne tánon' shé:kon taiohniotie'
wake-nenst-a-ienth-on-hne tanon shekon ta-io-hnio-tie'
1SGP-corn-JR-plant-STAT-REM.PST and still CIS-NP-grow.STAT-PROG
'Intended: I had planted the corn and it is still growing'

Thus, we see that the behaviour of the cessation inference arising with the Remote Past differs markedly from that arising with the Former Past.

5.1.4 Cessation inferences still arise in past contexts

In languages like English, cessation inferences arise limited contexts. Specifically, they arise with stative predicates in contexts with a present topic time. When there is a salient past reference time, the cessation inference does not arise. Klein's (1994) well-cited example is a case in point.

(256) CONTEXT: *A judge questioning a witness in a courtroom.*

a. What did you notice when you looked into the room?

b. There was a book on the table. It was in Russian. (Klein 1994: 4)

The judge's question in (256a) sets a definite past reference time. In the context of this past reference time, the two clauses in the response (256b) differ slightly in whether they give rise to a cessation inference, despite both verbs being stative and in the PAST tense. The first predicate, *be on the table*, does not appear to make any assertion about the present state of the book, though world knowledge suggests that the book is likely no longer on the table (Klein 1994; Altshuler and Schwarzchild 2013). On the other hand, the second predicate, *be in Russian*, clearly does not come with a cessation inference. I will discuss an account for these obviated cessation inferences in §5.2.1.

The past suffixes in Kanien'kéha, like the one in Tlingit (Cable 2017: 640), do not exhibit such obviation of cessation inferences in the context of a past topic time. Firstly, note that there is a contrast between the contexts which license the Former Past and Remote Past. A past reference interval, supplied by the first sentence, is sufficient to license the Former Past (257) but not the Remote Past (258). The infelicity of the Remote Past, as indicated by the speaker's comment in (258b), is due to the fact that the Remote Past marked predicate must not apply at utterance time. In other words, world knowledge contravenes the non-defeasible cessation inference arising with the Remote Past.

(257) a.

Wà:khsa'	tsi	wakewennà:note'.	É:so	tsi	onke'nikonhró:ri'	
wa'-k-hs-a'	tsi	wake-wennanot-e	eso	tsi	wa'-wake-'nikonh-rori-'	
FACT-1SGA-finish-PUNC	that	1SGP-read-STAT	this	that	FACT-1SGP-mind-tell-PUNC	

'I finished reading a book. It entertained me.'

b.

Wà:khsa'	tsi	wakewennà:note'.	É:so	tsi	wake'nikonhró:ri'**skwe'**
wa'-k-hs-a'	tsi	wake-wennanot-e	eso	tsi	wake-'nikonh-rori-s-kwe'
FACT-1SGA-finish-PUNC	that	1SGP-read-STAT	this	that	1SGP-mind-tell-HAB-FOR.PST

'I finished reading a book. It entertained me.'

(258) a.

Wà:khsa'	tsi	wakewennà:note'.	É:so	tsi	kaká:res
wa'-k-hs-a'	tsi	wake-wennanot-e	eso	tsi	ka-kares
FACT-1STA-finish-punc	that	1SGP-read-STAT	this	that	NA-be.long.STAT

'I finished reading a book yesterday. It was long.'

b. #Wà:khsa' tsi wakewennà:note'. É:so tsi kakaresòn**:ne**
wa'-k-hs-a' tsi wake-wennanot-e eso tsi ka-kares-on-hne
FACT-1STA-finish-punc that 1SGP-read-STAT this that NA-be.long.STAT-REM.PST
'I finished reading a book yesterday. It was long'
Speaker comment: It was a long book, but it's short now. For example, someone writes a long book and is told to revise and shorten it.

Keeping this asymmetry in mind, we will see two cases where a past reference time still gives rise to a cessation inference. Due to the strong nature of the inference with the Remote Past, we will focus on the Former Past for now, deferring treatment of the Remote Past to §5.6. In the case of a contextually-salient past reference time, set in (259) by the co-text, the past form still gives rise to the cessation inference with respect to the final predicate, *nahskwaien* 'have horses'.

(259) Thetén:re' ontiatén:ro' raorakarèn:sne iewakenónhne
thetenre ontia-tenro' raorakarensne ie-wake-non-hne
yesterday my.friend his.barn.LOC CIS-1SGP-go.STAT-REM.PST

tánon' áhsen **nikontí(hne')** akohsá:tens **ronáhskwaientahkwe'**
tanon' ahsen ni-konti-hne akohsatens ro-nahskwaient-a-hkwe'
and three PRT-be.number.STAT-REM.PST horse MSGP-have.horse-STAT-FOR.PST
'Yesterday, I had gone to my friend's barn and he had three horses.'
⇝ He no longer has the horses.

The second case where a past marked predicate is in embedded clauses under past interpreted predicates. Specifically, the use of the Former Past under a (past-construed) verb of saying leads to a backshifted interpretation, relative to the time of the matrix event.[4]

(260) CONTEXT: *Katya didn't show up for a get-together last week. Willie told me yesterday why.*
Theténre Willie wahèn:ron' [tiahia'khera tsi náhe Katya Aquatic Centre
Theténre Willie wa-ha-ihron-' tiahia'khera tsi náhe Katya Aquatic Centre
Yesterday Willie FACT-MSGA-say-PUNC last.week Katya

kiontá:wens(**kwe'**)]
t-ie-atawen-s-kwe'
CIS-FI.A-swim-HAB-FOR.PST
'Yesterday, Willie said that Katya was swimming at the Aquatic Centre last week.'

[4]Such examples raise additional questions about sequence of tense effects in Kanien'kéha. Preliminary examples suggest that sequence of tense effects (i.e., the lack of backshifting) obtain in Kanien'kéha when a Former Past marked verb is embedded by another Former Past marked verb; however, since the Former Past is restricted to the Habitual aspect, testing the full paradigm using naturalistic examples has not yet been possible. Discussing these in further depth is beyond the scope of this chapter, and will be left for future research.

These examples show that, even in past contexts, whether they are discourse contextual or due to syntactically overt material, the cessation inference with the Former Past survives.

5.2 Two analytical options for the defeasible cessation inference

Having laid the core generalizations, I will first focus my attention on the defeasible cessation inference arising with the Former Past, as described in §5.1.2. I postpone a discussion of the non-defeasible cessation inference arising with the Remote Past described in §5.1.3 until §5.6. In this section, I provide the theoretical context which motivates the puzzle tackled in the remainder of the chapter.

5.2.1 Cessation inference as scalar implicature

As a starting point, Altshuler and Schwarzchild (2013) consider contexts such as (261), where the use of a past tense stative predicate gives rise to the inference that the stative eventuality does not hold at the utterance time.

(261) a. How is Scotty doing?

b. He was anxious.
⇝ He is not currently anxious.

Their account of this inference relies on the relative strength of past and present tense alternatives, which in turn relies on one further assumption about the temporal structure of stative predicates in English. They call this assumption the Temporal Profile of Statives, stated in (262).

(262) **Temporal Profile of Statives (TPS)**
For any tenseless stative clause φ and world w, if φ is true in w at moment m, then there is a moment m' preceding m at which φ is true in w and there is a moment m'' following m at which φ is true in w.

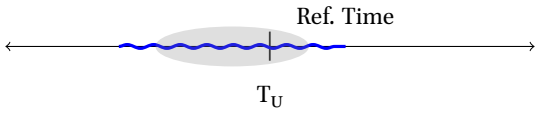
The meanings of the PAST tense sentence in (261b) and its PRES tense alternative are given in (263). I make one adjustment to how they state temporal meanings: I assume that the utterance time is an instant/moment (or a trivial interval), and that the reference interval may be non-trivial (i.e., contain more than one moment). Because of this assumption, I will write $t \circ m$ to mean that the interval t overlaps with a moment m (or the interval [m,m]), rather than $t = m$.

(263) a. $[\![$ Scotty is anxious $]\!] = \lambda t \lambda w \exists t'(t' \circ t \wedge \text{be.anxious}(w, t, \text{scotty}))$

b. $[\![$ Scotty was anxious $]\!] = \lambda t \lambda w \exists t'(t' < t \wedge \text{be.anxious}(w, t, \text{scotty}))$

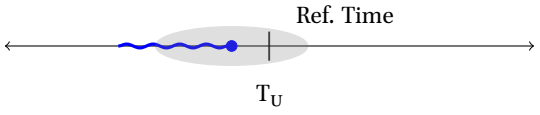
(adapted from Altshuler and Schwarzchild 2013)

Note that, as written, these two meanings do not stand in a logical relation to each other. It is only under the assumption stated in (262) that the logical relation arises. That is, the PRES tensed sentence asserts that there is some (non-trivial) interval that overlaps with the utterance time, at which Scotty is anxious. Given the TPS, the result is that there will always be some moment prior to the utterance time where we can form an interval verifying the meaning of the PAST tensed alternative. This is illustrated graphically in (264) below.

(264) 

(✓PAST, ✓PRES)

On the other hand, the PAST tensed sentence asserts that there is some interval before the utterance time at which Scotty is anxious. This is true in one of two situations. We have seen the first situation above in (264). In this situation, both PAST and PRES tense alternatives are assertable. Crucially, the second situation is when the interval strictly precedes the utterance time, in which case the PRES tense alternative is false. This is illustrated in (265).

(265) 

(✓PAST, #PRES)

Given these two meanings, the PRES tense sentence asymmetrically entails the PAST tense sentence; in other words, it is the stronger meaning. Thus, we have the right relation between alternatives to derive a scalar implicature. Note, however, that the meanings which enter into the competition are not strictly the meanings of the tenses. The PRES tense simply states temporal overlap between the reference interval and the utterance time. The TPS, together with the assumption that the reference interval is non-trivial, gives us the result that any for scenario where PRES tense sentence (with stative a predicate) is true, the PAST tense sentence is also true.

Conversely, the PAST tense states that the reference interval is strictly past with respect to the utterance time. The result is a weaker set of truth conditions relative to the PRES tense sentence. While Altshuler and Schwarzchild (2013) set aside the discussion of aspect (see their fn. 7), it seems to me crucial that the aspectual meaning of the stative predicate is essentially imperfective in order to account for the defeasibility of these cessation inferences. I will show this to be the case more forcefully for Kanien'kéha but for now I assume that this is what was intended. The result of this assumption is that PAST tense sentences with a strictly past tense are weakened – they can be used to refer to past or present eventualities, although they are subsequently pragmatically strengthened by the cessation implicature. That is, the relation between these two sentences is as such: the PRES tense sentences entail the truth of their PAST tense alternative by the TPS, a lexical property; the PAST tense sentences are merely compat-

ible with the truth of their PRES tense alternative, because they make no claims about the continuity of the eventuality beyond the strictly-past reference interval.

This seems to me to be an important distinction. The TPS states that for *any* interval (where φ is true), that interval is open. It does not make any reference to reference times; in other words, this is not a hypothesis about aspect or tense, but rather the structure of stative *predicates*. What this permits Altshuler and Schwarzchild (2013) to do is provide an account for cases where cessation inferences are obviated, namely in the context of a salient past reference time. To see this, consider the minimally different discourse in (266), where no cessation inference arises.

(266) a. How was Scotty doing yesterday?

b. He was anxious.
$\not\rightsquigarrow$ He is not currently anxious.

In this case, the runtime of the stative predicate *be anxious* may well run into the present. The explanation that they provide is that, in the context of a (strictly) past domain restriction on the existential tense, the PRES tense alternative is false for any choice of interval. Thus, no competition arises, and no cessation inference is drawn. This is shown in (267a): the boxed contextual domain restriction and tense restriction are contraries for the value of C1 given in (267b), resulting in the falsity of the whole PRES tense sentence.

(267) a. $[\![\text{ Scotty is anxious }]\!] = \lambda t \lambda w \exists t' (\boxed{t' \circ \text{t} \wedge t \in C_1(w,t)} \wedge \text{be.anxious}(w, t, \text{scotty}))$

b. $g(C_1) = \lambda w \lambda t''.\ t''$ is the interval spanning yesterday in w.

They argue that the lack of cessation inference has nothing to do with properties of the stative predicate and everything to do with the meaning of tense (in a given context). This point is worth underlining because it is not clear that the Kanien'kéha cessation inferences are obviated in such a way, as we have seen in §5.1.4. As I will argue below, while the account for Kanien'kéha cessation inferences shares much of the same shape as that of Altshuler and Schwarzchild (2013), the locus of the necessary assumption to derive the desired entailment between PAST and PRES is different. In English, it is at the level of tenseless stative clauses (plausibly a lexical fact, for state verbs). In Kanien'kéha, it is uniformly at the level of viewpoint aspect, a robust and obligatorily-marked grammatical category.

That is, the analysis of English cessation inferences presented here relies on the TPS to derive the assertability of alternative tenses within the same reference time concept. In Kanien'kéha, as I will argue, cessation inferences arise from the assertability of alternative tenses with imperfective (Habitual or Stative) predicates, which make no claim about the relation between the utterance time and the runtime of the eventuality. Present-tense imperfective predicates, however, impose a stronger condition in that the runtime of the eventuality *must* include the utterance time. To tell the story that Altshuler and

Schwarzchild (2013) do for English, the analytical task is, given some interval where a stative predicate φ is true, to find whether PAST(φ) or PRES(φ) is verified. In the context of a present reference time and domain restriction, if one asserts PRES(φ), we can be certain that PAST(φ) is also assertable; if one asserts PAST(φ), however, this does not guarantee that PRES(φ) is always assertable. The result is that when one asserts PAST(φ), we draw the implicature that PRES(φ) is false.

Before we develop this discussion further, we turn to a discussion of an alternative account which derives cessation inferences in a language which does not have the correct logical relation between its tenses to give rise to a scalar competition.

5.2.2 Alternative pragmatic account

An alternative account to derive cessation inferences is provided by Cable (2017), whose empirical focus is Tlingit. As Cable shows, the profile of cessation inferences in Tlingit differs slightly from those in English, motivating an alternative pragmatic principle to derive them. Neither the differences nor the account will be crucial for us here. What I emphasize here is that an analysis along the lines of Altshuler and Schwarzchild (2013) is a non-starter for Tlingit due to independent properties of Tlingit's tense system. Having done this, I will show (in §5.3) that while Kanien'kéha appears to have the same properties as Tlingit which raise this analytical challenge, closer examination shows that this is not so: Kanien'kéha's tense inventory is in fact more similar to English than Tlingit, permitting a scalar implicature analysis to go through.

Tlingit is an optionally tensed language in the sense of Bochnak (2016); Bochnak et al. (2019). That is, the language has morphologically tenseless clauses which may be interpreted with past or present temporal reference. This property is illustrated in (268), where the tenseless imperfective clause in (268a) is translated into English with either present or past tense. Future reference, however, must be overtly marked as in (268b).[5]

(268) a. Kuwak'éi
IPFV.weather.be.nice
'The weather *is/was* nice.'

b. Kei kukgwak'éi
FUT.weather.be.nice
'The weather *will be* nice.' (Cable 2017: 656)

[5]There is variation in languages with tenseless clauses whether future reference requires overt marking or not. Languages where bare clauses can be used for future reference include Washo (Bochnak 2016); those in which they cannot include Tlingit, St'á'timcets (Matthewson 2006). Kanien'kéha is part of the latter group, requiring overt marking for future reference. See Pancheva and Zubizarreta (2023) for some discussion on this variation.

Alongside morphologically tenseless clauses, Tlingit has a tensed form, using what is traditionally known as the "decessive epimode" though glossed here as PST following Cable (2017) (see also Crippen 2019: 170). Such clauses are obligatorily interpreted with past temporal reference, and additionally give rise to a cessation inference, as illustrated in (269). These are compatible with both perfective and imperfective aspect verbs, both of which have a cessation inference.[6]

(269) a. Kuk'éiy**een.**
IPFV.good.weather.PST
'The weather was nice (but turned bad).' (Leer 1991: 464 cit. in Cable 2017: 637)

b. I tláa áwé xwasháa**yin**
your mother FOC 3O.PFV.1SGS.marry.PST
'I married your mother (but we're not married anymore).' (Leer 199:468 cit. in Cable 2017: 662)

The crucial analytical point for Tlingit is that morphologically tenseless clauses are covertly marked with a NON-FUTURE (NFUT) tense, shown in (270).[7]

(270) **Non-future tense (as in St'á't'imcets, Tlingit; adapted from Cable 2017: 656)**
$[\![\text{NFUT}]\!] = \lambda P_{\langle i,t \rangle} \lambda t' \exists t. \boxed{\neg(t' < t)} \,\&\, P(t)$

Taking the decessive epimode to be a marker of PAST tense, the challenge for analyzing the cessation inferences in Tlingit can be made apparent. Recall that in English, uttering a PAST tense (stative) predicate leads to the inference that the PRES tense alternative is false, thus leading to the cessation inference. This is tractable because, assuming the Temporal Profile of Statives, the PRES tense asymmetrically entails the PAST tense; in other words, PRES is stronger than PAST. In a language which instead has a PAST/NFUT distinction, depending on whether the TPS is adopted, the entailment relation is either reversed (PAST asymmetrically entails the NFUT) or weakened (PAST and NFUT mutually entail each other). Therefore, a scalar implicature account is a non-starter for Tlingit.[8]

[6]The "perfective mode" in Tlingit illustrated in (269b) is shown by Cable (2017: 670) to be ambiguous between a (past) perfective interpretation and a (present or past) perfect interpretation. In these cases, the cessation inference is not about the dynamic event but the (perfect) result state, distinguished terminologically as a "cancelled result" inference (Plungian and van der Auwera 2006). We will see below that the Kanien'kéha Stative aspect is similarly ambiguous, and correspondingly has a similar "cancelled result" inference. I show below that the distinction between these inferences is solely terminological; the inference is the same, though the event structure of the underlying predicate derives the difference in which part of the event (the event itself or its result) is inferred to cease.

[7]Cable (2017) gives the denotations under a referential theory of tense; to maintain consistency throughout my discussion and ease comparison with Altshuler and Schwarzchild (2013), I have rewritten this as a quantificational tense. While these are not equivalent (see Chen et al. 2021), the choice between quantificational or referential tense does not appear to be crucial to the account of cessation inferences made here.

[8]This is one place where the finer-grained distinction between referential and existential analyses of tense becomes crucial: Chen et al. (2021) argue that Javanese and Atayal have both a null pronominal NFUT/FREE tense and an existential PAST

For example, a NFUT marked sentence refers to intervals that are either past, present, or span the past and present. This latter interval is motivated by examples such as (271), where the interval being referred to must be over a past-and-present interval in order for this sentence to be true (see §?? for further discussion of this example, see also Matthewson 2003, 2006).

(271) **Reference to non-future interval in Tlingit**

CONTEXT: *You are watching two kids, Tom and Anne. Your friend Linda is downstairs reading. First, Tom starts jumping around the room. You tell him to stop, and he does. Soon, though, Anne starts jumping around the room. At this point, Linda opens the door and asks "What is all the noise up here?"*

Táam ka Anne át has wujik'éin.
Tom and Anne PFV.3PLS.jump.around
'Tom and Anne jumped around/are jumping around.' (Cable 2017: p. 657)

Depending on one's understanding of the TPS and the ability of NFUT to refer to a solely present interval (i.e,. the trivial interval $[t^*, t^*]$), we arrive at one of two entailment relations. If the TPS holds for NFUT tense verbs referring to a solely present interval, then NFUT entails PAST. Otherwise, we get no entailment relation in this direction. Our choice between these two does not matter for us here. What matters crucially is that the PAST tense *always* entails the NFUT tense. Cable (2017: 658) alludes to this fact when he writes that, in Tlingit, "there is simply more than one tense allowing for the Topic Time to precede the Utterance Time." Given an interval that is strictly past, both PAST and NFUT are always available to refer to this interval. Thus, regardless of our view of whether NFUT entails PAST in such systems, languages with tense inventories like Tlingit do not permit a scalar implicature analysis of cessation inferences: PAST is stronger (or equivalent) to its putative NFUT alternative, and so will not be able to implicate it's falsity in the desired way.

5.2.3 The analysis to be developed

A detailed exposition of my account will be postponed to §5.5, once we have established the key prerequisite property of Kanien'kéha's tense grammar: it contains two covert tenses ($\varnothing_{\text{PAST}}$ and $\varnothing_{\text{PRES}}$). For now, I will briefly outline the direction we are heading as a touchstone for the remainder of the chapter. My central argument is that Kanien'kéha cessation inferences *can* be straightforwardly analyzed as a scalar implicature, along the lines of Altshuler and Schwarzchild's (2013) analysis of English cessation inferences, despite Kanien'kéha having quite distinct morphosyntactic and semantic properties from English. One of these properties is initially troubling: Kanien'kéha appears to have an overt PAST/covert

tense. This distinction permits cessation inferences, so long as these distinct tense strategies (presuppositional and quantificational) count as alternatives.

NFUT tense distinction, leading to difficulties as discussed above for Tlingit.[9] I will show that this is, in fact, not the case: Kanien'kéha draws a three-way distinction between the overt PAST, a covert PAST, and a covert PRESENT.

The other property of Kanien'kéha is morphosyntactic. The overt PAST tense suffix is restricted to the imperfective aspect forms. That is, while the analysis of English required postulating a covert property of stative predicates in English (the Temporal Profile of Statives in (262)), Kanien'kéha overtly marks the necessary property with its obligatory aspectual inflection. The aspectual restriction of the past tense results in the following generalization: PAST makes no claim about the eventuality at utterance time, whereas PRES does.

Briefly, at the level of the sentence, we will want to end up with a weakly past eventuality (which is compatible with eventualities overlapping with the utterance time) which has a possible alternative present event (which requires the eventuality to overlap with the utterance time). The profile of this competition is sketched in (272).

(272) a. PAST tense: eventuality is on-going at or prior to utterance time

b. PRES tense: eventuality is on-going at utterance time.

c. Use of PRES asymmetrically entails PAST.

d. Use of PAST implicates the falsity of PRES, thus strengthening the meaning in (272a): eventuality is strictly prior to utterance time.

In other words, we will end up with a higher-order competition which compares alternatives at the level of the (aspectually-mediated) relation between the runtime of the eventuality and the utterance time. The goal in the remaining sections is to derive the meanings in (272) compositionally. We therefore turn to a preliminary discussion of the parts which will permit us to do so: Kanien'kéha's tense inventory in §5.3 and the aspects in §5.4.

5.3 Ambiguous morphologically tenseless clauses

The central observations that will permit us to derive the cessation inferences by scalar implicature are the properties of Kanien'kéha's morphologically tenseless clauses, namely that they are ambiguous between a strict past tense and present tense (similar to the overt English tenses). In this section, I will present an empirical argument that morphologically tenseless clauses in Kanien'kéha are marked with one of two covert tenses, either a strict PAST or a PRESENT tense. Unlike Tlingit (Cable 2017) and St'át'imcets (Matthewson 2006), with which Kanien'kéha bears some similarity on the surface, Kanien'kéha does not have a single covert NON-FUTURE (NFUT) tense as in (273), but rather two

[9] Once more, we set aside the Remote Past for now.

covert tenses as in (274). That is, rather than containing a single *weak* non-future, Kanien'kéha's tense inventory contains a both *strict* past and present.

(273) **Covert non-future tense (Tlingit, St'át'imcets)**
$[\![\varnothing_{\text{NONFUT}}]\!] = \lambda P_{\langle i,t \rangle} \lambda t' \exists t. \boxed{\neg(t' < t)} \,\&\, P(t)$

(274) **Covert tense denotations (Kanien'kéha)**

a. $[\![\varnothing_{\text{PAST}}]\!] = \lambda P_{\langle i,t \rangle} \lambda t' \exists t. \boxed{t < t'} \,\&\, P(t)$

b. $[\![\varnothing_{\text{PRES}}]\!] = \lambda P_{\langle i,t \rangle} \lambda t' \exists t. \boxed{t \circ t'} \,\&\, P(t)$

This analytical move, together with an adequate explication of the role of aspect, permits us to account for the cessation inferences in Kanien'kéha along the lines of the account in Altshuler and Schwarzchild (2013) for English. It further illustrates that morphological tenselessness, and further the temporal flexibility of morphological tenseless clauses, cannot alone be taken as a sufficient diagnostic property to determine the presence of an underspecified NFUT tense in a language.

5.3.1 Strict temporal identity under ellipsis

The empirical argument for the covert past and present distinction comes from the strict identity of temporal construals in ellipsis. The intuition underlying this argument comes from an ambiguity test by Zwicky and Sadock (1975), where ambiguous words in a sentence do not allow "crossed readings" under ellipsis (ruling out wordplay). For example, in the sentence (275), the string *her duck* is two-ways ambiguous; however, the elided portion in must be construed identically with the antecedent. The "crossed reading" in (275c), where the elided reading is construed in a different way from the antecedent, is ruled out.

(275) I saw her duck and you did too. (following Zwicky and Sadock 1975)

a. I saw her duck [the bird] and you <saw her duck [the bird]> too.

b. I saw her duck [her head] and you <saw her duck [her head]> too.

c. # I saw her duck [the bird] and you <saw her duck [her head]> too.

Turning back to Kanien'kéha and temporal construals, we see the same ruling out of "crossed readings" under ellipsis. The antecedent in (276) is construed as past-referring, given the co-occuring adverbial. In the coordinated clause, the elided constituent must be past-referring, even if the precise interval picked out is not identical. We see this in (276a), where a distinct adverbial once more enforces a past construal of the elided verb. In contrast, the present referring adverbial in (276b), *òn:wa* 'now', results in

infelicity. This is in spite of the fact that the elided verb *ratá:ewns* is compatible, and in fact preferred in the absence of a contravening temporal adverbial, with a present referring reading; see the discussion of morphologically tenseless clauses around examples (241, 242) above.

(276) **Strict temporal co-reference under ellipsis.**
CONTEXT: *Everyone has been swimming recently to make the most of the final days of summer weather.*
Tiahià:khsera tsi náhe', Kó:r ratáwens...
Tiahià:khsera tsi náhe', Kó:r ra-atawen-s
last.week Kor MSGA-swim-HAB
'Last week, Kor was swimming...'

a. ... tánon' (thetén:re) Sák ò:ni'
tanon' thetenre Sak o'ni'
and yesterday Sak also
'...and (yesterday) Sak was <swimming> too.'

b. #... tánon' òn:wa Sák ò:ni'
tanon' onwa Sak o'ni'
and now Sak also
'...and Sak is <swimming> now too.'

In accounting for the above contrast, I will argue that only the ambiguity account is adequate. To do so, I will assume that ellipsis is licensed only under structural identity. First, let us consider the meaning of the antecedent if it contained a non-future tense. The LF and meaning of the antecedent are given in (277).

(277) a. [[Last.week Kó:r swim-NFUT]$_\alpha$ and [(yesterday) Sák <swim-NFUT> also]]

b. $[\![\alpha]\!] = \lambda w \exists e.\ \text{swim}(e, w) \wedge \textsc{agent}(e, \text{Sak}) \wedge \tau(e) \subseteq t \wedge \neg(t^* < t) \wedge t \subseteq \text{last.week}$

The elided VP will then have one of the following denotations. The temporal adverbials *thetèn:re'* 'yesterday' and *òn:wa* 'now' contribute the final conjunct in each meaning, given in (278) relative to some context *c*.

(278) a. $[\![$ *thetèn:re* 'yesterday' $]\!]^c = \lambda P_{\langle i,t\rangle} \lambda t.\ P(t) \wedge t \subseteq \text{yesterday}_c$

b. $[\![$ *òn:wa* 'now' $]\!]^c = \lambda P_{\langle i,t\rangle} \lambda t.\ P(t) \wedge t^* \subset t$

Together, the meaning in (279a) says that there is an event of Sák swimming which happens over a non-future interval, and that this non-future interval is part of yesterday. The meaning in (279b) says

similarly that there is an event of Sák swimming which happens over a non-future interval, and that this non-future interval contains the present.

(279) a. $\exists e.\ \text{swim}(e) \wedge \textsc{agent}(e, \text{Sak}) \wedge \tau(e) \subseteq t \wedge \neg(t^* < t) \wedge t \subseteq \text{yesterday}$ (= (276a))

b. $\exists e.\ \text{swim}(e) \wedge \textsc{agent}(e, \text{Sak}) \wedge \tau(e) \subseteq t \wedge \neg(t^* < t) \wedge t^* \subset t$ (= (276b))

Crucially, both of the meanings in (279) are perfectly licit, both in terms of the meaning and the identity condition on ellipsis – there is in fact no structural mismatch underlying the disjoint temporal construals. We therefore have no account of why (276b) is infelicitous under the assumption that Kanien'kéha's morphologically tenseless clauses have a covert NFUT tense.

Now, consider the meaning of the antecedent if the inventory of Kanien'kéha tenses contains two covert tenses. The LF of the antecedent must be (280a), given the past construal of the bare clause (as evident from the adverbial). Thus, the only meaning available for the antecedent is (280b).

(280) a. [[Last.week Kó:r swim-PAST]$_\alpha$ and [(yesterday) Sák <swim-PAST> also]]

b. $[\![\alpha]\!] = \lambda w \exists e.\ \text{swim}(e, w) \wedge \textsc{agent}(e, \text{Sak}) \wedge \tau(e) \subseteq t \wedge t < t^* \wedge t \subseteq \text{last.week}$

Given the structural identity condition on ellipsis, switching the tense on the elided verb, as shown in (281), is ruled out syntactically.

(281) *[[Last.week Kó:r swim-PAST] and [(now) Sák <swim-PRES> also]]

We can now see where the contrast seen in (276) arises from. The meanings of the clause with the elided VP are given in (282). While the meaning in (282a) is perfectly licit, the boxed truth conditions in (282b) are contraries. Note that this result also illustrates the necessity for a *strictly* past denotation. A weak tense denotation would not deliver the contrast we are after.

(282) a. $\exists e.\ \text{swim}(e) \wedge \textsc{agent}(e, \text{Sak}) \wedge \tau(e) \subseteq t \wedge t < t^* \wedge t \subseteq \text{yesterday}$ (= (276a))

b. $\exists e.\ \text{swim}(e) \wedge \textsc{agent}(e, \text{Sak}) \wedge \tau(e) \subseteq t \wedge \boxed{t < t^* \wedge t^* \subset t}$ (= (276b))

Thus we have seen that if Kanien'kéha has a NFUT tense, this would incorrectly predict the felicity of (276b); a two-covert-tense analysis accounts for its infelicity without difficulty. I take this as an argument for the stronger conclusion that Kanien'kéha has empirical evidence for an *ambiguity* with morphologically tenseless clauses, in contrast to Tlingit and St'át'imcets, and like Blackfoot (Reis Silva and Matthewson 2007).

5.4 A simplified denotation for the aspects

The analysis of tense in the previous subsection is one half of the story. The meanings of the tenses associated with morphologically tenseless clauses do not, as they are currently stated, stand in any logical relation to each other. This mirrors the analysis for English cessation inferences. In this section, I will adapt the analysis of the aspects developed in Chapter 4 for our purposes here. That is, I will argue that aspect in Kanien'kéha does similar work to what the TPS does in English for Altshuler and Schwarzchild (2013).

The full meanings of the aspects detailed in Chapter 4 will complicate the story here. What is crucial for our purposes is the evidence that the two aspectual forms which co-occur with the Former and Remote Pasts are "imperfective". I will simplify the meanings contributed by the Habitual and Stative aspect forms to be basically an imperfective aspect (see §4.3.1 for justification); the crucial contribution is framed in (283).

(283) $[\![\textsc{stat}]\!] = [\![\textsc{hab}]\!] = \lambda P_{\langle l,t \rangle} \lambda t \exists e. \boxed{t \subseteq \tau(e)} \,\&\, P(e)$

The TPS ensures that, in the absence of overt motivation for aspect in English, the event time can fully cover the reference time. As we saw above, this assumption is crucial for deriving an asymmetrical entailment relation between clauses with past and present tenses. The overt aspect in Kanien'kéha does precisely this: since the past tense forms are limited to imperfective aspect, the use of the past tense will always be those cases where the event time fully covers the reference time.

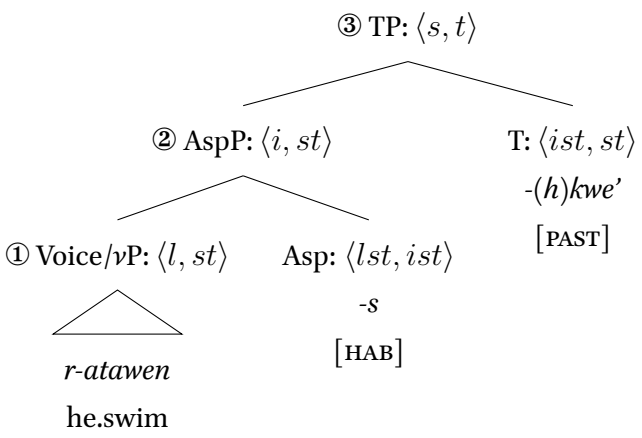
5.5 Deriving cessation inferences by scalar implicature

We are now set up to derive the cessation inference. I will proceed in two steps: firstly, I will derive the meaning of a PAST tense sentence and its PRES tense competitor; secondly, I will illustrate the competition that arises between these two. I will initially focus my discussion on Habitual aspect verbs. Stative aspect verbs with an on-going interpretation can be handled in the same way.

Given the linear order of morphemes, I will assume the syntax in (284b). As above, for simplicity, I will incorporate all arguments into the meaning of the VoiceP predicate.

(284) a. r-atawen-s-kwe'
MSGA-swim-HAB-FOR.PST
'He was swimming.' (episodic)

b.



The meaning of the Habitual (and Stative) aspect arrived at in §5.4 is reiterated in (285a). The meaning of the Former Past is taken here to be an exponent of a plain PAST tense as stated in (285b).

(285) a. $[\![\text{STAT}]\!] = [\![\text{HAB}]\!] = \lambda P_{\langle l,t \rangle} \lambda t \exists e. \boxed{t \subseteq \tau(e)} \,\&\, P(e)$

b. $[\![\text{-(h)kwe'}_{\text{PAST}}]\!] = \lambda P_{\langle i,t \rangle} \lambda t' \exists t. \boxed{t < t'} \,\&\, P(t)$

Following the lexical meanings of tense and aspect listed in (285) and the syntactic structure in (284b), the derivation of the meaning is given below in (286). I assume that, for matrix contexts, the meaning of the TP is applied to the utterance time by default, resulting in the meaning in (286d).

(286) a. $[\![①]\!] = \lambda e$..he.swim(e)

b. $[\![②]\!] = \lambda t. \exists e.\ t \subseteq \tau(e)$ & he.swim(e)

c. $[\![③]\!] = \lambda t'. \exists e.\ t < t'$ & $t \subseteq \tau(e)$ & he.swim(e)

d. $[\![③]\!](t^*) = \exists e.\ t < t^*$ & $t \subseteq \tau(e)$ & he.swim(e) (t^* = utterance time)

The meaning of the bare, morphologically tenseless clauses is derived in a similar way. In place of the overt past tense, one of the two covert tenses argued for in §5.3, repeated in (287), expones the T head.

(287) **Covert tense denotations (Kanien'kéha)**

a. $[\![\varnothing_{\text{PAST}}]\!] = \lambda P_{\langle i,t \rangle} \lambda t' \exists t. \boxed{t < t'} \,\&\, f(t)$

b. $[\![\varnothing_{\text{PRES}}]\!] = \lambda P_{\langle i,t \rangle} \lambda t' \exists t. \boxed{t \circ t'} \,\&\, P(t)$

The covert past tensed clause has an identical meaning as (286d). The LF and meaning of the covert present tensed clause is given in (288). It is this meaning which enters into competition with the overt Former Past marked form.

(288) a. [[[[he.swim] HAB] $\varnothing_{\text{PRES}}$] t^*]

b. $[\![$ 288a $]\!] = 1$ *iff* $\exists e.\ t \circ t^*$ & $t \subseteq \tau(e)$ & he.swim(e)

Before we discuss the competition, I will give my assumptions surrounding the computation of alternatives. This is particularly relevant since there are three potential alternatives at play, and it is not immediately apparent how the alternatives are determined.

Firstly, I will assume that the two covert tenses are not in competition with each other – this is despite the fact that they contain distinct lexical items ($\varnothing_{\text{PAST}}$ and $\varnothing_{\text{PRES}}$). Following structurally-defined theories of alternatives (Katzir 2007), alternatives to a given structure are generated with reference to a notion of structural complexity. Relevant for our purpose is that replacement of a lexical item in a given structure results in a structure that is equally as complex, and therefore admissible as a possible alternative. In the context of Kanien'kéha's tense system, this means that any sentence that includes the $\varnothing_{\text{PAST}}$ tense will have the sentence containing $\varnothing_{\text{PRES}}$ as its alternative. However, morphologically tenseless clauses with a past construal do not give rise to a cessation inference, suggesting that no such alternative is available. One principled reason to rule out the two covert tenses as alternatives to each other is their morphophonological identity. While other cases of structurally-defined alternatives involve cases of substituting phonologically distinct items (for example, *all* and *some*), we are faced with a situation where two distinct lexical items have identical forms. Therefore, I assume a structural account of alternative generation which requires not only syntactic substitution, but morphophonological distinctness between the alternatives.

Secondly, I will assume that the covert $\varnothing_{\text{PAST}}$ and overt Former Past do not count as alternatives because they are semantically identical. The remaining candidates for alternatives are the two phonologically and semantically distinct tenses, namely the covert $\varnothing_{\text{PRES}}$ and the overt Former Past.

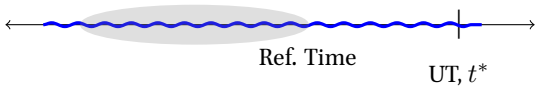
Consider now the meanings of these two alternatives, repeated in (289). In particular, we are interested in the commitment each of these truth-conditions makes about the relationship between the run-time of the eventuality and the utterance time. This is because a cessation meaning arises when the run-time of the eventuality is strictly prior (i.e., prior and non-overlapping) with the utterance time.

(289) a. $[\![$ he.swim-HAB-PAST $]\!] = 1$ *iff* $\exists e.\ t < t^*$ & $t \subseteq \tau(e)$ & he.swim(e)

b. $[\![$ he.swim-HAB-$\varnothing_{\text{PRES}}$ $]\!] = 1$ *iff* $\exists e.\ t \circ t^*$ & $t \subseteq \tau(e)$ & he.swim(e)

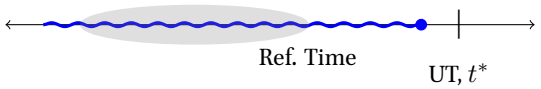
Consider first the past tense alternative. The overlap between the runtime of the *swimming* event and the utterance time is possible, but not entailed. This is because the truth conditions in (289a) make no claim about the relation between the ET and UT. This meaning is compatible with both strictly past and ceased events of swimming as well as events of swimming which occur in the past and continue into the present. Thus, the past tense predicate is true in both situations illustrated in (290).

(290) a. Past reference time interval, continuing eventuality



(Situation 1)

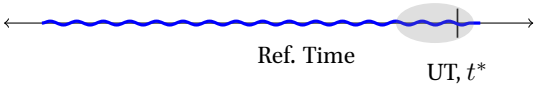
b. Past reference time interval, ceased eventuality



(Situation 2)

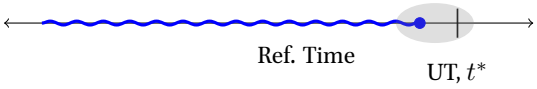
We turn now to the present tense alternative, whose truth conditions are given in (289b). This meaning entails overlap between the ET and UT. This relation arises because the present tense requires overlap between RT and UT, and the imperfective aspect requires the ET to fully cover the RT. Thus, the present tense predicate is only true in the case where the event of swimming holds at the utterance time, illustrated in (291a). In a situation where the eventuality ceases before UT as in (291b), the present-tense alternative is ruled out independently by aspect.

(291) a. Present reference time interval, continuing eventuality



(Situation 3)

b. Present reference time interval, ceased eventuality



(Situation 4)

The temporal meaning of a present-tense marked predicate is therefore stronger than that of a past-tense marked predicate, *relative to the relation between the ET and UT*. Because of this, the two alternatives can be taken to form the scale {PAST, $\varnothing_{\text{PRES}}$}. In all situations where $\varnothing_{\text{PRES}}$ is possible, PAST is also possible; however, use of PAST does not guarantee the possibility of using $\varnothing_{\text{PRES}}$. This is summarized in Table 5.3. Thus, use of the PAST implicates that the speaker is not able to assert the stronger meaning associated with $\varnothing_{\text{PRES}}$, and thus strengthens the meaning of PAST to express the strict anteriority of the ET relative to UT, i.e., a ceased eventuality. The compatibility of PAST with Situation 1 crucially allows the defeasibility of this implicature.

	PAST	$\varnothing_{\text{PRES}}$
Sit. 1	✓	#
Sit. 2	✓	#
Sit. 3	✓	✓
Sit. 4	#	#

Table 5.3: Compatibility of tenses with possible situations

Note here that the lexical meaning of the tenses themselves (in particular the PAST tense) is stronger than the meanings used in computing the competition. That is, while PAST tense semantically contributes *strict pastness* of the reference time, in combination with the imperfective aspect (or the TPS in English), the resulting meaning is compatible with a strictly past or present event (relative to the utterance time). Nonetheless, the result of the competition is the negation of a competitor with an alternative *tense*. The PRESENT tense asserts temporal overlap between the reference time (and therefore of the eventuality time) and the utterance time. On the other hand, the assertion of the PAST-tensed alternative asserts the pastness of the reference time (but not necessarily the eventuality time). The weaker meaning of the PAST-tense imperfective predicate, comprising of both situations in (290), is pragmatically strengthened to exclude situations with continuing eventualities like (290a), where PRES is equally assertable.

5.6 Remote Past cessation entailments

To end, I address one loose end: the analysis of the Remote Past. I forward one possible analysis, but as noted above, this remains tentative pending a more precise description of the distribution of the Remote Past suffix. Nonetheless, this proposal aims to account for the difference in the strength of the cessation inference between the Remote Past and the Former Past.

Recall from §5.1.3 that the Remote Past does not permit cancellation of the cessation inference by any strategy. This behaviour suggests that an alternative strategy to account for this component of meaning is needed. The account I outline here takes the strength of the cessation inference with the Remote Past as indicating that the cessation of the eventuality is entailed lexically. Plungian and van der Auwera (2006) find a similarly strong meaning for past tenses in a range of languages, and argue that these past tenses should be analyzed distinctly from past tenses in languages like English. They call past tense morphemes which encode the obligatory cessation of the eventuality a DISCONTINUOUS PAST, and describe them in the following way relevant to our purposes.[10]

(292) **Discontinuous Past tense (Plungian and van der Auwera 2006: 323)**
With imperfective verbs (states, durative processes, habitual situations), the markers of discontinuous past denote situations of limited duration, *which are claimed not to extend up to the moment of speech.* [Emphasis mine.]

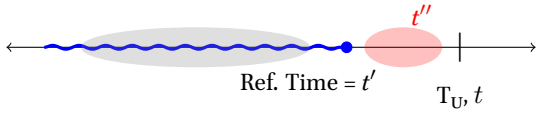
One way to implement the meaning of a discontinuous past is given in (293).

[10]In fact, Plungian and van der Auwera (2006) make a distinction between two types of systems: a "perfective-based" and "imperfective-based" discontinuous past. The forms in Kanien'kéha are imperfective-based, to the extent that the Remote Past suffix is restricted to Stative predicates, which I have argued above are (essentially) imperfective.

(293) $[\![\text{REM.PAST}]\!] = \lambda P_{\langle i,t\rangle}\lambda t\exists t'\exists t''.P(t')$ & $\boxed{t' < t'' < t \,\&\, \neg P(t'')}$

The truth-conditions in (293) state firstly that there is a past (reference) interval t' at which the predicate holds. Secondly, and crucially, the framed condition states that there is an interval t'' that intervenes between the reference interval and the evaluation time wherein the predicate does not hold. This is illustrated graphically in (294).

(294) **Illustration of the truth-conditions in (293)**



The cessation entailment is handled straightforwardly by applying a Stative aspect meaning to (293). Consider the predicate *atshokw* 'smoke' in the Stative aspect, repeated in (295a). The meaning of the AspP is given in (295b).

(295) a. Shawátis rotshókwen.
Shawatis ro-atshokw-en
John MSGP-smoke-STAT
'John was smoking.'

b. $[\![$ smoke-STAT $]\!] = \lambda t.\exists e.\ t \subseteq \tau(e)$ & he.smoke(e)

The Remote Past marked predicate indefeasibly expresses the cessation of this process. The resulting LF and meaning is given in (296).

(296) a. [[[[John.smoke] STAT] REM.PST] t^*]

b. $\lambda w\exists t'\exists''\exists e.\ t' \subseteq \tau(e)$ & John.smoke(e, w) & $t' < t'' < t^*$ & $\neg[t'' \subseteq \tau(e)$ & John.smoke(e,w)]

This sufficiently captures both the anteriority of the smoking event, relative to the utterance time, and the obligatory cessation of the smoking event by the utterance time. While there are further details to be worked out, the proposal made in this section is intended as a proof-of-concept for how the cessation inference may be handled as part of the lexical meaning of the Remote Past, as opposed to the pragmatic path for the cessation inference of the Former Past.

5.7 Summary of claims and implications

I have made three main claims in this chapter.

Empirically, I have shown through novel observations that Kanien'kéha's two past suffixes are semantically distinct. Whereas the Former Past has a defeasible cessation inference, the Remote Past has

a non-defeasible cessation inference. From this observation, my central analytical claim is that these inferences are analyzed in distinct ways: the Former Past's cessation inference arises through a scalar implicature (following Altshuler and Schwarzchild 2013), and the Remote Past's cessation inference is lexically encoded (following Plungian and van der Auwera 2006). In developing my account for the Former Past, I made two additional analytical claims. First: morphologically tenseless clauses in Kanien'kéha are ambiguous. They may contain either a covert present or a covert past. Second: the Stative and Habitual aspects of Kanien'kéha are (primarily) imperfective operators.

Maintaining an implicature analysis of the cessation inferences reveals two theoretical consequences. The first is that while Cable (2017) conjectures that all cases of putative discontinuous pasts are amenable to pragmatic analysis, thereby reducing the overall possible types of tense operators cross-linguistically, the Kanien'kéha Remote Past suggests otherwise. A remaining question is whether the lexically stated truth-conditions of the Remote Past sketched in §5.6 can be reanalyzed as a combination of a plain past tense and some other component. Nonetheless, I have shown that the Former Past *can* be understood as a plain past with a pragmatically strengthened reading, providing one more case of a putative discontinuous past that is in fact a plain past tense in its semantic contribution.

The second theoretical implication arises from the optionality of the past suffixes. In particular, the analysis of the Former Past in Kanien'kéha proposed and developed here results in a curious state of affairs for the tense system of the language. The overt Former Past and the covert past tense suffix are semantically identical, raising the question of how to derive the optionality of the Former Past. The competition that the overt Former Past participates in suggests one reason for optionality: while semantically identical, the two past tenses do not result in morphophonologically identical forms. Rather, the use of the Former Past results in an unambiguous past interpreted form, which then triggers an inferential process. The use of the covert past does not trigger this process; the position taken here to explain this is that while the alternative covert present is semantically distinct (and results from a replacement of the lexical material of the Tense head), it is not distinct in morphophonological form. The upshot is that morphological form is relevant for the calculation of alternatives. In the usual case, replacement of a lexical item has an effect on the form; in the case of Kanien'kéha's tense system, replacement of a covert past with a covert present does not affect the form. The optionality of the Former Past can be framed in a complementary way: since use of the Former Past results in a morphophonologically distinct form relative to the covert alternatives, it triggers the cessation inference by evoking these alternatives. The condition for its use, then, is the speaker's desire to implicate the cessation of an eventuality. This case study underlines that pragmatic considerations are central in determining which of two semantically identical forms is used.

Overall, this chapter concludes the discussion of the temporal semantics of Kanien'kéha. I have developed an integrated and formal account of the temporal properties of the verb roots, the aspects, and the tense system which will serve as the foundation for further work on the grammar of Kanien'kéha

and Northern Iroquoian languages more broadly. In the final chapter, I will summarize my discussion and provide some indication of the future avenues of research, given this foundation.

Chapter 6

Conclusions and next steps

In this thesis, I have investigated the temporal system of Kanien'kéha, from root to tense. At the outset, I posed the following research questions:

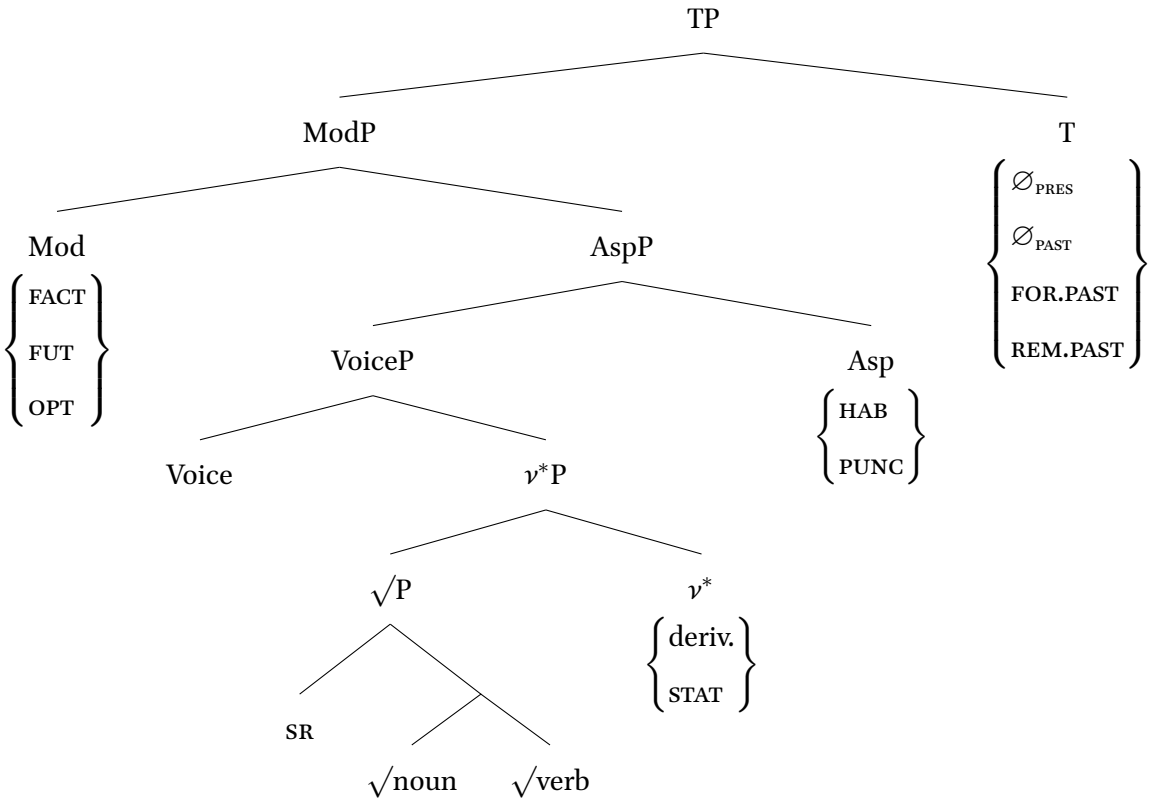
① What are the aspectual **verb classes** in Kanien'kéha? (Ch. 3)

② What semantic and pragmatic contributions are made by the obligatory **Aspect suffixes**? (Ch. 4)

③ What is the inventory of **Tense suffixes**, and how are morphologically tenseless clauses best analyzed? (Ch. 5)

The syntactic picture of the temporal system which emerges from pursuing these questions is given once more in (297). The body of this thesis was devoted to how the various structures built up in accordance with this syntactic scheme get interpreted, focusing on a limited set of constructions.

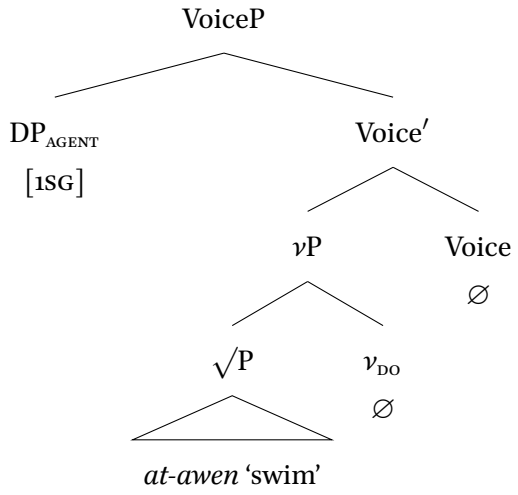
(297) **The morphosyntax of the temporal categories in Kanien'kéha**



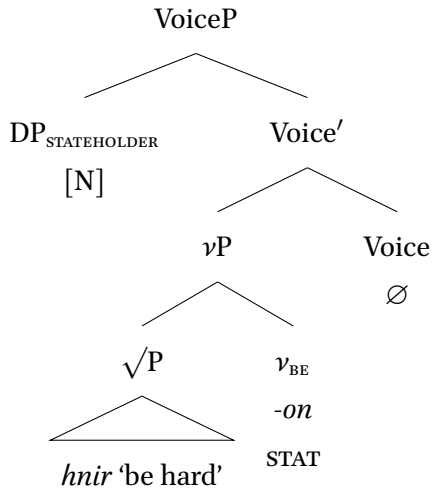
In Chapter 3, I investigated the classification of (possibly complex) verb roots, and showed that they are divided into three major syntactic classes, based on the aspectual paradigms they participate in. I implemented this distinction syntactically through the presence of one of two v^0 heads which form the stem. The state root paradigm consists solely of the Stative aspect. The state stems are themselves built up of the root and a stative v_{BE} head. The event root paradigm consists of three aspects, the Punctual, Habitual and the Stative. Furthermore, I showed that certain event roots may participate in either stative syntax (i.e., verbalized by v_{BE}) or eventive syntax (i.e., verbalized by v_{DO}), with a corresponding change in the interpretation. Finally, I showed that motion roots are a distinguished and heterogeneous class in Kanien'kéha, but set these aside for future work.

The syntax associated with an event verb stem is shown in (298a), and the syntax associated with a state verb stem is shown in (298b).

(298) a. **Event verb built with an eventive *v*P**

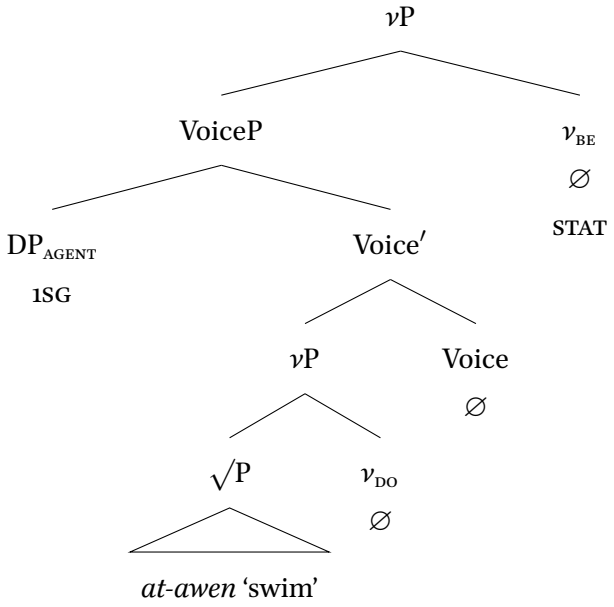


b. **State verb built with a stative *v*P**



I further showed that the Stative aspect suffix, being syntactically a v_{BE} head, may take an eventive complement and derive a “perfect” reading. Thus, I argued in this chapter that the syntax of Stative “aspect” *v*Ps is split between two possible derivational paths – a stative syntax like (298a), associated solely with low v_{BE}, which is realized by the Stative suffix, and an eventive syntax like (299), associated with a high $_{\text{BE}}$. This latter structure is shown in (299).

(299) **Stative "perfect" built with an eventive *v*P ("high v_{BE}")**



The central empirical and analytical contribution of Chapter 3 was to propose that event roots are lexically specified as either telic or atelic, and to argue for a definition of telicity based on the syntactic and semantic presence of a result state. This makes the telic predicates non-homogeneous, and it is precisely this fact that we exploit in Chapter 4 to derive on-going readings of atelic verbs in the Stative aspect. Thus, I argued for the following schema for the denotations of event roots.

(300) a. *telic root* $\rightsquigarrow \lambda e.\exists e_1, e_2.\ (e = e_1 \sqcup e_2)$ & $\textsc{proc}(e_1)$ & $\textsc{res}(e_2)$
(The event e is composed of two sub-events, of which e_1 is a process and e_2 is a result state)

b. *atelic root* $\rightsquigarrow \lambda e.\text{property}(e)$

The syntax and semantics of this classification have consequences for the downstream composition, in particular with the aspectual system, which I turned to in the following chapter.

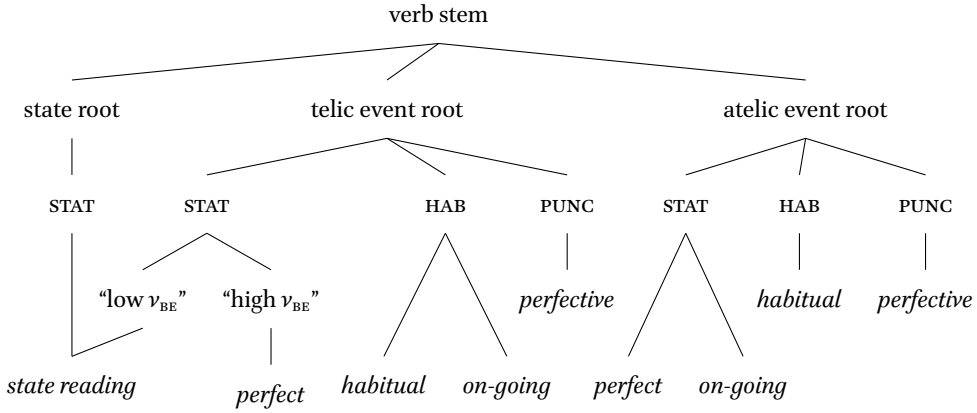
In Chapter 4, I argued that the Punctual aspect is a perfective, and the Stative and Habitual are both imperfective. The bulk of this discussion was dedicated to the on-going episodic interpretation found in the latter non-Puncctual aspects. For the Stative aspect, what I meant by this was that the Stative aspect introduces an ongoing state and asserts the anteriority of some subpart of the base event (following Nishiyama and Koenig 2010). This captures both the range of "perfect" interpretations of event verbs in the Stative aspect, shown in §4.4.6, and the state readings found with the low-v_{BE} syntax, shown in §4.4.7.

I then turned to the Habitual aspect and the expression of habituality. I differentiated the habituality expressed by the Habitual aspect from that expressed by the Modal-Punctual forms, and showed that the latter are used to describe more precisely a "habitual correlation" between events. This section of the chapter focussed on establishing these novel generalizations. As such, I left much of the formal

compositional analysis to the future. Nonetheless, I suggested one possible line of analysis, where the Habitual aspect, in contrast to the Modal-Punctual forms, describes a single on-going state of holding a disposition towards the enacting the eventuality.

The aspectual system is thus summarized in (301). This diagram shows the possible interpretations of the aspects (italicized) given the class of root and the v^0 heading the stem (vP).

(301) **Interpretation of the aspectual system**



Finally, in Chapter 5, I investigated the cessation inferences which arise with the two past tense suffixes. In the process of accounting for these, I showed that the tense system in Kanien'kéha incudes four distinct tenses. More significantly, I showed that despite having surface properties similar to languages with a non-future tense, Kanien'kéha in fact has no evidence for such a vague tense. Rather, I argued that Kanien'kéha's morphologically tenseless clauses are ambiguous between a strictly past reading and a present reading. This was implemented with a covert tense distinction between PAST and PRESENT, as well as an overt tense contrast signalled by the Former Past (semantically a strict PAST tense) and the Remote Past (semantically a "discontinuous past" tense).

(302) a. $[\![\text{FOR.PST}]\!] = \lambda P_{\langle i,t\rangle} \lambda t' \exists t.\ \boxed{t < t'}\ \&\ f(t)$

b. $[\![\text{REM.PAST}]\!] = \lambda P_{\langle i,t\rangle} \lambda t \exists t' \exists t''.P(t')\ \&\ \boxed{t' < t'' < t\ \&\ \neg P(t'')}$

c. $[\![\varnothing_{\text{PAST}}]\!] = \lambda P_{\langle i,t\rangle} \lambda t' \exists t.\ \boxed{t < t'}\ \&\ f(t)$

d. $[\![\varnothing_{\text{PRES}}]\!] = \lambda P_{\langle i,t\rangle} \lambda t' \exists t.\ \boxed{t \circ t'}\ \&\ P(t)$

The above fragment of the grammar can be understood as a case study for how a language might organize its temporal grammar. As such, I will return to the three theoretical questions that this study of Kanien'kéha has provided some answer to.

① What are the relevant **lexical properties of verbs** in deriving the attested interpretations with each tense-aspect form?

② What is the division of labour between the semantic contributions of forms and pragmatic reasoning when arriving at a given temporal interpretation?

③ Do morphologically tenselessness clauses in Kanien'kéha reflect a deep (syntactic or semantic) tenselessness in the structure?

With respect to the first question, we saw that telicity is, at least in Kanien'kéha, a lexical property. It relates here to whether or not an event description is homogeneous. In the case that a verb encodes only a single homogeneous subeventuality, the verb is atelic. In the case that a verb is a sum of subeventualities, it is telic. The telicity of a given verb was shown to affect the downstream interpretation of the aspect suffixes. The homogeneity of a verb provides a clear analytical foothold in accounting for when a given meaning is available in an aspectual form. I illustrated this for the Stative aspect, and showed how the Habitual aspect could be analyzed along the same lines. This analysis of the Stative also demonstrated the division of labour between the semantic contribution of aspect and the pragmatic reasoning which gives rise to the more specific kind of interpretation.

Finally, I provided an analysis of morphological tenselessness which relies on the syntactic and semantic presence of a covert tense. The covert PRES and overt PAST participate in pragmatic competition, to derive a strengthened reading with a cessation implicature. In the absence of a covert tense to act as the competitor, it is unclear whether such a competition could arise.

This initial investigation into the temporal semantics of Kanien'kéha has, in addition to raising interesting analytical and theoretical issues, established a firm foundation for future work on the temporal semantics (and syntax) of Kanien'kéha and the Northern Iroquoian languages in general. Given the rich morphological and syntactic descriptions of these languages, a natural next step is to further investigate the interpretations associated with these structures and to expand the account to the rest of the temporal system. I have laid out, in each chapter, a series of questions for future work along these lines. For instance, the modal system, which was largely set aside in the foregoing discussion, plays a crucial role in the interpretation of the Punctual aspect. Also set aside for future work were the properties of motion verbs, a formalization of the Habitual aspect which can unify the habitual and on-going interpretations, and a more worked out account of the Remote Past. Nonetheless, these further questions all arise as a consequence of the framework developed in this thesis. Thus, I hope to have illustrated that the fragment of the temporal grammar investigated here can serve as the starting point for a more explicit and complete specification of the temporal system.

Appendix A

A learner and teacher's guide

A.1 Introduction

The purpose of this appendix is to make some of the details discussed in this thesis more accessible to learners, teachers, and those involved in language revitalization and reclamation. This appendix follows a parallel structure to the dissertation, and can also be read as a guide to the key points of each chapter. The discussion presupposes no background in linguistics, but does presuppose some familiarity with the language; some of this language background can be filled in by referencing section 2.2 above, as well as Martin (2023), part two of DeCaire (2023), and the introduction to Michelson et al. (2024).

A.2 Basics of time in language

This thesis explores the kinds of interpretations found with the Aspect suffixes (Punctual, Habitual and Stative), the Former Past (*-hkwe'*) and the Remote Past (*-hne'*). These are the boxed parts of the verb in (303).

(303) **Template of the Kanien'kéha verb**
Pre-pronominal prefix — Pronominal prefix — Verb Stem — ASPECT — TENSE

In particular, I am interested in how these forms of verbs impact the *temporal* meaning: whether we're talking about things in the past, present, or future, and how speakers conceptualize the event or state they are talking about. The goals of this exploration involve two parts: ① precisely describe the kinds of meanings each of these forms express (and the kinds they might be expected to express but in fact don't), and ② try to explain *why* these meanings arise. The overall **temporal reference** of a sentence is the set of answers to the following interrelated questions.

1. What time are we having a conversation about (i.e., the past, now, or the future)?

2. Are we talking about a state (like being tall) or an event (like swimming)? And what *kind* of an event?

3. How is the speaker presenting the event or state? (i.e., as ongoing, finished, not yet started)

4. How does the context affect the kinds of meanings available, especially when a form has multiple possible interpretations?

Answering these and similar questions requires us to do some analysis because as speakers of a language, we generally have ready access to the *overall* interpretation of a full sentence *within a context* but not necessarily access to the parts that make up this interpretation. The goal of this analysis is to give us an explicit description of the intuitions that speakers of Kanien'kéha have when they use the language. This is especially useful when these intuitions do not match up with the intuitions English speakers have about translational equivalents to the Kanien'kéha sentences.

Generally, as speakers of any language, we use several grammatical strategies at once in order to figure out what the temporal reference of a sentence is. In Kanien'kéha, these parts are the verb root, the Aspect suffixes, the Tense suffixes when they are present (the Former Past and Remote Past), and very importantly the *context* – all that comes before in the conversation and all our prior knowledge of the world. Additionally, we can use adverbs like *thetén:re'* 'yesterday' or *nòn:wa* 'now' to make things more clear. I will not discuss these kinds of words or phrases here, instead focusing on the root, Aspect, Tense, and to a lesser extent the effect of context.

A.3 Chapter 3: Classifying verb roots

The meaning of a sentence, including temporal meanings, start with the verb root. Different kinds of verb roots will have different meanings in certain Aspects. In this thesis, I differentiate between four classes of verb roots: ① state roots, ② telic event roots, ③ atelic event roots, ④ motion roots. Some examples are given in Table A.1. The rest of this section shows the differences in meaning that eahc type of verb comes with, and some of the properties that help you determine which class any given verb root falls into.

A.3.1 Determining the classes

The main way to tell what class a given verb falls into is ① the Aspects with which it can occur, and ② the specific meaning these aspects have.

The three major classes of verb roots are **state** verbs, **event** verbs, and **motion** verbs. Each of have a different set of Aspects with which it can combine (i.e., each class has a different *Aspect paradigm* associated with it). Event roots have two subclasses, which I will describe in more detail below.

Table A.1: Examples of verb root classess

Class	root	translation
	i'teron	'reside'
STATE	hnir	'be hard'
	hstarathe	'be shiny'
	ientho	'plant it'
TELIC EVENT	ohtahrho	'tidy it'
	atawen	'swim'
	atshokw	'smoke'
ATELIC EVENT	io'te	'work'
	atska'hon	'eat a meal'
	e	'go'
MOTION	takhe	'be running'
	verbs with PURPOSIVE	'going to V'

State verb roots only show up in the Stative aspect. Like the name suggests, these roots typically describe states of being. An example of this is given in (304). These verbs are usually translated into English using adjectives (like *be hard* in Table A.1), but not always (like in (304)).

(304) **State verbs have one aspectual form**

kì:teron

k-i'teron

1SGA-reside.STAT

'I reside there'

Event verbs roots can appear in the Punctual, Habitual, and Stative aspects. Examples are given in (305) and (306). Depending on the meanings associated with verbs in both the Habitual and Stative aspects, we can further classify these into TELIC event and ATELIC event verb roots. (Another term for this specific to Iroquoian linguistics is "consequentiality"). We will discuss these meanings in more detail in section A.3.2 (and section A.4), but for now, just note that a telic event verb in the Habitual aspect can express that the event is ongoing right now, as seen in example (305b). On the other hand, an atelic event verb in the Stative aspect can express this same ongoing event meaning, as seen in example (306c).

(305) **Telic event verbs in the three aspectual forms(Martin 2023: 117, 130)**

a. wa'katóːrate'

wa'-k-atorat-**e'**

FACT-1SGA-hunt-PUNC

'I hunted'

b. katóːrats
k-atorat-**s**
1SGA-hunt-**HAB**
'I hunt (habitually)/am hunting (now) '

c. wakatoráːton
wak-atorat-**on**
1SGP-hunt-STAT
'I have hunted'

(306) **Atelic event verbs in the three aspectual forms (Martin 2023: 93, 115)**

a. waʼtkenónniahkweʼ
waʼ-t-ke-nonniahkw-**eʼ**
FACT-DUPL-1SGA-dance-**PUNC**
'I danced'

b. tekenonniáhkhwaʼ
te-ke-nonniahkw-**ha**
DUPL-1SGA-dance-**HAB**
'I dance (habitually)'

c. tewakenonniáhkwen
te-wake-nonniahkw-**en**
DUPL-1SGP-dance-**STAT**
'I have danced/am dancing (now)'

Finally, the smaller class of motion verb roots can show up in the Habitual and Stative aspect and, depending on the specific root, can show up with the Punctual or the Intentive (Present) aspect. The differences between the last two aspects lies in whether or not the Factual pre-pronominal prefix is needed, and what the meaning of the overall form is. In example (307a), the Intentive aspect can optionally take a *waʼ* prefix — this is interpreted as motion away from (like a Translocative prefix), differentiating it from the Punctual. We can see this contrast even clearer in Purposive stems which have four forms, shown in (308) — compare the Punctual form (308a) with the Intentive form (308d).

(307) a. íːkeʼ
i-k-e-ʼ
EP-1SGA-go-INT
'I am going/walking.'

b. tho wà:ke'
tho wa'-k-e-'
tho FACT-1SGA-go-INT
'I am going there.' (Michelson et al. 2024: 107)

(308) **Purposive verb stems have four aspectual forms contrast (Michelson et al. 2024: 87)**

a. wa'katkennisa'à:nha'
wa'-k-atkennisa'-a-hnh-**a'**
FUT-1SGA-meet-JR-PURP-**PUNC**
'I went to a meeting.'

b. katkennisa'à:nhe's
k-atkennisa'-a-hnh-**e's**
1SGA-meet-JR-PURP-**HAB**
'I go to meetings (habitually).'

c. wakatkennisa'à:nhon
wak-atkennisa'-a-hnh-**on**
1SGP-meet-JR-PURP-**STAT**
'He have gone to a meeting.' (Martin 2023: 161)

d. (wa')katkennisa'à:nhe'
(wa'-)k-atkennisa'-à-hnh-**e'**
FACT-1SGA-meet-JR-PURP-**INT**
'I am going/am on my way to a meeting (there).'

All this is summarized in Table A.2. The characteristic aspect – the one which determines with certainty the class membership of any given verb root – is bolded. If you know that the verb uses the Habitual aspect to express ongoing events, then you know that it falls in the class of telic event verbs.

A.3.2 "Telicity" is a central concept in Kanien'kéha

As we saw, event verb roots (those which can be used in the Punctual, Habitual and Stative aspects) fall into two subclasses – we called these subclasses *telic* and *atelic* event verbs. The word *telic* refers to the idea that there is a "resulting endpoint" with these events (from the Greek word *telos* meaning 'purpose, goal'). One defining property of verbs in each of these subclasses is how they express *ongoing events* – in other words, translations of the English Progressive *be V-ing*. Telic verbs use the Habitual aspect to express ongoing events; examples are given in (309). Atelic verbs use the Stative aspect to express ongoing events; examples are given in (310).

Table A.2: Verb root classes and their Aspects

Class	Aspects (and meaning)
State	Stative (ongoing state)
Telic event	Punctual
	Habitual (habit)
	Habitual (ongoing event)
	Stative (perfect)
Atelic event	Punctual
	Habitual (habit)
	Stative (ongoing event)
	Stative (perfect)
Motion	Punctual
	Habitual (habit)
	Stative (perfect)
	Intentive (ongoing motion)

(309) **Telic verbs use the Habitual aspect for ongoing events**

a. ra'niá:ken's
ra-'niaken-'-s
MSGA-escape-INCH-HAB
'he is escaping' (Mithun 2006: 198)

b. katá:wens
k-atawen-s
1SGA-swim-HAB
'I am swimming/bathing'

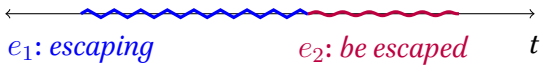
(310) **Atelic verbs use the Stative aspect for ongoing events**

a. rohnekì:ren
ro-hnekihr-en
MSGP-drink-STAT
'he is drinking' (Mithun 2006: 198)

b. wakatshókwen
wak-atshokw-en
1SGP-smoke-STAT
'I am smoking

Section 3.3 argues that one way to think about this contrast is that *telic* verbs in Kanien'kéha express events that have a RESULT STATE baked in as part of the meaning of the verb. This idea is illustrated in (311). The blue line represents the "main process" or an event. For example, the main process of an event described by *'niaken* 'escape', is the process of escaping: this might include the running towards the door, opening the door, and everything leading up to the point at which we might describe someone as "having escaped". Importantly, the meaning of telic verbs also includes a result state – in this case, the point at which someone is "escaped" or in other words, when they've reached the result of their efforts to escape.

(311) **Telic verb describes an event with a result**



On the other hand, the event described by *atshokw* 'smoke' only describes the process of smoking. It doesn't refer to any possible end points, like reaching the end of a cigarette or finishing off a pipe. This means that there is no "result" of smoking as part of the meaning of the verb.

(312) **Atelic verb describes just a process (without a result)**



It is important to remember that this is only about how Kanien'kéha *encodes the meaning* of these events in the language. For some cases, you can rely on your intuition about whether events in the real world have a result state, but this is not an exception-less rule. For example, the Kanien'kéha verb *khonni* 'make food' (and in fact, any verb formed with *onni* 'make' is *atelic* – it only describes the process of making food and says nothing about the real-world result of food being made).

A.3.3 Telicity in other places of the grammar

The idea that verb roots in Kanien'kéha are classified by telicity shows up in other places of the grammar. In other words, it is a central concept in how speakers understand how the meaning of verb roots in Kanien'kéha are structured. Section 3.3.2 shows two of these: the meaning associated with the Reversive suffix, and the meaning associated with the Repetitive pre-pronominal prefix.

The Reversive suffix has two forms, *-hs* and *-ak*, depending on the verb (Benedict et al. 2025). Regardless of which form is used, the suffixes have one of two meanings. We can paraphrase one meaning as "stop doing" the event of the verb, illustrated in (313); the other meaning can be paraphrased as "undo the result" of the event, illustrated in (314). Remember here that *khonni* 'make food' is atelic: it only describes the process of cooking and not the result (despite the fact that cooking in the real world usually *does* have a "result"). That is, telicity is a property of the Kanien'kéha word, not the actual event it refers to!

(313) **Reversive means to "stop" with atelic verbs**

a. wakekhón:ni
wake-kh-onni
1SGP-food-make.STAT
'I'm cooking.'

b. Ó:nen **wakekhonniáhsion.**
onen wake-kh-onni-**ahsi**-on
already 1SGP-food-make-**REV**-STAT
'I've already stopped making food.'

(314) **Reversive means to "un-do" with telic verbs**

a. ke'níkhons
ke-'nikhon-s
1SGA-sew-HAB
'I'm sewing it.'

b. Wa'tkaterien'tawénrie' ne tiorì:wa' **ske'nikhónkwas**
wa'-t-k-at-erien't-awenri-e' ne t-io-rihw-a' s-ke-'nikhon-**kwa**-s
FACT-DUPL-1SGA-SR-disposition-stir-PUNC NE CIS-NP-matter-NSF REP-1SGA-sew-**REV**-HAB
'I made a mistake, so that's why I'm undoing the stitches (again).'

As might be expected, the "undo the result" meaning requires that the verb expresses some kind of a result. It's important to note that this is not a guarantee – some verbs *do* encode a result as part of their meaning, but this result is something that isn't possible to undo. An example of this is (315), *ohare* 'wash' is telic (the Habitual aspect has an ongoing meaning), but the result of *being washed* is something we have no control over the undoing – because of this, speakers understand the Reversive as expressing the "stop" meaning.

(315) **Non-reversible results of telic events**

a. ra'serehtóhares ne raò:sere
ra-'sere-ht-ohare-s ne rao-'sere
MSGA-car-NMLZ-wash-HAB NE MPOSS-car
'He is washing his car.'

b. waha'serehtoharehsi
wa-ra-'sere-ht-ohare-hsi-'
FACT-MSGA-car-NMLZ-wash-REV-PUNC
'He finished washing the car'

So while the Reversives test is not exceptionless, one way to think about this is that *if* the Reversive means "undo", then the verb is definitely telic (and so the ongoing meaning will use the Habitual aspect).

The second area we see the effects of telicity is in the interpretation of the Repetitive pre-pronominal prefix. Once again, there are two (related) meanings of this prefix: one which can be translated as "do X *again*", illustrated in (316). Using the Repetitive prefix requires us all the people in the conversation to agree to a certain presupposition. That is, if something happened *again*, then it must have happened once before.

(316) **Kanien'kéha Repetitive prefix means 'again' (Myers 2025)**

a. Kó:r saharashéntho' ne ahthén:no.
Kor sa-ha-rashenth-o' ne ahthenno
Kor REP.FACT-MSGA-kick-PUNC NE ball
i. '[Kó:r kicked the ball] again.'
Presupposition: An event of Kó:r kicking the ball occurred before.
ii. 'Kó:r [kicked the ball] again.'
Presupposition: An event of kicking the ball occurred before.

b. CONTEXT: John and Paul were friends for 50 years. Last week, John died (*Sawatís wahrénheie'*...)
Sok Kó:r sahrénheie'.
sok Kor sa-hr-enhei-e'
then Kor REP.FACT-MSGA-die-PUNC
'Then Kó:r died.'
Presupposition: An event of dying occurred before.

The other meaning of the Repetitive can be translated as "do X *back*", illustrated in (317a). The contexts here are important to make the difference in these meanings stand out. The restitutive meaning means that the result has happened once before, but not necessarily the process. The repetitive meaning, however, requires that the process (and the result) happened once before.

(317) **"do again" and "do back" ambiguity (Myers 2025)**

a. Teskráhta's
te-s-k-rahta'-s

DUPL-REP-1SGA-put.shoes.on-HAB

✓ Restitutive: 'I'm putting my shoes back on.' (someone else put them on before)

✓ Repetitive: 'I'm putting my shoes on again.' (I put them on before too)

b. Á:re' teskráhta's

are' te-s-k-ráhta'-s

again DUPL-REP-1SGA-put.shoes.on-HAB

✗ Restitutive: 'I'm putting my shoes back on.' (someone else put them on before)

✓ Repetitive: 'I'm putting my shoes on again.' (I put them on before too)

The properties associated with telicity that I report in the thesis are summarized in Table A.3

Table A.3: Properties associated with telicity

root	ongoing aspect	meaning of REV	meaning of REP
telic	Habitual	un-do	again/back
atelic	Stative	stop	again

A.4 Chapter 4: The meanings of the Stative and Habitual aspects

Chapter 4 discussed in detail the meanings of the Stative and Habitual aspects. (The Punctual is left for future work.) Both of these Aspects have various interpretation, which illustrate the importance of CONTEXT. The main point made here is that the Stative verb form in (318) can be interpreted as expressing a single ongoing event (for atelic verbs), like in (318a), or a "perfect", like in (318b). What "perfect" means will be discussed below in section A.4.1.

(318) **Meanings of verbs in the Stative aspect**

a. Kwah ó:nen'k Kó:r **rotshókwen**.

kwah onen'k Kor ro-atshokw-en

just right.now Kor MSGP-smoke-STAT

'Kor is smoking right now.' (ongoing)

b. **Wakátion** ne akehnhotónkwa

wak-ati-on ne ake-hnhotonkwa

1SGP-lose-STAT NE 1SGP-keys

'I have lost my keys.' ("perfect")

On the other hand, the Habitual verb form in (319) can be interpreted as expressing a single ongoing event (for telic verbs), like in (319a), or a habit, like in (319b).

(319) **Meanings of verbs in the Habitual aspect**

a. Ó:nenk ken iesewatá:wens?
onenk ken ie-sew-atawen-s
now Q TRANS-2PLA-swim-HAB
'Are you swimming now?' (ongoing)

b. Shikekhsá'a **katá:wens**(kwe').
Shi-k-ekhsá'a ka-atawen-s-kwe'
COIN-1SGA-child 1SGA-swim-HAB-FOR.PST
'When I was a child, I used to swim.' (habit)

A.4.1 Perfect interpretations of the Stative aspect

The main interpretation of verbs in the Stative aspect is often referred to as a "perfect" (expressed by the "have Xed" form in English). However, the term "perfect" actually groups together four different kinds of meanings. These meanings share two overall properties that make this grouping together reasonable (at least for some languages): ① they express that the event happened in the past and ② they express that this is somehow "relevant" for our current situation. The examples in (320) illustrate this for the English Present Perfect, with more precise labels given for each of the particular meanings usually grouped together under the label "perfect".

(320) **English Present Perfect construals**

a. I have lived in Montréal since 2020. (CONTINUATIVE)

b. Have you ever been to New York? (EXPERIENTIAL)

c. The Canadiens have (just) won! (RECENT PAST)

d. Mary has lost her keys. (RESULTATIVE)

Given the sentence in example (320a), listeners are likely to understand that the speaker *still* lives in Montréal and, of course, has lived in Montréal in the past (since 2020). The example in (320b) asks whether the addressee has been to New York (probably at any point in their life). That is, we are asking about whether they have ever had a *past* experience of going to New York. We typically use this question (as opposed to "Did you go to New York?") when we are trying to relate this past event of New-York-going to some present conversational goal – maybe we're planning a trip now and want recommendations, for example.

In Section 4.4.2, I showed that verbs in the Stative aspect overall have similar readings to the English Perfect. However, depending on the verb class, a particular verb in the Stative aspect will have only a subset of the meanings in (320). (This is true for English as well – not all verb forms allow a continuative reading.) This is summarized in Table A.4, followed by examples below.

Table A.4: Meanings of verbs in the Stative aspect

Root class	CONTINUATIVE	EXPERIENTIAL	RESULTATIVE	RECENT PAST
state	✓	✗	✗	✗
atelic event	✓	✓	✗	✓
telic event	✗	✓	✓	✓

① The first point is that Continuative meanings are only available for state verbs and atelic event verbs. Examples of these are given in (321). Recall that the central part of these meanings is that the event is understood to continue at the present time.

(321) **Continuative readings of atelic verbs use the Stative aspect**

a. Tsi náhe 2021 shiiohserò:ten Tiohtià:ke **shikenákere'**
tsi nahe 2021 shi-io-hser-o'ten tiohtia'ke shi-ke-naker-e'
since 2021 COIN-NP-year-be.kind.STAT Montreal COIN-1SGA-reside-STAT
'I have lived in Montreal since 2021.' (state root)

b. Kó:r shiiohrhòn:ke **shihowenná:note'** kí:ken iewennahnotáhkhwa'.
Kor shi-io-hrhon'k-e shi-ho-wennanot-e' kiken iewennahnotahkhwa'
Kor COIN-NP-morning-STAT COIN-MSGP-read-STAT this book
'Kor has been reading this book all morning/since the morning.' (atelic event root)

In order express a Continuative meaning with telic verbs, the Habitual aspect is used instead. This is illustrated in (322). Ultimately, what this means is that the Continuative meaning is the same as the ongoing reading – since telic verbs use the Habitual for the ongoing reading, the Stative doesn't have this meaning. We'll discuss this in section A.4.3 in more detail.

(322) **Continuative readings of telic verbs use the Habitual aspect**

a. Kó:r shiiohrhòn:ke' **shatehahtotáhrhos.**
Kor shi-io-hrhon'k-e sh-a'te-ha-tohtahrho-s
Kor COIN-NP-morning-STAT COIN-DUPL-MSGA-clean-HAB
'Kor has been cleaning all morning.' (telic event root)

b. #Kó:r shiiohrhòn:ke **sha'tehotohtáhrhon.**
Kor shi-io-hrhon'k-e sh-a'te-ho-tohtahrh-on
Kor COIN-NP-morning-STAT COIN-DUPL-MSGP-clean-STAT
Intended: 'Kor has been cleaning all morning/since the morning.' (telic event root)

② Experiential meanings, which describe some experience that someone has had, are only available with event verbs, shown in (323). With state verbs, a similar meaning requires the use of the past tense.

(323) **Experiential meaning of the Stative aspect**

a. Nonwén:ton ken sahiá:ton ne iawennahnotáhkhwa' kahiatónhsera'?
Nonwenton ken sa-hiaton ne iawennahnotahkhwa' kahiatónhsera'
ever Q 2SGP-write.STAT NE book
'Have you ever written a book?.' (telic event root)

b. CONTEXT: *'Does Kó:r smoke?'* (*Ratshókwas ken ne Kó:r?*)
Tóka nòn:wa enska tà:ni'ts kaié:ri **nihotshókwen.**
toka nonwa enska tà:ni'ts kaieri ni-ho-atshokw-en
maybe one to four PRT-MSGP-smoke-STAT
'He has smoked maybe one to four times.' (atelic event root)

(324) Context: *In response to the question: 'Does Kó:r live in Montréal?'* (*Tiohtià:ke ken ranákere ne Kó:r?*)

a. (Énska ia'ká:ienhte) Tiohtià:ke **thanákerehkwe'** ne Kó:r
enska ia'kaienhte Tiohtia'ke t-ha-naker-e-hkwe' ne Kor
one be.times Montreal CIS-MSGA-reside-STAT-FOR.PST NE Kor

nek tsi nòn:wa iah tho tha'tethanákere.
nek tsi nonwa iah tho th-a'te-t-ha-naker-e
but now NEG there CONTR-DUPL-CIS-MSGA-reside-STAT
'Kó:r lived here in Montreal once, but he doesn't live here now.' (state verb)

③ Resultative meanings express that the result of the verb's event holds right now. For example, the sentence in (**??**) says that the result of losing keys holds right now — in other words, the keys are lost right now. These kinds of meanings are only available if the verb expresses an event with a result – that is, resultative meanings only occur with telic event verb.[1]

[1]To show that the resultative meaning is *only* found with telic verbs, we need to show that atelic verbs do not have resultative meanings. I omit this here because the discussion is slightly indirect, but I argue in section 4.4.2.3 that this is indeed what happens.

(325) **Resultative meanings of the Stative aspect**

a. Wakátion ne akehnhotónkwa tánon' shé:kon watiè:was.
wak-ati-on ne ake-hnhotonkwa tanon shekon wak-iehwa-s
1SGP-lose-STAT NE 1SGP-keys and still 1SGP-be.unable.to.find-HAB
'I lost my keys and I still can't find them.'

b. Wakenenhstaiénthon tánon' shé:kon taiohniótie'.
wake-nenst-a-ienth-on tanon shekon ta-io-hnio-tie'
1SGP-corn-JR-plant-STAT and still CIS-NP-grow.STAT-PROG
'I planted the corn and it is still growing.'

④ Finally, the recent past meaning is usually the default meaning when the verb is negated. Since the Factual-Punctual form of a verb, which is usually used to express recent past events, cannot be used with negation, the negative Stative verb is used with this meaning in its place. This kind of example relies on the context of the utterance. We can see that the Stative aspect has a recent past meaning sometimes when negated. The sentence in (326a) has an experiential meaning as expected since it occurs with *nonwén:ton*. The important point here is that (326b), which doesn't include *nonwén:ton* doesn't have this meaning, as seen by the oddness in response to the question in the context.

(326) **Context**: *'Have you ever written a story book?'* (*Nonwén:ton ken sahiá:ton ne iawennahnotáhkhwa' kahiatónhsera'?*)

a. Iáh nonwén:ton **tewakhiá:ton**.
iah nonwenton te-wak-hiaton
NEG ever NEG-1SGP-write-STAT
'I have never written a book.'

b. #Iáh tewakhiá:ton.
iah nonwenton
NEG NEG-1SGP-write-STAT
Intended: 'I have never written a book.'
Actual: 'I didn't write a book.'

These four points all illustrate the kinds of meanings usually grouped together under the label "perfect". As can be seen, there is considerable diversity in the precise kinds of meanings that are considered "perfect", yet the Stative aspect can be used to express all of them (with some restrictions based on the class of verb, summarized in Table A.4).

A.4.2 Habits using the Habitual and Future-Punctual aspects

In Section 4.5, I discussed the two ways speakers can use to express habitual actions in the past. As expected from the name, the Habitual aspect can be used here to express that an event happens regularly over a period, and will likely continue to happen regularly. The examples in (327) show this kind of an interpretation for both a present habit and a past habit.

(327) a. Katya khiateiahia'khserà:ke **iontá:wens**.
Katya khiateiahia'khsera'ke ie-atawen-s
Katya every.week FI.A-swim-HAB
'Katya swims every week.'

b. Shikekhsá'a **katá:wens**(kwe').
Shi-k-ekhsá'a ka-atawen-s-kwe'
COIN-1SGA-child 1SGA-swim-HAB-FOR.PST
'When I was a child, I used to swim.'

Another strategy that speakers can use to express a past habit, once a context is established, is to use the Future-Punctual form.

(328) a. Áhsen niwáhsen niiohserá:ke tsi náhe, kà:ron shes tsi ní:kon tká:ra's
ahsen ni-wahsen niiohserake tsi nahe ka'ron shes tsi ni-kon tkara's
three PRT-be.ten PRT-be.years that pass be.less used.to that PRT-be.amount TV
ronterò:roks ne ratiksa'okòn:'a.
ron-te-ro'rok-s ne rati-ksa'-okon'a
MPLP-SR-gather-HAB MPLA-be.child-DISTR
'Thirty years ago, children watched less TV.'

b. Áhsen niwáhsen niiohserá:ke tsi náhe, kà:ron shes tsi ní:kon tká:ra's
ahsen ni-wahsen niiohserake tsi nahe ka'ron shes tsi ni-kon tkara's
three PRT-be.ten PRT-be.years that pass be.less used.to that PRT-be.amount TV
enhonterò:roke' ne ratiksa'okòn:'a.
en-hon-te-ro'rok-e' ne rati-ksa'-okon'a
FUT-MPLP-SR-gather-PUNC MPLA-be.child-DISTR
'Thirty years ago, children would watch less TV.'

While these both seem to express similar ideas, there is a slight difference between them. The Habitual aspect is used to express a real habit without necessarily linking it to anything else we've said before.

On the other hand, the Future-Punctual *requires* some other event in the context to link the habit to. We can see this most clearly in the contrast in meaning between the following sentences.

(329) **Context:** *Oh niiontiérhahkwe' shes sa'nisténha shiseksà:'a? 'What did you mother do when you were a child?'*

a. istèn:'en shes tewà:ia iontena'tarón:niskwe tánon' iontawenskwe'
isten:'en shes tewa'ia ion-ate-na'tar-onni-s-kwe tánon' ion-atawen-s-kwe'
my.mother used.to fruit.pie FI.P-SR-bread-make-HAB-FOR.PST and FI.P-swim-HAB-FOR.PST
'My mother used to bake pies and she used to swim.'

b. istèn:'en shes tewà:ia iontena'tarón:niskwe tánon' eniontawen'
isten:'en shes tewa'ia ion-ate-na'tar-onni-s-kwe tánon' en-ion-atawen-'
my.mother used.to fruit.pie FI.P-SR-bread-make-HAB-FOR.PST and FUT-FI.P-swim-PUNC
'My mother used to bake pies and she used to swim.'
Speaker comment: *Every time she finished a pie, she would go swimming. If you saw her making pies, you knew she was going swimming.* (*MM*)

The speaker's comment for (329b) illuminates a crucial part of the meaning of the Future-Punctual when used to express habits that held in the past: the events of *swimming* have to be tied to some other even in the context (here, *pie-baking* events). What this sentences says is that for every pie-baking event, there was inevitably a related swimming event – even though this isn't a very likely situation to occur!

When there is no explicit phrase in the sentence that tells you what to tie the events expressed by a Future-Punctual form onto, like in (328b), the context will usually do so. For example, the events expressed by the Future-Punctual forms in (330b) are tied to the events described in the previous sentence (330a). So, part of each *medicine-making* event, there was a *scraping-bark* and ACQUIRING-BARK event that is tied to it.

(330) a. Tsi nón:we shens iakwen'terón:tahkwe iakotkwiratshénrion ne
Tsi nonwe shens iakwen-'teront-a-hkwe' iako-t-kwir-a-tshenri-on ne
that where used.to 1EX.PLA-reside-STAT-FOR.PST FI.P-SR-tree-JR-find-STV NE
iónt stha shens aienonhkwatsherón:ni.
ion-atst-ha shens a-ie-nonhkwa-tsher-onni
FI.A-use-HAB used.to OPT-FI.A-medicine-NMLZ-make.PUNC
'Where we used to live, we found a tree which which she would use to make medicine.'

b. Kwah é:neken **nenieié:ra'te** tsi **enie'nikónhewe.**
Kwah eneken n-en-ie-iera't-e' tsi en-ie-'nikonh-hew-e'
EMPH above PRT-FUT-FI.A-turn-PUNC that FUT-FI.A-bark-get-PUNC
'She would scrape upwards and get the bark.' (Scott 1991: 2)

A.4.3 Ongoing interpretations

In this section, I will try to make sense of the ongoing interpretations we find with the Stative and Habitual aspects. To do so, I will link ① the meanings of the Stative and Habitual aspects to ② telicity, and explain the intuition underlying how these two parts fit together and result in an ongoing interpretation. In this thesis, I do this explicitly for the Stative aspect, but leave the Habitual aspect for future work. I will sketch the main idea here; my hope is that this will lead to a clearer and more explicit way to think about the ongoing interpretations of these two aspects.

One of the key differences that telicity provides is how we think about "what counts" as an event. Let's look at the diagrams again, first focusing on the atelic verb *atshokw* 'smoke'. Recall that since this verb is ATELIC, this means that it just expresses that there is some process of smoking (and it says nothing about the endpoint).

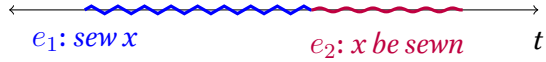
(331) **Atelic verb describes just a process (without a result)**



What this means is that if we want to express the idea that someone is smoking, it is enough to use the "continuative perfect" meaning we discussed above. Since events described by atelic verbs don't have a result, this also means that the moment you start a *smoking* event, you can describe yourself as "having done" this *smoking* – importantly, this means that you can *still* be smoking and still truthfully describe yourself as "having smoked". In fact, this is how continuative readings work.

This reasoning isn't true for telic verbs. To see the reasoning, consider the telic verb *'nikhon* 'sew', which expresses an event of sewing-and-completing. The red portion of the event is the result of whatever we are sewing *being-sewn*.

(332) **Telic verb describes an event with a result**



Imagine that you start sewing a shirt. The moment you start this event, you couldn't really describe yourself as "having sewn a shirt" since you only just started! In other words, *sewing a shirt* doesn't necessarily mean that you *sewed a shirt* – you could have just sewn half. Because of this, when you use this verb in the Stative aspect, what you are saying is that the *whole* event – the sewing *and* the shirt being sewn, that is the process *and* the result – are in the past. Now, if the *result* is in the past, then clearly we can't be in the middle of a sewing event (since what it means to be in the middle of a sewing event is that the result hasn't been reached yet). This is exactly why telic verbs in the Stative aspect don't get interpreted as ongoing events.

A.5 Chapter 5: The Former Past and Remote Past

The main finding from the final chapter of this thesis is that the Former and Remote Past come with two components of meaning. The first is that they both express that the event or state described by the verb happened in the past (I'll call this the **pastness** meaning). The second is that they also express that the event or state is no longer happening (I'll call this the **no longer** meaning). These two halves of the meaning, while they fit together naturally, aren't necessarily linked together. Consider the following conversation in English:

(333) a. A: Do you know where I can buy this book?

b. B: The bookstore on the corner **used to sell** those kinds of books. I don't know if they still do, but you could check there.

In this conversation, person B uses the past form *used to sell*, which tells us that the bookstore in question, at some point in the past, sold the kind of book person A is looking for. This **pastness** meaning is the crucial part of the phrase *used to* in English. Taken alone, we might understand this as saying that they no longer sell this kind of book. In other words, *used to* can also be used to express a stronger **"no longer"** meaning. However, this second meaning isn't necessarily part of what person B is expressing – this is made explicit in the continuation. If person B claims that they "don't know if they still do", then clearly person B intends only to express the pastness meaning and *not* the "no longer" meaning. In other words, since person B tells us that they don't actually know if the "no longer" meaning is true, we can't *require* this "no longer" meaning to be part of the meaning of *used to*. We can *infer* that "no longer" is true, but the surrounding context will have to be taken into account to see whether this inference is actually a good one *for any particular case*.

This is a subtle distinction because we automatically make these inferences as part of our normal use of language, and we do so without thinking too much about them.[2] The reason we started with this is because the Former Past and the Remote Past both come with a "no longer" meaning, but differ in how strong this meaning is. To see this, let's first see examples which illustrate the "no longer" meaning, which is shown after the ⇝ symbol after the English translation.

(334) **Former Past has a "no longer" meaning**

a. Shikekhsà:'a **katá:wenskwe'**
Shi-k-ekhsá'a ka-atawen-s-kwe'
COIN-1SGA-child 1SGA-swim-HAB-PAST
'When I was a child, I used to swim.'
⇝ I no longer swim now.

[2] A similar inference is found when we say sentences like *Some of my friends are tall* – the listener is likely to infer that *not all* my friends are tall, even though we didn't explicitly say this.

b. Ohna'kénhaton shahí:ken' **ratóːratskwe'**
Ohna'kénhaton sha'-hi-ken-' r-atorat-s-kwe'
last.time COIN-1SG>MSG-see-PUNC MSGA-hunt-HAB-PAST
'When I saw him last, he was hunting.'
⇝ He is no longer hunting.

(335) **Remote Past has a "no longer" meaning**

a. Shawátis **rotshokwèn:ne**.
Shawatis ro-atshokw-en-hne
John MSGP-smoke-STAT-REM.PAST
'John was smoking.'
⇝ John is not currently smoking

b. **Context:** *Paul and Sue got married in the 80s. Someone asks me whether I know Paul*
Hen riienté:ri'. Sue **rotiniakòn:ne'**.
Hen ri-ienteri-'. Sue roti-niak-on-hne
Yes 1SG>MSG-know-PUNC. Sue MDUP-marry-STAT-REM.PST
'Yes, I know him. He was married to Sue.'
⇝ They are not married anymore

The difference between these suffixes comes from how strong the "no longer" is – whether this is just an inference on the part of the people conversing (like with English *used to*), or whether this is part of the meaning of these suffixes. In fact, the Former Past behaves just like English *used to* – it is normally understood as saying "past and no longer", but is completely find in cases where we just mean "past". We can see this using the same test we did for English.

(336) **Contexts where there the "no longer" meaning doesn't arise**

a. Shikekhsà:'a **katáːwenskwe'** tánon' shé:kon katáːwens.
Shi-k-ekhsá'a ka-atawen-s-kwe' tánon' shé:kon k-atawen-s
COIN-1SGA-child 1SGA-swim-HAB-PAST and still 1SGA-swim-HAB
'When I was a child, I used to swim and I still do.'

b. Ohna'kénhaton shahí:ken' **ratό:ratskwe'** nek tsi iah
Ohna'kénhaton sha'-hi-ken-' r-atorat-s-kwe' nek tsi iah
last.time COIN-1SG>MSG-see-PUNC MSGA-hunt-HAB-FOR.PST but NEG
tewakaterièn:tare' tóka' shé:kon ratό:rats.
te-wak-aterientar-e' toka' shekon r-atorat-s.
NEG-1SGP-know-PUNC if still MSGA-hunt-HAB
'When I saw him last, he was hunting but I don't know if he's still hunting.'

On the other hand, the Remote Past *must* mean "past and no longer". In fact, it is impossible to use the Remote Past when we don't want to express "no longer". In other words, when you add the Remote Past, you can think of explicitly adding "and no longer" to whatever you say. Because of this, examples in (337) are impossible.

(337) **Remote Past cessation inference cannot be cancelled**

a. ✗Shawátis **rotshokwèn:ne** nek tsi shé:kon rotshókwen.
Shawatis ro-atshokw-en-hne nek tsi shekon ro-atshokw-en
John MSGP-smoke-STAT-REM.PAST but still MSGP-smoke-STAT
Intended: 'John was smoking but he is still smoking .'

b. ✗Sue **rotiniakòn:ne'** nek tsi iah tesewakaterièn:tare' tóka' shé:kon
Sue roti-niak-on-hne nek tsi iah te-se-wak-aterien:tar-e' toka' shekon
Sue MDUP-marry-STAT-REM.PAST but NEG NEG-REP-1SGP-KNOW-PUNC if still
rotiniá:ken
roti-niak-en
MDUP-marry-STAT
Intended: 'He was married to Sue, but I don't know if they're still married.'

The examples in (337) are felt to be contradictory, just like the following sentence in English: *Paul and Sue used to be married and no longer are, but I don't know if they are still married.*

Because the Former Past is possible in both contexts where speakers really mean to say "no longer" and those where speakers don't necessarily want to say "no longer", you have to use the **context** to figure out what the other person intended to express – just like with English *used to*. Generally, the "no longer" meaning will be present, but this cannot be guaranteed with the Former Past. With the Remote Past, on the other hand, you can be certain that the other person intended to express "no longer", so whatever event or state the person is speaking about using a Remote Past form is guaranteed to be over.

Furthermore, there are some aspectual restrictions. The Remote Past is only ever used with the Stative aspect. The Former Past, however, can be used with both Habitual and (some) Stative aspect verbs.

Determining exactly which Stative aspect verbs the Former Past can be used with, however, remains for future work.

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