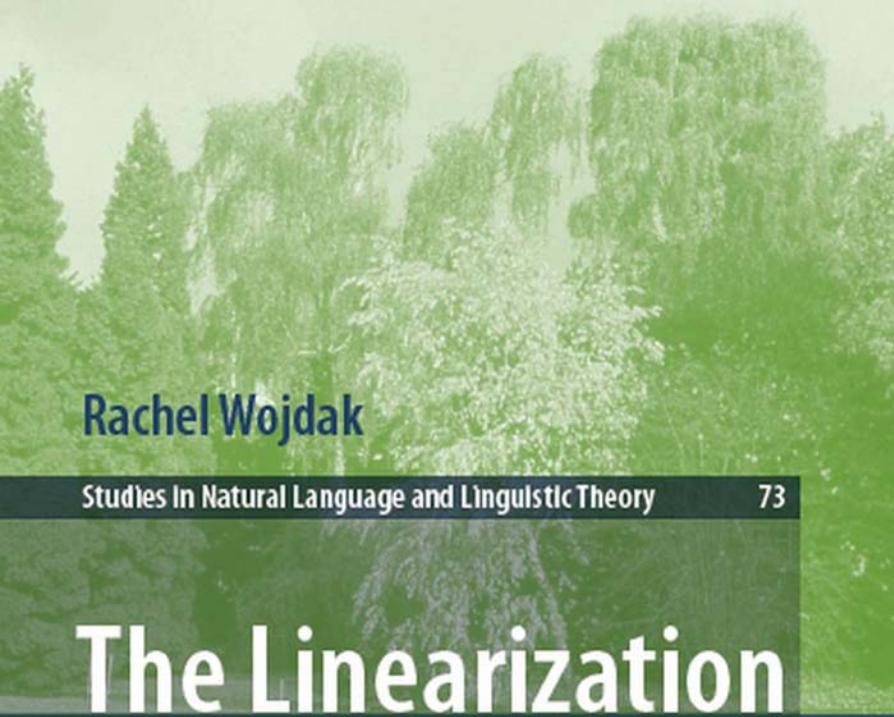

Rachel Wojdak

Studies in Natural Language and Linguistic Theory 73

The Linearization of Affixes: Evidence from Nuu-chah-nulth

Springer

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by

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Springer

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Preface

This book is a revision of my doctoral dissertation, completed at the University of British Columbia in 2005. The members of my doctoral committee – Henry Davis, Rose-Marie Déchaine, Martina Wiltschko – were instrumental in shaping the content and presentation of this work, and I owe them my gratitude for their considerable input. As my supervisor, Henry gave me great latitude in this project, and his encouragement and enthusiasm made fieldwork all the more exciting. This final product would not have been nearly as strong without the benefit of Rose-Marie's sharp intuition and critiques, and I appreciate the memories I have of leaving meetings with her feeling absolutely invigorated. Martina always knew all the right questions to ask, and I came to count on her reliable feedback. It was an honour to be a part of the UBC linguistics department, and I thank all its members for their part in creating the lively environment I enjoyed for my years there.

My greatest thanks are due to the speakers of Nuu-chah-nulth who shared with me their time, their humour, and their love for their language: Mary Jane Dick, Katherine Fraser, Carrie Little, Archie Thompson, Barbara Touchie, Barney Williams Jr., Barney Williams Sr., Christine Nicolaye, Sarah Webster. Their patience and dedication was humbling, and I am indebted to them for the chance they gave me to learn so much. It was a true privilege to be welcomed into their lives and their homes, and I enjoyed the time I spent with them. Thanks in particular to Mary Jane for being a tireless consultant, a devoted researcher, and my determined teacher from the very start back in January 2000. I am also especially grateful to Katherine for her leadership over the years. The aim of this book is to do justice to the elegance that nuučaaʔuɬ speakers have shown me characterizes their language. It can be a challenge to bridge the gap between theoretical and practical linguistics, but it is possible to transfer the examples of "*ʔu*-verbs" in this book to a practical use for those wanting to learn the language. This book is written in a technical style, but really it is just about how to form sentences using those special *ʔu*-verbs.

A number of people provided thoughtful comments on various aspects of this project over the years, including Peter Ackema, David Adger, Wallace Chafe, Matthew Davidson, Carrie Gillon, Eun-Sook Kim, Felicia Lee, Éric Mathieu, Marianne Mithun, Gunnar Hansson, Doug Pulleyblank, Christine Ravinski, Eric Reuland, Maria-Luisa Rivero, Naomi Sawai, Lisa Matthewson, Ryan Waldie, Adam Werle, Florence Woo, and Susi Wurmbrand. I would also like to thank two anonymous reviewers for the extensive feedback I received. The questions and comments I received from participants of the NIK (Ottawa, 2006), CLA (Halifax, 2003; Winnipeg, 2004), GLOW (Lund, 2003), and ICSNL (Lillooet, 2003) conferences were particularly encouraging to me. On the fieldwork side, I would like to thank the folks at the University of Victoria for allowing access to department facilities for elicitation sessions.

Finally, I would like to thank all of my family members for their support, curiousity, and encouragement. I owe a great deal to my husband Antal Járai for all he has added to my life over the past several years; I am tremendously lucky to have

had such a thoughtful non-linguist audience for this book's "puzzles". My son Zoltán came into being as this book took shape, and I cannot imagine it any other way.

I gratefully acknowledge funding for my fieldwork from the Jacobs Research Fund (Whatcom Museum Society, Bellingham WA), Phillips Fund (American Philosophical Society), UBC Hampton Fund Research Grant in the Humanities and Social Sciences (to Henry Davis), SSHRC 410-1998-1597 (to Henry Davis), SSHRC 410-2002-1715 (to Lisa Matthewson), and SSHRC 410-2002-1078 (to Martina Wiltschko). My graduate studies at UBC were financially supported by a SSHRC doctoral fellowship, an Izaak Walton Killam fellowship, a Patrick David Campbell fellowship, and a University Graduate Fellowship.

Table of Contents

1. Introduction

What we shall call the beginning is often the end
And to make an end is to make a beginning.
The end is where we start from.
~ T.S. Eliot *Four Quartets no. 4*

1.0 Introduction

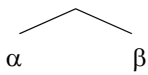
This book proposes a new understanding of the means by which affixes in natural language come to be linearized. Affixal elements, whether prefixal or suffixal, share the property of requiring a "host" with which they may form a word. An affix is not permitted to stand on its own. For example, the English morpheme *un-* must occur as an affix (specifically, a prefix), and not as an independent word.

(1)	a.		I am unhurried.	cf.	I am not rushed.
	b.	*	I am un.	cf.	I am not.

It is often said that *morphology* governs affixation, as it imposes restrictions on the internal composition of words. It is this aspect of the grammar which distinguishes between "bound" morphemes (such as *un-*), which form subparts of words, and "free" morphemes (such as *not*), which are permitted as independent words. The system of *syntax*, on the other hand, can be understood to be the means by which words are grouped together to form larger phrases.

This book presents an argument that syntax plays a determining role in the combinatory properties not only of words, but also of affixes (cf. Baker 1988; Lieber 1992, among others). According to the analysis, affixes have a syntax which is indistinct from that of non-affixes. I propose that the local syntactic environment of a morpheme conditions the available patterns of affixation. Under this view, affixes are subject to the same sorts of structural relationships in the syntax as are non-affixes. However, morphemes with affixal status introduce a tension to the grammar in a way in which non-affixal elements do not. If one or the other of α or β in the syntactic construct in (2) is an affix, then a host for the affix must be found in order for the expression to be pronounced.

(2)



What this study undertakes is an examination of the way that this phonological "neediness" of affixes is resolved by the grammar. I will argue that affixation derives a restricted set of linearizations for syntactic constructs such as (2). If, for example, α is a prefix, then a linearization of α–β results. If, however, α is a suffix, then an ordering of β–α arises. The consequence of this analysis is that phonological

considerations induce linearization on inherently *unordered* syntactic entities (cf. Chomsky 1995; Fox and Pesetsky 2005).

The language of investigation for this study is Nuu-chah-nulth (Nootka), a member of the Wakashan family spoken in British Columbia, Canada. Nuu-chah-nulth has a class of *affixal predicates* which participate in a linearization strategy of suffixation. In the following example, the affixal predicate *–c̓aas* "bet" suffixes to the nominal *kiƛuuk* "dishes". The affixal predicate and its gloss are indicated by highlighting.

(3) kiƛuukc̓asitnišʔaaɬ huuʔakʔuyi
kiƛuuk-**c̓aas**-mit-niiš-ʔaaɬ huuʔak-ʔuyi
dishes-**bet**-PST-1PL.IND-HAB early-ago
We always used to bet dishes long ago.

Affixal predicates in Nuu-chah-nulth are obligatorily bound, and may never occur as non-suffixes. This is illustrated by the example in (4), which shows that it is impossible for the affixal predicate *–c̓aas* "bet" to appear without a host which it may suffix to. In this ungrammatical example, the nominal *kiƛuuk* "dishes" occurs separately from the affixal predicate.

(4) * c̓aasitnišʔaaɬ kiƛuuk huuʔakʔuyi
c̓aas-mit-niiš-ʔaaɬ kiƛuuk huuʔak-ʔuyi
bet-PST-1PL.IND-HAB dishes early-ago
We always used to bet dishes long ago.

This book develops a Minimalist approach to the linearization of affixal predicates in Nuu-chah-nulth and argues that suffixation provides a means of satisfying the requirement that linguistic outputs be linearized. According to the proposal, Nuu-chah-nulth is "proof-of-concept" for the hypothesis that linearization is induced in stages corresponding to strictly minimal syntactic units (cf. Epstein et al. 1998). This analysis employs only the smallest necessary constructs for the syntax to phonology mapping.

The linearization of affixal predicates in Nuu-chah-nulth may be observed to induce a "displacement" effect. Displacement effects are ubiquitous in natural language, and can be found at various levels in the grammar. When displacement applies at a syntactic level, words or phrases are "dislocated", such that they are pronounced in one position in a sentence although they are interpreted in another. For example, in the English sentence *Who did Kyle see?* the word *who* is felt to be the object of the verb *see*, even though it occurs in initial position within the clause and not in canonical object position following the verb (parallel to *Sarah* in the sentence *Did Kyle see Sarah?*). In such contexts, transformational linguists analyse the fronted word as having undergone an abstract form of movement. Considerable syntactic research lies in the examination of the displacement properties of words and larger constituents (e.g., Ross 1967; Chomsky 1977).

Dislocation may also be examined at a subword level. In the case of Nuu-chah-nulth suffixation, the "piece" of word which acts as a host for an affixal

predicate is removed from the post-verbal position it would otherwise occupy. In (5a), the nominal *ʔaapinis* "apple" serves as a host for the affixal predicate *–ʾiic* "consume". Non-nominal hosts are also available to affixal predicates. In (5b), the modifier *haʔum* "tasty" acts as a host for the affixal predicate *–ʾiic* "consume", while the nominal *ʔaapinis* follows the initial predicate complex.

(5) a. ʔaapiniɁicʔišʔaɬ
ʔaapinis-**ʾiic**-ʔiiš-ʔaɬ
apple-**consume**-3.IND-PL
They are eating apples.

b. haʔumʔicʔišʔaɬ ʔaapinis
haʔum-**ʾiic**-ʔiiš-ʔaɬ ʔaapinis
tasty-**consume**-3.IND-PL apple
They are eating delicious apples.

I will argue that the post-verbal position of the nominal *ʔaapinis* "apple" in (5b) is the standard orientation for objects in Nuu-chah-nulth. Thus, the ordering of *ʔaapinis* "apple" as a pre-verbal host for the affixal predicate in (5a) represents a departure from the general linearization pattern.

What drives the displacement properties of affixation? This question is to be addressed here from the perspective of the linearization of affixal predicates in Nuu-chah-nulth. In a sense to be made more explicit over the course of this chapter, suffixation in Nuu-chah-nulth is triggered by the need to pronounce an affix. Affixes, unlike free morphemes, are bound elements which cannot be pronounced in isolation. When an affixal predicate attaches to a host, its boundedness requirement is met, and a well-formed word results (cf. Lasnik 1981). It is a consequence of the affixal predicate's status as a suffix that the internal components (host and affix) of the resulting word are fixed in a particular (host-initial) order.

The next sections of this introductory chapter are organized into four parts. The following section, §1.1, presents an overview of the Minimalist framework which is employed for the analysis of affixal predicates. The theoretical backdrop is further developed in §1.2, in which the linearization of syntactic constructs is discussed. This leads to the central claim of this book, introduced in §1.3, that the affixation pattern of Nuu-chah-nulth is a reflex of the linearization of linguistic outputs. In §1.4, I situate the discussion of Nuu-chah-nulth affixal predicates within the broader context of Wakashan linguistics. Finally, §1.5 outlines the form which the remaining chapters of this book takes.

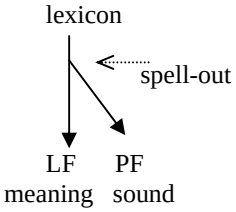
1.1 Theoretical Assumptions

This section lays out the Minimalist theoretical framework which this book adopts. Following Chomsky (1995, 2001, 2005), I pursue a strongly derivational approach to syntactic structure.

1.1.1 Interface Requirements

The grammar is charged with the task of delivering linguistic expressions which are serviceable to two external systems: the system of thought, and the sensorimotor system (Chomsky 1995, 2001, 2005). The grammar thereby allows spoken languages to map an abstract form to meaning and to sound. According to the Minimalist approach, a linguistic expression exiting the generative system is viable only if it meets the interface requirements imposed by these external levels. In Chomsky's (1995) terminology, linguistic expressions must be "legible" to each interface level, Logical Form (LF) and Phonetic Form (PF).

(6) *Model of the grammar*



In this system, the lexicon acts as the source of the elements which enter the computation. The lexicon codes the semantic, syntactic, and phonological properties which are specific to each lexical item. Lexical items enter the computation from the lexical array known as the numeration. Syntactic structures are composed using the lexical building blocks provided by the numeration, exhausting this lexical array. The syntactic constructs are interpreted at the LF and PF interfaces at the point of *spell-out*.

(7) *Spell-out: map syntax to the interfaces*

Spell-out to the PF portion feeds the outputs of syntactic structure-building (Merge and Move) to the phonological system, where they may receive a pronounceable form.

With the exception of the interfaces at LF and PF, no other levels exist in the Minimalist grammar. Representational levels such as "deep structure" and "surface structure", which existed in earlier principles and parameters models, are eschewed in favour of a more barebones model which contains only the conceptually necessary meaning/sound interfaces. This move away from representational levels corresponds to the Minimalist ideal of paring down the grammar to those elements which are necessary design features of natural language. All constraints are abandoned save those which hold at the interfaces and "are motivated by the properties of the interface" (Chomsky 1995: 171). These interface requirements are known as *bare output* conditions: external to the syntax, these interpretative conditions are mandated by the requirements of the conceptual and sensorimotor systems, and ensure that the requirements of lexical items are met over the course of the derivation.

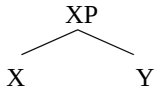
1.1.2 "Bottom-to-top" Syntactic Derivation

This book adopts from Chomsky (1995, 2001, 2005) the notion that syntactic derivations are built up from "bottom-to-top", through successive applications of two concatenative operations: Merge and Move. Merge operates on elements selected from the numeration, and conjoins pairs of items in a binary fashion:

(8) *Merge: concatenate α with β, forming γ*

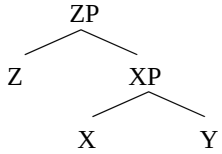
If X and Y are merged, the category label of one of these conjoined elements is projected. For example, in (9), the category of X is projected as X(P).

(9) *Merge (X, Y)*



Merge applies iteratively, building a syntactic structure by pairing the output of a prior instance of Merge with a lexical item freshly introduced from the numeration. In the following representation, Z is added to the structure of (9) via an additional application of Merge.

(10) *Merge (Z, XP)*



All binary merger creates two sisters – a pairing which Epstein et al. (1998) label *derivational sisterhood*. In the trees above, [X, Y] are derivational sisters, as are [Z, XP].

The operation of Move (or "remerge") parallels Merge in that it also pairs two syntactic objects and projects a single category label (Kitahara 1994, 1995; Epstein et al. 1998). Move differs from pure Merge, however, in that it reinserts a syntactic object already introduced in the derivation, rather than selecting a new item from the numeration. Thus, while Merge applies to lexical items external to the existing syntactic construct, Move looks internally to the derivation to "recycle" a previously introduced lexical item (Chomsky 2005). Like Merge, Move is an instance of binary concatenation. Move can be captured by a restatement of the simple Merge operation, as in (11).

(11) *(re)Merge: concatenate α (where α is an existing terminal) with β, forming γ*

By reducing all operations of the syntax to operations of binary concatenation, non-branching nodes are eliminated from the syntax. That is, there will be no instances in which an element does not have a derivational sister (Epstein et al. 1998).

1.1.3 Syntax "All the Way Down"

Following Halle and Marantz (1993) and other work in the Distributed Morphology framework, I assume that word formation parallels sentence formation in that both occur outside of the lexicon. There is no independent module for word-forming operations: "morphology" is a cover term for syntactic or post-syntactic processes. That is, concatenation of morphemes may apply through syntactic processes of head movement, or it may be conditioned by the post-syntactic interface with PF (Embick and Noyer 2001).

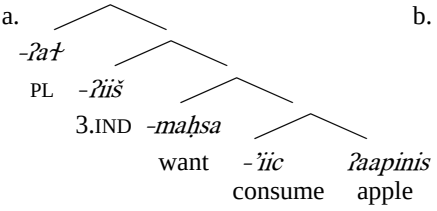
Under this view, a complex string such as the Nuu-chah-nulth sentence in (12a) has a syntactic structure similar to a sentence in which the individual morphemes are expressed as separate words, as in the English sentence in (12b).

(12) a. ʔaapiniɬʔicmaƛsaʔišʔaɬ
ʔaapinis-**ʔiic**-**maƛsa**-ʔiiš-ʔaɬ
apple-**consume**-**want.to**-3.IND-PL
They want to eat apples.

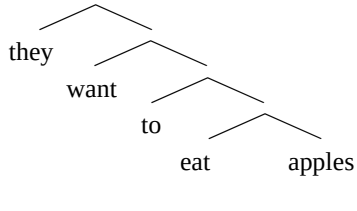
b. They want to eat apples.

Syntactic structures for the Nuu-chah-nulth and English sentences are illustrated in (13).[1]

(13) a.



b.



In each case, the morphemes occupy syntactic terminals. The claim of this book is that affixation requirements of bound morphemes are responsible for the distinct linearization patterns of the sentences in (12). In Nuu-chah-nulth, affixes are linearized attached to a host with which they may form a word. English, which lacks

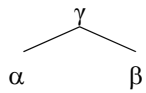
[1] The trees in (13) abstract away from several syntactically relevant properties. For one, I assume that Nuu-chah-nulth makes use of a covert pronominal (*pro*) in cases such as (13a) in which the 3rd person argument is phonologically null. The third person plural ending *–ʔiš(ʔaɬ)* is not to be taken to be equivalent to English "they". I refer the reader to Chapter 3 for discussion of Nuu-chah-nulth clausal structure.

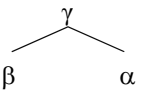
affixal predicates parallel to *–ʔiic* "consume" or *–maḥsa* "want to", linearizes these morphemes as independent words. According to the maxim of "syntax all the way down", the affixal or non-affixal status of the morphemes has no consequence for syntactic representation.

1.2 Linearization

In the theoretical framework I have adopted, there are two sets of requirements which must be met over the course of the derivation by elements entering the syntactic computation. In the bifurcated model of the Minimalist grammar, requirements may be necessitated by the interface to LF, or the interface to PF.

With respect to the PF branch, how must elements be arranged so that the sensorimotor systems can make use of them? Crucially, a (spoken) linguistic expression must be *sequentially ordered* so that it may be represented as a speech stream (Kayne 1997). Linearization is a bare output condition on PF (Chomsky 1995). A linearization scheme is not provided by the inherent mechanics of the syntax. As described in §1.1.2, syntactic structure-building reduces to two concatenative operations, Merge and Move, which are not inherently oriented for directionality. When Merge unites two elements, α and β, there is no restriction whether α must precede β, or whether α follows β. All that binary concatenation requires is that α combine with β, joining an unordered set of {α, β}. Given the unordered nature of binary concatenation, the representations in (14) are therefore to be interpreted as syntactically equivalent.

(14) a. 

b. 

1.2.1 Proposal: Local Spell-out

If one or the other of the nodes {α, β} are understood to be an affix, then a specific type of linearization requirement is imposed on the orientation of these elements. I hypothesize that this requirement applies at spell-out, the point at which syntactic structures such as (14) take on a phono-temporal form.[2] Affixation induces a particular linearization of terminal elements: if an element α is an affix, it must realized as a suffix (–α) or as a prefix (α–). Suffixation occurs when the affix is pronounced to the right of a host with which it forms a word; prefixation takes place when the affix forms a word with a host by attaching to its left. I do not consider "infix" to be a distinct boundedness requirement, as I assume that infixation is reducible to either prefixation or suffixation. In Nuu-chah-nulth, for example, the plural "infix" *–t–* (e.g., *ʕi-t-niiƛ* "dogs") can be analysed as a suffix which is positioned prosodically following the first syllable of its host (Stonham 1999; Wojdak 2002).

[2] Alternative affixation mechanisms which are employed in other languages are discussed in Chapter 6. As will be shown, affixation in Nuu-chah-nulth is a strictly lexical requirement of bound morphemes; it does not arise from prosodic deficiency.

I take the choice of prefixation or suffixation for a given bound element to be a spell-out convention, relatable to language- or morpheme-specific considerations.[3] The logical possibilities for linearization of the syntactic terminals in (14) are listed in Table 15:

(15) *Linearization of bound and free elements*

	α	**−α**	**α−**
β	α β β α	β−α	α−β
−β	α−β	−α−β −β−α	α−β
β−	β−α	β−α	α−β− β−α−

In three cases (shaded in the above table), there is more than one option available for linearization. When neither α nor β is an affix, affixation cannot serve as an ordering mechanism. When both α and β are suffixes, their relative orientation is indeterminate; the same applies when both α and β are prefixes. In these indeterminate cases, one or the other of the affixes does not receive its required type of host. In the case of (−α−β), for example, the element −α is not bound as a suffix. Indeterminacy in this sense therefore entails that the affixation requirement of the elements is not met: no appropriate host has been provided for the affixes. As such, there is no interpretable output for the linearization of these affixes.

The remaining, fully interpretable, orientations of affixes have just two surface realizations: α−β or β−α. For each of these linearization patterns, there are three distinct types of underlying bound/free dependencies. These structural ambiguities with respect to the surface forms of α−β and β−α are listed in (16).

(16) *Structural ambiguities with respect to outputs*

output: α−β
a. α, −β (α is free; β is a suffix)
b. α−, β (α is a prefix; β is free)
c. α−, −β (α is a prefix; β is a suffix)

output: β−α
d. α, β− (α is free; β is a prefix)
e. −α, β (α is a suffix; β is free)
f. −α, β− (α is a suffix; β is a prefix)

Thus, although the syntactic device of binary concatenation provides no instructions for linearization, a restricted set of linearizations arises when the merged element is an affix. This linearization is, by its very nature, non-syntactic: the syntax itself can be assumed to be unordered. I refer to the means by which the relative ordering of

[3] As described in Chapter 3, the status of an affix as a prefix or a suffix is determined for a language learner during the process of acquisition, from salient evidence in the input.

affixes in Nuu-chah-nulth is fixed as *local spell-out*. This mechanism provides the input to interpretation at PF (and LF) based on strictly minimal syntactic domains. This linearization mechanism is defined in statement 17:

(17) *Local spell-out*: *for Merge (α, β), interpret (α, β)*

This mechanism is "local" in that it is hypothesized to apply at each minimal step of the syntactic derivation, to derivational sisters conjoined by Merge (see also Epstein et al. 1998; Matushansky 2006). It is inherently a pairwise function, because each step of the derivation is an operation of binary concatenation.

In the Minimalist framework, the necessity of orienting an affix with respect to a host is a consequence of spell-out to PF. Affixes require linearization so that the arrangement may be phono-temporally ordered. An earlier formulation of this affixation requirement is the Stranded Affix Filter of Lasnik (1981, 2000). Although this filter does not make reference to phono-temporal sequencing, it does capture the notion that a derivation is not viable if an affix does not find a host. A mechanical apparatus for affixation is supplied by the Morphological Merger operation of Marantz (1988, 1989; see also Bobaljik 1994), and its more recent incarnations, Lowering and Local dislocation (Embick and Noyer 2001). In each of these variations, an affixation rule forces two elements to "switch places", with a single word resulting.

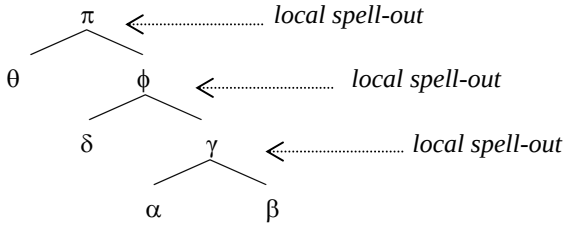
(18) *Morphological merger*: X .... Y $\rightarrow$ [Y + X]

In the Minimalist programme, bare output conditions are adopted instead of derivational filters such as the Stranded Affix Filter or rules such as Morphological Merger. The local spell-out hypothesis provides a Minimalist alternative to these filter- or rule-based mechanisms for affixation.[4]

In the PF branch, spell-out necessarily induces linearization: linguistic outputs must be linearized. Thus, the two elements treated by local spell-out inevitably undergo linearization with respect to each other. According to the local spell-out hypothesis, the PF branch receives directions to resolve affixation requirements each time the syntactic tree is expanded, as indicated in (19). We can take the diagram in (19) to be the output of three successive applications of Merge: the first uniting α and β (Merge α, β); the second uniting δ and γ (Merge δ, γ); the third uniting θ and ϕ (Merge θ, ϕ).

[4] An additional type of output "filter" on the positioning of affixes are Optimality Theory constraints on alignment. In Optimality Theory, constraint rankings determine whether an affix is right-aligned to a host as a suffix by AlignR[Affix] or left-aligned to a host as a prefix by AlignL[Affix]. A minimalist solution for the positioning of affixes with respect to hosts is developed in Chapter 3.

(19) *Iterative application of local spell-out*



For each application of Merge, local spell-out applies to the derivational sisters. The interface requirements of elements introduced in the derivation are thus subject to aggressive interpretation, in which PF and LF needs are assessed at each step of the derivation. This entails that syntactic outputs are richly "phonologized" over the course of the derivation, via addition of directions for pairwise interpretations at PF (Epstein et al. 1998).

According to the proposal, spell-out enriches the derivation, due to iterative interpretations at the interfaces. This echoes the argument of Fox and Pesetsky (2005), who hypothesize that the sole function of spell-out is to add information. By their *Order Preservation hypothesis*, information established in one cycle of spell-out is never deleted over the course of the derivation. This determines that linearization is established cumulatively:

> *Each time a new Spell-out domain D' is constructed, Spell-out linearizes the new material in D' and adds information about its linearization to the information cumulatively produced by previous applications of Spell-out.*
>
> *(Fox and Pesetsky* 2005: 6*)*

Fox and Pesetsky argue for the Order Preservation hypothesis in the context of successive-cycle syntactic movement, assuming a model in which spell-out applies at certain designated syntactic nodes, rather than at each instance of Merge. This timing of spell-out contrasts with the present proposal, in which local spell-out applies incrementally, at each step of the syntactic derivation. The next section compares the local spell-out hypothesis to alternative models of the timing of spell-out.

1.2.2 Alternative Models for the Timing of Spell-out

There are three logical possibilities for the point at which spell-out occurs. Mapping of the syntax to the interfaces may apply once, multiple times, or at every stage possible in the derivation. The third option corresponds to the local spell-out hypothesis.

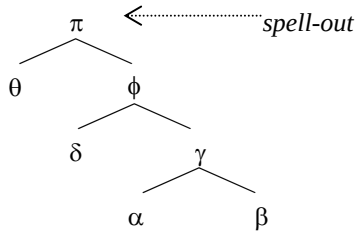
(20) *Timing of spell-out*

a. SINGLE SPELL-OUT HYPOTHESIS:	root branch node
b. MULTIPLE SPELL-OUT HYPOTHESIS:	multiple branch nodes
c. LOCAL SPELL-OUT HYPOTHESIS:	every branch node

This section briefly compares the characteristics of each model, and discusses a unique prediction of the local spell-out hypothesis.

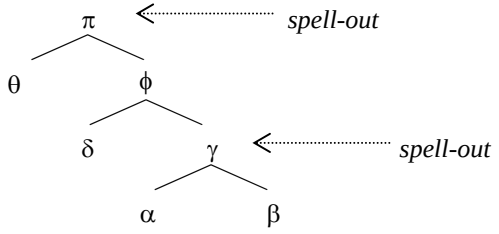
If spell-out is restricted to applying to the root branch node, then spell-out applies once per utterance. This represents the traditional view, in which mapping between syntax and phonology takes place at a single point, after the completion of the syntactic derivation (Chomsky 1995). In the following diagram, spell-out applies at π, the root node.

(21) *Single spell-out hypothesis*



The multiple spell-out hypothesis was introduced as an alternative to the single spell-out hypothesis (Uriagereka 1999; Chomsky 2001). In a multiple spell-out system, it is proposed that spell-out occurs once the derivation reaches certain designated syntactic nodes, such as CP, *v*P, and possibly DP (Chomsky 2001, 2005). Spell-out thus applies cyclically over the course of a derivation. This is represented abstractly in the following diagram, in which spell-out applies at the node π, as well as at the mid-derivational point γ. Spell-out does not apply at every branching node: for example, in (22), spell-out does not occur at the point ϕ. Instead δ, the terminal node of ϕ, is not spelled-out until the higher spell-out node of π is reached.

(22) *Multiple spell-out hypothesis*



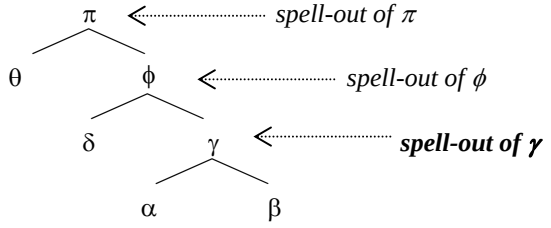
In the terminology of Chomsky (2001), spell-out is induced at distinct *phases* of the derivation. A node such as γ belongs to a phase separate from the mid-derivational point ϕ.

Multiple spell-out entails that phonological operations have access to mid-derivational units formed by syntactic structure-building. By this view, PF and LF operations are limited by the same derivational units which constrain the syntax, because mid-derivational constructs created by the syntax are translated simultaneously to the PF and LF components (Chomsky 2001; Svenonius 2001, 2004). The local spell-out hypothesis takes this isomorphism one step further by imposing phonological-semantic integrity at each step of the derivation (Epstein et al. 1998).

Where the local spell-out and multiple spell-out hypotheses diverge is the stages at which spell-out to the interfaces obtains. In a multiple spell-out system, only certain syntactic nodes – such as the sisters to CP, *v*P, and possibly DP (Chomsky 2001) – are spell-out domains. With the local spell-out hypothesis, there is no such stipulation. Instead, PF and LF requirements of lexical elements are assessed aggressively over the course of the derivation: interpretation at the interfaces applies after each step of the syntactic derivation, rather than in larger derivational chunks.

A consequence of the local spell-out hypothesis is that derivational sisterhood is predicted to be a uniquely privileged relationship for relationships established at spell-out. Specifically, lexical requirements of elements must be met at the strictly minimal stage of the derivation in which only the element and its derivational sister are present. Let us take the linearization of affixes as an illustration of this prediction. By hypothesis, the linearization of affixes in Nuu-chah-nulth applies at spell-out, due to the PF requirement that linguistic outputs be temporally ordered. According to the local spell-out hypothesis, if an element α takes β as its derivational sister, then α is necessarily linearized at spell-out with respect to β. If α is lexically specified as an affix, then for the tree in (23), spell-out of γ induces a linearization in which the affix α is linearized with β as its host.

(23) *Local spell-out of derivational sisters*



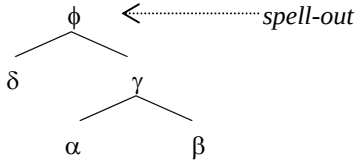
According to the local spell-out hypothesis, elements which are not the derivational sister of α are ineligible to act as the host of α.[5] Thus, it is predicted that elements

[5] In fact, the choice of host faces an additional restriction: it is only an element at the *initial edge* of the derivational sister which is eligible as a host. This restriction is established in Chapter 2.

such as δ or θ should not serve as the host for α: these elements are not derivational sisters of α. Only derivational sisters of affixes are present at the point of local spell-out of the affix.

In contrast, for the single and multiple spell-out models, derivational sisterhood is not predicted to be a uniquely privileged relationship. Both the single and multiple spell-out models allow for the possibility that certain nodes are not spell-out points. In (24), for example, spell-out applies at ϕ, but it does not apply at γ.

(24) *Delayed spell-out: single and multiple spell-out*



If α in (24) is an affix, then it is predicted that there are multiple elements which are available to serve as the host for the affix. All else being equal, if spell-out does not apply until ϕ, then single and multiple spell-out models predict that δ or β should be equally eligible as hosts for α. Thus, for these models, the derivational sisterhood which α shares with β does not guarantee that α will be uniquely linearized relative to β at spell-out.

In the next section, I introduce the empirical ground on which the local spell-out hypothesis will be tested. Over the course of this book, it will be demonstrated that affixation in Nuu-chah-nulth is sensitive to derivational sisterhood. Affixal predicates in Nuu-chah-nulth find a host at spell-out which is chosen from the phrase with which they were syntactically merged. Moreover, there is critical evidence that this sensitivity to derivational sisterhood is not reducible to an independent effect such as directionality: in Nuu-chah-nulth, β is not chosen as the host for α simply because it is right-adjacent to α. Instead, I will argue that the Nuu-chah-nulth facts fall out elegantly from a model in which linearization consistently occurs between derivational sisters.

1.3 Affixal Predicates in Nuu-chah-nulth

Affixal predicates in Nuu-chah-nulth participate in two types of bound/free dependencies. An affixal predicate (–α) suffixes to a free (β) or bound (β–) host. In either case, the surface realization is β–α. The place of these Nuu-chah-nulth linearization patterns within the typology of bound/free dependencies is indicated in (25). The Nuu-chah-nulth behaviour corresponds to (25e, f).

(25) *Typology of bound/free dependencies*

output: α–β
a. α, –β (α is free; β is a suffix)
b. α–, β (α is a prefix; β is free)
c. α–, –β (α is a prefix; β is a suffix)

output: β–α
d. α, β– (α is free; β is a prefix)
e. –α, β (α is a suffix; β is free)
f. –α, β– (α is a suffix; β is a prefix)

An illustration of the dependency of (25e) is supplied by the following examples. In (26a), the affixal predicate *–siik* "make" suffixes to the host *ɬučʔin* "dress", a free noun. In (26b), the affixal predicate *–maḥsa* "want to" suffixes to the host *waɬ-šiƛ* "go home (PERF)", a verbal complex which is likewise a non-affixal host.

(26) a. ƞuƥititsa ɬučʔinsiik
ƞuƥit-mit-sa ɬučʔin-**siik**
once-PST-1SG.DEP dress-**make**
I made a dress once.

b. waɬšiƛmaḥsak
waɬ-šiƛ-**maḥsa**-k
go.home-PERF-**want.to**-2SG.Q
Do you want to go home?

Descriptively, these suffixation patterns may be labelled as "noun incorporation", and "verb incorporation", respectively. In the first case, the affixal predicate suffixes to (or "incorporates") a noun, while in the second case, it suffixes to (or "incorporates") a verb. However, despite the difference in these descriptive labels of noun and verb incorporation, both types of incorporation share an identical phonological dependency: the affixal predicate suffixes to a free host.

In contrast, an example of the dependency of (25f) is given in (27). Here, the affixal predicate *–'iic* "consume" suffixes to a bound nominal host, *suuḥ-* "spring salmon". This pattern of suffixation to a noun may also be considered to be a type of noun incorporation.

(27) suuẘiicsiš
suuḥ-**'iic**-siiš
salmon-**consume**-1SG.IND
I'm eating salmon.

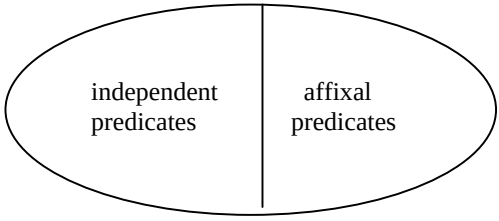
Superficially, this pattern resembles (26a), since in each case, the affixal predicate has suffixed to a noun. However, (26a) and (27) differ in that in (26a), the nominal host *ɬučʔin* "dress" is free, while in (27), the nominal host *suuḥ-* "spring salmon" is bound.

Bound hosts in Nuu-chah-nulth, such as *suuḥ-* "spring salmon" in (26), belong to a closed-class set of nominals which have been referred to in the Nuu-chah-nulth literature as "combining forms" (Rose 1981: 287; Davidson 2002). These

bound nominals are often truncated versions of free-standing nominals in the language (Rose 1981). For example, the bound nominal *čapx̣-* "man" is a truncated allomorph of the free-standing nominal *čakup* "man". Other "combining forms" are equivalent to the free form minus its aspectual or "absolutive" affix (Rose 1981: 286–287). The bound nominal *suuḥ-* "spring salmon", for example, is related to the free form *suuḥ-aa* "spring salmon", which is inflected for continuative aspect *–(y)aa* (CONT). Another common pattern for bound nominals, in particular vowel- or nasal-final forms, is the stem plus a final *-q-* (Rose 1981). An example of this type of alternation is *taana*/*taanaq-* "money", in which the bound form ends with a *-q-*. For the bound/free alternants of Nuu-chah-nulth, the bound form occurs if and only if it is suffixed to an affixal predicate. However, not all free nominals have a bound alternant. In fact, for the youngest generation of Nuu-chah-nulth speakers, free nominal forms are often preferred over bound variants in the case of alternations with truncated allomorphs.[6] For the remainder of this book, I set aside the issue of alternation of bound and free nominals, and focus instead on the properties of affixal predicates.

Affixal predicates in Nuu-chah-nulth do not show an allomorphic alternation with free predicates. Instead, free predicates constitute a distinct class, unrelated in form to affixal predicates.

(28) *Free and bound classes of predicates in Nuu-chah-nulth*



I label this class of free elements *independent predicates*. While affixal predicates require suffixation to a host, independent predicates never occur as suffixes. For example, although an affixal predicate such as *-siik* "make" incorporates a host, this option is unavailable to a non-affixal predicate such as *ƛi-čiƛ* "sew (PERF)". In (29a), the affixal predicate *-siik* "make" suffixes to *ɬučʔin* "dress". As shown in (29b), the independent predicate *ƛi-čiƛ* "sew (PERF)" cannot suffix to this nominal.

(29) a. ɬučʔinsiikitsiš
ɬučʔin-**siik**-mit-siiš
dress-**make**-PST-1SG.IND
I made a dress.

[6] As Nakayama (2000: 39) notes, this novel use of free nominal allomorphs is testament to the productive nature of Nuu-chah-nulth incorporation. If affixal predicates and their hosts constituted lexicalized chunks, then such novel forms would be unanticipated.

b. * ɬučʔinn̓ičiƛitsiš
ɬučʔin-n̓i-čiƛ-mit-siiš
dress-sew-PERF-PST-1SG.IND
I sewed a dress.

Affixal predicates require a host which they may suffix to. The ungrammaticality of (30a) arises because the affixal predicate *-siik* "make" fails to find an appropriate host. Independent predicates, in contrast, do not occur as suffixes. In (30b), the independent predicate *n̓i-čiƛ* "sew (PERF)" appears separately from the nominal *ɬučʔinʔakqs* "my dress".

(30) a. * siikitsiš ɬučʔinʔakqs
siik-mit-siiš ɬučʔin-ʔak-qs
make-PST-1SG.IND dress-POSS-1SG.PS
I made my dress.

b. n̓ičiƛitsiš ɬučʔinʔakqs
n̓i-čiƛ-mit-siiš ɬučʔin-ʔak-qs
sew-PERF-PST-1SG.IND dress-POSS-1SG.PS
I sewed my dress.

Thus, affixal and independent predicates can be seen to have distinct behaviours.

A similar distinction can be drawn between the affixal predicate *–maḥsa* "want to" and the independent predicate *ʕapaak* "willing to". As noted earlier, the affixal predicate *–maḥsa* "want to" takes a verbal host, in a suffixation pattern I descriptively labelled "verb incorporation". This is shown in (31a), in which the affixal predicate suffixes to *waɬ-šiƛ* "go home (PERF)". This example may be contrasted with the one in (31b), which shows the independent predicate *ʕapaak* "willing to". As an independent predicate, *ʕapaak* "willing to" is incompatible with being linearized as a suffix. As shown in (31b), it is ungrammatical for the independent predicate to suffix to the verbal host *waɬ-šiƛ* "go home (PERF)".

(31) a. waɬšiƛmaḥsak
waɬ-šiƛ-**maḥsa**-k
go.home-PERF-**want.to**-2SG.Q
Do you want to go home?

b. * waɬšiƛʕapaakk
waɬ-šiƛ-ʕapaak-k
go.home-PERF-willing-2SG.Q
Are you willing to go home?

The inverse pattern is shown in (32), in which the verb *waɬ-šiƛ* "go home (PERF)" follows the predicate, as a separate word. An affixal predicate is impossible in an environment such as (32), since this would entail that it would not be linearized as a suffix. The ungrammaticality of (32a) confirms that the affixal predicate *–maḥsa* "want to" must appear as a suffix. In contrast, it is grammatical for the independent

predicate *ʕapaak* "willing to" to occur in this environment. As (32b) shows, *ʕapaak* "willing to" is not a suffix.

(32) a. * maḥsak waɬšiƛ
maḥsa-k waɬ-šiƛ
want.to-2SG.Q go.home-PERF
Do you want to go home?

b. ʕapaakk waɬšiƛ
ʕapaak-k waɬ-šiƛ
willing-2SG.Q go.home-PERF
Are you willing to go home?

I hypothesize that the classes of affixal and independent predicates are lexically differentiated. In particular, I propose that affixal predicates in Nuu-chah-nulth are marked in the lexicon with an affixation requirement, [affix].

(33) [affix]: $\alpha \neq \omega$

This lexical specification states that the morpheme (α) is not equivalent to a phonological word (ω). The consequence of this requirement is that the affix requires a host with which it may form a phonological word. This lexical requirement must be met over the course of the derivation. Specifically, since this lexical requirement involves morpho-phonological instructions, this requirement must be met in the PF branch. Sample lexical entries for affixal and independent predicates in Nuu-chah-nulth are given in (34–35), which indicate the properties of the predicates which are idiosyncratic to the lexical items.[7]

(34) *Lexical entries for affixal predicates*

a. *-siik* "make": [MAKE /siik/ affix]

b. *-maḥsa* "want to": [WANT TO /maħsa/ affix]

(35) *Lexical entries for independent predicates*

a. *ƞi* "sew": [SEW/ /ƞi/]

[7] This abstracts away from the families of features (formal, semantic, phonological) which lexical properties fall into.

b. *ʕapaak* "willing to": [WILLING TO /ʕapaak/]

The status of affixal predicates in Nuu-chah-nulth as bound morphemes thus arises from lexical specification, rather than from phonological deficiency. As will be described in Chapter 6, affixal predicates often have enough phonological content to satisfy the minimal foot requirement of Nuu-chah-nulth words. Thus, affixal status in Nuu-chah-nulth is a lexically marked primitive, rather than a derived property which arises from consideration of prosody (cf. Anderson's 1992 "special" or "simple" clitics).

To foreshadow the content of the following chapters, we will see how the affixation requirement of Nuu-chah-nulth is met at spell-out, resulting in a type of suffixation I term *PF Incorporation*. This incorporation process is sensitive to linear adjacency. That is, an affixal predicate incorporates any element which abuts it, showing an insensitivity to syntactic constituency (e.g., the Coordinate Structure Constraint), as well as syntactic category. Yet, this condition on string adjacency will be shown to exist hand-in-hand with a "complement" effect with incorporation: an affixal predicate only incorporates an element from its syntactic complement, and not from projections which c-command the predicate. I will argue that the local spell-out hypothesis allows an elegant means of reconciling these dual sensitivities to string adjacency and syntactic configuration.

This book explicitly argues against a "hybrid" treatment of PF as a module operating both on hierarchically and linearly arranged constructs (contra Embick and Noyer 2001). Rather, I illustrate that the seemingly syntactic complement restriction on incorporation is a by-product of the derivation. By adopting the notion that syntax-to-PF mapping occurs at each instance of syntactic merge (Epstein et al. 1998), local spell-out is predicted to apply only to derivational sisters. This derives the complement effect as an epiphenomenal consequence of the mechanism of spell-out.

We now turn to a discussion of how this study of the linearization properties of affixal predicates in Nuu-chah-nulth fits in with existing research on the Wakashan language family.

1.4 Research Context

Nuu-chah-nulth (*nuučaaɁuɬ*) is a member of the Southern branch of the Wakashan language family. This dialectally diverse language is the cultural heritage of a people whose occupation of the coastal territory of British Columbia's western Vancouver Island can be traced back archeologically at least 4,000 years (Dewhirst 1978). The language was previously referred to by the name *Nootka*, a misnomer which speakers of the language reject (see Davis and Wojdak 2007b).

The next subsections present an overview of genetic affiliations of Nuu-chah-nulth, followed by a brief description of existing research on the language, and an overview of Nuu-chah-nulth word structure. The section concludes with discussion of the methodology for the present study.

1.4.1 Genetic Affiliations

This section gives an overview of the relationships of Nuu-chah-nulth within the Wakashan language family. The family is spoken in western British Columbia, Canada and extends to the north-western tip of Washington State, USA. The family splits sharply into two divisions, Southern and Northern Wakashan, which have also been labelled the Nootkan and Kwakiutlan branches, respectively (Boas 1891; Rath 1974; Jacobsen 1979).

(36) *Wakashan family classification (Howe 2000)*
a. Northern (Kwakiutlan):
Haisla, Heiltsuk, Ooweky'ala, Kwakw'ala (Kwakiutl)
b. Southern (Nootkan):
Nuu-chah-nulth, Ditidaht (Nitinat), Makah

The time depth separating the two branches of Wakashan is great, and has been estimated at approximately 29 centuries (Swadesh 1953: 26, 41; Jacobsen 1979c: 769). The Northern and Southern branches share relatively few cognate roots, but Sapir (1911) notes that there are at least about 90 lexically contentful suffixes in Nuu-chah-nulth and Kwakw'ala which have a common etymological source. The origins of Nuu-chah-nulth affixal predicates may therefore be plausibly traced to Proto-Wakashan.

The Southern branch of the Wakashan language family is comprised of the closely related languages Nuu-chah-nulth, Ditidaht and Makah. Nuu-chah-nulth shares strong grammatical and lexical ties to Ditidaht and Makah (Davidson 2002), although pervasive phonological changes separate these sister languages (see among others Jacobsen 1969a, b, 1979, 2007; Haas 1969). The languages of Southern Wakashan – like all other First Nations languages of the Pacific Northwest – face the threat of extinction. Contact with Europeans, dating to the late 18th century, had a profound impact on the indigenous societies of the Pacific Northwest, as introduced diseases decimated the local populations (Arima 1983; Boyd 1999), while colonization disrupted the traditional socio-economic order. Language loss in Nuu-chah-nulth communities was hastened in the 20th century by the imposition of a compulsory residential schooling system which had the effect of removing young people from their families (Golla 1987; Behrend and Kammler 2003). Today, there are estimated to be fewer than 200 remaining speakers of Nuu-chah-nulth, most of whom are elderly. Ditidaht has fewer than ten fluent speakers remaining, while Makah is no longer spoken as a first language (Adam Werle, p.c. 2005). Language revitalization initiatives are underway in the communities, but face considerable challenges (see Behrend and Kammler 2003). Recent language maintenance successes for Nuu-chah-nulth include a pocket dictionary developed by the Barkley Sound Dialect Working Group (2004), and texts with accompanying audio recordings of the late Ahousaht elders Caroline Little (Nakayama 2003a) and George Louie (Nakayama 2003b).

Prior to contact with Europeans there was no self-designation for the Nuu-chah-nulth community at large. Component groups had largely autonomous identities

(Drucker 1951; Arima 1983), which are reflected today in the 15 or so distinct dialects of the language. The dialects of Nuu-chah-nulth may be broadly categorized into northern, central, and southern varieties, following Stonham (2004).

(37) *Subclassification of Nuu-chah-nulth*
a. Northern Nuu-chah-nulth:
- Chicklisaht, Kyuquot, Ehattesaht, Nuchatlaht, Mowachaht, Muchalaht
b. Central Nuu-chah-nulth:
- Hesquiaht, Ahousaht, Tla-o-qui-aht
c. Southern Nuu-chah-nulth:
- Ucluelet, Toquaht, Tseshaht, Huu-ay-aht, Uchucklesit, Hupachasath

These dialects are spoken along western Vancouver Island from Cape Cook in the north to Barkley Sound in the south. The mountainous terrain of western Vancouver Island, with its punctuated coastline of inlets and small islands, played a key role in the differentiation of the socio-political and linguistic identities of the inhabitants of the area (Drucker 1951). The data presented in this study come from original field-work on Ahousaht, a central Nuu-chah-nulth dialect spoken on Flores Island, off the west coast of Vancouver Island.

1.4.2 Previous Literature

The linguistic study of Nuu-chah-nulth has been spurred by three major waves of fieldwork activity, conducted over the course of the last century. The roots of Nuu-chah-nulth linguistics are in the work of Edward Sapir, who engaged in intensive fieldwork on the language in 1910 and 1913–1914. Working together with Nuu-chah-nulth speaker Alex Thomas and Sapir's one-time student Morris Swadesh, Sapir oversaw the collection of extensive textual materials, which were published in part as *Nootka Texts* (Sapir and Swadesh 1939). This project yielded a concise dictionary of the southern Nuu-chah-nulth dialect Tseshaht and a brief but foundational grammatical description of this dialect, published together as an appendix to *Nootka Texts*. A second volume of texts was published as Sapir and Swadesh (1955), while additional linguistic notes appeared in Sapir (1911b, 1924, 1929), and Swadesh (1939, 1948). The material collected during the Sapir-Thomas collaboration forms the empirical basis for much subsequent analytic work on the language, including Stonham (1999, 2004), and the Nuu-chah-nulth component of Davidson (2002). A dictionary of the Tseshaht dialect has also been published (Stonham 2005), based on Sapir's fieldnotes. Textual materials which were residual to the original two published volumes of the Sapir-Thomas texts (Sapir and Swadesh 1939, 1955) were recently brought to light with the appearance of Sapir et al. (2000, 2004). The final two installments of the Sapir-Thomas series are due to be published in the near future (Eugene Arima and Terry Klokeid, p.c.).

After a lull in linguistic fieldwork on Southern Wakashan stretching from the 1920s into the 1960s, a second wave of activity ensued with research expanding to Ditidaht (e.g., Haas 1969, 1972; Klokeid 1976, 1978a, b) and Makah (e.g., Jacobsen 1969, 1979; Renker 1987), as well as a subset of Nuu-chah-nulth dialects

(Paik 1968; Rose and Carlson 1984; Kess and Kess 1986, among others). This period saw the completion of the first grammar of Nuu-chah-nulth, based on the northern dialect Kyuquot (Rose 1981).

Recent years have seen a renewed period of concerted fieldwork on Nuu-chah-nulth, largely in response to the advancing age of the last fluent speakers of the Southern Wakashan languages. This ongoing wave of activity has produced the following recent doctoral dissertations on Southern Wakashan: a treatment of grammatical properties of the Ahousaht dialect of Nuu-chah-nulth (Nakayama 1997), a study of this dialect's morpho-phonology (Kim 2003), a comparison of Makah grammar to that of the Tseshaht dialect of Nuu-chah-nulth (Davidson 2002), and an earlier version of the present study (Wojdak 2005). Other publications include Nakayama (1998, 2001), Davis and Sawai (2001) and Wojdak (2001). This renewal of research activity is marked with the publication of a special edition of the *Canadian Journal of Linguistics* devoted to Southern Wakashan (Davis and Wojdak 2007a).

The topic of affixal predicates – or "lexical suffixes", as they have frequently been labelled – is a recurrent theme in research on Nuu-chah-nulth. The role of these morphemes in Nuu-chah-nulth was initially highlighted in Sapir's (1921) discussion of Nuu-chah-nulth polysynthesis, as well as in Swadesh's (1939) article entitled *Nootka Internal Syntax*. Inventories of these predicates are found in Sapir and Swadesh (1939), Rose (1981), and Davidson (2002), while detailed descriptive treatments of their suffixation patterns are discussed in Rose (1981) and Nakayama (1997, 1998, 2001). To my knowledge, the first reference to the word formation properties of Southern Wakashan affixal predicates as a type of incorporation is found in Klokeid (1976). A noun incorporation analysis in terms of syntactic head movement is developed in Woo (2000), Davis and Sawai (2001), Yiu (2001), and Stonham (2004). An alternative to the noun incorporation analysis is presented by Waldie (2004), who analyses the suffixation as a type of denominal verb formation. While suffixation to nominals ("noun incorporation") has been the primary focus of this previous literature, suffixation to verbs ("verb incorporation") has been relatively under-investigated. Cursory treatments are found in Rose (1981) and Nakayama (1997, 1998, 2001). The topic of Nuu-chah-nulth verb incorporation plays a central role in the present study.

1.4.3 Overview of Word Structure in Nuu-chah-nulth

Affixal predicates fall within an inner layer of suffixes in the Nuu-chah-nulth word (Rose 1981; Nakayama 2001; Davidson 2002). The following is a simplified description of suffixal bound morphemes, adapted from Davidson (2002: 321):

(38) *"Inner" and "outer" layers of suffixes in Nuu-chah-nulth*

[=PREDICATE=ASP] =TR=TEMP=PAS=POSS=TENSE=AGR/MOOD=PL=AGAIN=HAB

"core" suffixes "peripheral" suffixes

In addition to affixal predicates, the core inner layer also includes aspectual suffixes, which are marked only for those predicates with no "inherent" aspectual value (Davidson 2002: 97–99). The examples in (39) illustrate two aspectual suffixes, the perfective *–šiƛ* (PERF) and the continuative *–aa* (CONT), shown suffixed to the independent predicate *m̓iƛ* "rain". Following the aspectual suffixes are markers for tense and pronominal agreement.

(39) a. m̓iƛšiƛitʔiš
m̓iƛ-šiƛ-mit-ʔiiš
rain-PERF-PST-3.IND
It rained.

b. m̓iƛaamitʔiš
m̓iƛ-aa-mit-ʔiiš
rain-CONT-PST-3.IND
It was raining.

As will be described in Chapter 5, only the inner layer of suffixes is included together with a verb when the verb is "incorporated" into an affixal predicate. In (40a), the aspectually marked verb *miƛ-šiƛ* "rain (PERF)" is suffixed by the affixal predicate *-ʔii-čiƛ* "hear (PERF)". As is demonstrated in (40b), it is not possible for an outer suffix such as past tense *–mit* (PST) to be marked on the "incorporated" verb.

(40) a. m̓iƛšiƛʔiičiƛitsiš
m̓iƛ-šiƛ-**ʔii**-čiƛ-mit-siiš
rain-PERF-**hear**-PERF-PST-1SG.IND
I heard it rained.

b. * m̓iƛšiƛitʔiičiƛitsiš
m̓iƛ-šiƛ-mit-ʔii-čiƛ-mit-siiš
rain-PERF-PAST-**hear**-PERF-PST-1SG.IND
I heard it rained.

Outside of affixal predicates and aspectual markers lies a strictly ordered clitic sequence which includes argument structure affecting enclitics such as the passive and possessive, as well as markers for tense (Rose 1981; Nakayama 2001; Davidson 2002). Pronominal agreement enclitics fall towards the outer limits of the clitic sequence and simultaneously encode clause-typing "mood" distinctions. In (41), the affixal predicate *–maḥsa* "want" is followed by two valency-affecting morphemes, the transitivizer *-ʾap* (TR) and the passive *–ʾat* (PAS). The past tense morpheme *–mit* (PST) is next in the string, followed by the fusional mood/agreement marker *-ʔiiš* (3.IND), which marks a third person subject and "indicative" mood.

(41) kukc̓uqšmaḥsap̓anitʔiš
kukc̓uqš-maḥsa-ʾap-ʾat-mit-ʔiiš
spoon.feed-want-TR-PAS-PST-3.IND
S/he wants to be fed with a spoon.

The placement of inflectional clitics is addressed in Chapter 3. According to the analysis, inflectional clitics owe their linearization to the same local spell-out mechanism which induces the linearization of affixal predicates.

In addition to suffixation, Nuu-chah-nulth word-formation strategies include word-initial reduplication (see §2.1), and restricted cases of infixation (see Stonham 2004: 139–142).

1.4.4 Methodology

This study is based on fieldwork conducted during 2000–2005 with fluent speakers of Nuu-chah-nulth. Sentences and short stretches of discourse were elicited in a series of person-to-person interviews. This elicitation method is crucial to syntactic research as it allows for the targeted study of phenomena which may be rare in texts. Moreover, syntactic elicitations permit access to native speaker intuitions about grammaticality, which are otherwise inaccessible in the format of textual analysis. The data obtained in elicitation sessions were transcribed and subsequently inputted to a computer database. Some recordings were also made to supplement the transcriptions. Transcriptions were proofread by Mary Jane Dick, a fluent speaker of the Ahousaht dialect of Nuu-chah-nulth who has formal training in linguistics.

The majority of the data in this book has its genesis in a project I began in 2002 with Mary Jane Dick to document Ahousaht usages of the "lexical suffixes" catalogued in Sapir and Swadesh (1939), Rose (1981), and Davidson (2002). Mary Jane Dick worked independently and with her mother, Sarah Webster, to create illustrative example sentences for more than 200 suffixes. These example sentences were an invaluable resource, and provided a large data-set which formed the basis for follow-up elicitation sessions during 2002–2005.

The two primary language consultants for this project are Mary Jane Dick and her mother, Sarah Webster, who are each native speakers of the Ahousaht dialect. Both were born in Ahousat, British Columbia − Sarah in 1924, and Mary Jane in 1945. Nuu-chah-nulth was the dominant household language while both were young, and they each began to learn English as a second language when they started schooling. Currently, the two usually see each other daily and use their language as much as possible with each other.

This study benefited from elicitations with several secondary language consultants, who are speakers of Ahousaht or other Nuu-chah-nulth dialects. Katherine Fraser is a speaker of the Ahousaht dialect and has formal training in linguistic analysis. The late Caroline Little was also a speaker of the Ahousaht dialect. Barbara Touchie is a speaker of the Ucluelet dialect, while her brother, Archie Thompson self-identifies as a speaker of the Toquaht dialect. Josephine Thompson is a speaker of the Ahousaht dialect. Barney Williams, Sr., identifies with both the Tla-o-qui-aht and Chickliset dialects, while his son, Barney Williams, Jr., speaks the Tla-o-qui-aht dialect. Each of these language consultants speaks Nuu-chah-nulth as their first language, and English as their second. Sessions with secondary language consultants were used to confirm various patterns indicated by primary language consultants.

1.5 Outline of the Book

There are five chapters which follow this introduction. This section gives an overview of their contents.

Chapter 2 argues that local spell-out gives rise in Nuu-chah-nulth to a specific type of dependency termed *PF incorporation*. I argue that mid-derivational units constructed in the syntax form minimal spell-out domains for the post-syntactic linearization mechanism for affixal predicates. An affixal predicate is linearized as a suffix to the leftmost element in the string which is linearly adjacent to it at spell-out, a condition I label the *string adjacency effect*. The linearization shows an insensitivity to syntactic category and an absence of LF effects. However, opacity effects come into play in that an affixal predicate cannot incorporate a host taken from a DP or CP, two units which I analyse as *saturated domains*. Instead, when an affixal predicate has a DP or CP as its complement, an expletive host surfaces to rescue the potentially stranded affix.

Chapter 3 presents in detail the Nuu-chah-nulth clausal architecture which underlies PF incorporation. I argue that Nuu-chah-nulth has a syntactically underived VOS word order, with arguments introduced within the verbal projections. Evidence for a structural asymmetry between subject and object comes several sources, including possessor raising and Weak Crossover effects. With respect to the linear ordering, I present the argument that linearization of syntactic terminals is achieved exclusively at PF, as syntactic constructs are not inherently ordered for directionality. Furthermore, I argue that syntactic c-command does not unambiguously determine linear precedence (contra Kayne 1994). Instead, directionality is imposed at the point of spell-out via choice of one of two logically possible linearizations. Regularities in directionality (i.e., left or right syntactic "headedness") are proposed to be spell-out conventions which arise through the process of language acquisition.

Chapter 4 gives an inventory of the argument structures of affixal predicates which take nominal complements. The structure-building operation of Merge generates the nominal arguments of affixal predicates in a range of orientations, from unaccusative to extended unaccusative, transitive to ditransitive. Unergatives, however, are absent from the inventory of affixal predicates in Nuu-chah-nulth – a systematic gap which I attribute to the need for an affixal predicate to have a phonologically distinct complement. For each type of affixal predicate, the predicate incorporates a host from its complement, often giving rise to noun incorporation. I present a range of independent diagnostics for syntactic structure, including possessor raising and subject agreement.

Chapter 5 surveys types of affixal predicates which take verbal complements. I propose that these predicates fall into two general classes: affixal main predicates and affixal auxiliary predicates, both of which permit verb incorporation. The PF incorporation pattern of these predicates may result in incorporation in contexts in which the complement is a reduced verbal projection (*v*P), rather than an opaque, fully inflected clause (CP). Given that these PF incorporation contexts are monoclausal, a range of "restructuring" effects are predicted, including "long" wh-movement and "long" possessor raising.

Chapter 6 contains concluding remarks. A brief summary of the book is given, followed by discussion of theoretical and typological implications of the analysis. On the theoretical side, I review evidence for the strictly interpretive function of spell-out, contrasting the local spell-out model to "phasal" spell-out (Chomsky 2001, 2005). Under the view that derivational opacity associated with DP and CP domains is tied to saturation, Nuu-chah-nulth presents evidence for variation in the permeability of these domains – specifically, against the universality of "escape hatches" for long-range processes. Turning to cross-linguistic variation in affixation, this chapter discusses affixation mechanisms other than local spell-out. First, affixation arising from local spell-out is contrasted with the more complex process of syntactic head movement. Second, evidence is presented for "inside-out" affixation dependencies – the antithesis of Nuu-chah-nulth affixation – which arise at late stages of the derivation, via prosody. Here, the Nuu-chah-nulth affixation pattern is contrasted with that of the Northern Wakashan language Kwakw'ala. Additional typological factors are also considered. I state that there is a range of variation attested in noun incorporation dependencies cross-linguistically. Furthermore, the "lexical suffixes" of the Pacific Northwest *Sprachbund* do not, as has been previously assumed, reduce to a single type of "bound nominal" pattern (Gerdts 1998).

We now turn to the chapter on PF Incorporation.

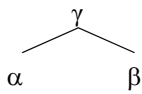
2. PF Incorporation

So I find words I never thought to speak
In streets I never thought I should revisit
~ T.S. Eliot *Four Quartets no. 4*

2.0 Introduction

In Chapter 1, the observation was made that a syntactic construct, formed derivationally by binary concatenation, is not inherently ordered. In the syntax, the elements joined by Merge are an unordered set {α, β}.

(1)



Before such a derivational output can be pronounced, however, the elements occupying the terminal positions α and β must be linearized. I hypothesize that it is strictly non-syntactic principles in the grammar which are responsible for ordering them. In Chapter 1, I proposed that affixation requirements constitute one means by which the linguistic elements α and β may be ordered. If one or the other of α and β is an affix, a restricted set of linearization patterns arises: either α–β or β–α. These orderings emerge in the syntax-to-PF mapping, via local spell-out. Repeated from Chapter 1, this claim may be defined as the following:

(2) *Local spell-out*: *for Merge (α, β), interpret (α, β)*

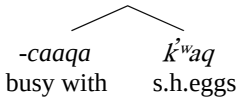
The need for an affix to be linearized with respect to its host is a bare output condition on PF – the portion of the grammar sensitive to temporal sequencing.

The Wakashan language Nuu-chah-nulth was introduced as the empirical ground on which the local spell-out hypothesis will be assessed. This chapter develops the notion that spell-out induces in Nuu-chah-nulth a particular arrangement which I refer to as *PF incorporation*. In this linearization, an affixal predicate –α suffixes to a host β(–), yielding an ordered pair of β–α. The affixal predicate "incorporates" its host in order to achieve a pronounceable form, that of a linearized affix. In (3), this pattern is exemplified by the string *k̓ʷaaq-caaqa* "busy with spawned herring eggs", which is comprised of the affixal predicate *–caaqa* "busy with" and its nominal host *k̓ʷaaq* "spawned herring eggs".

(3) k̓ʷaaqcaaqaʔiš ʕaaḥuusʔatḥ
k̓ʷaq-**caaqa**[+L]-ʔiiš ʕaaḥuus-'atḥ
s.h.eggs-**busy.with**-3.IND place.name-from
The Ahousahts are busy with spawned herring eggs.

According to my analysis, the string *k'ʷaaq-caaqa* emerges as a reflex of the need to linearize the affixal predicate *–caaqa* "busy with". The host chosen for the affix is its derivational sister, the nominal *k'ʷaq* "spawned herring eggs".

(4)



The resulting dependency is a case of PF incorporation.

The term "incorporation" has a lengthy history in Amerindian linguistics. In the context of what has been referred to as "noun incorporation", this label applies to instances in which a noun and verb are combined into a single word. Over the last century, a series of high-profile debates have occurred regarding this phenomenon. Kroeber (1909, 1911) and Sapir (1911a) capitalize on the free-bound contrast to make a distinction between noun incorporation languages in which the verb is a free stem, and those "verbalizing suffix" languages in which the verb is bound. This notion resurfaces in an exchange between Mithun (1984, 1986) and Sadock (1980, 1986). My contribution to this discussion is to specify a four-way range of affixation relationships which exist in the typology of noun–verb dependencies. If the noun and verb are each either free or bound, four patterns of dependencies are available: a bound noun may affix to a bound verb or to a free verb; a free noun, in turn, may affix to a bound verb or to a free verb. Thus, the affixation dependencies of "noun incorporation" are not a uniform phenomenon (see Chapter 6 for further discussion).[1]

(5) *Affixation dependencies of noun incorporation*

	Bound noun	*Free noun*
Bound verb	(a) N–V (Nuu-chah-nulth)	(b) N–V (Nuu-chah-nulth)
Free verb	(c) N–V	(d) N–V

Nuu-chah-nulth instantiates two of these four options. A sequence of N–V in Nuu-chah-nulth arises only via the presence of a bound verb, but there is variation in whether the noun is bound (5a) or free (5b). (Chapter 6 addresses the remaining typological options.) Thus, in a Nuu-chah-nulth complex denoted by β–α, the bound verb –α takes a bound or free nominal β(–) as its host. Because the affixal predicate is obligatorily bound in Nuu-chah-nulth, it can never go without a host. The example

(6) a.

maḥtaʔamitʔiš	čakup
maḥta-**'aap**-mit-ʔiiš	čakup
house-**buy**-PST-3.IND	man
A man bought a house.	

[1] Baker (1988: 143) reaches a similar conclusion, although he proposes a three-way morphological distinction: root noun and root verb, root noun and affixal verb, and affixal noun and root verb. Baker does not discuss the possibility of an affixal noun attaching to an affixal verb.

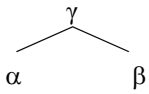
b. * ʔaamitʔiš maḥt̓ii čakup
'aap-mit-ʔiiš maḥt̓ii čakup
buy-PST-3.IND house man
A man bought a house.

in (6a) indicates a grammatical instance of the affixal predicate *-ʔaap* "buy" suffixing to the bound nominal *maḥt̓a-* "house". In (6b), even though the free form of "house", *maḥt̓ii*, is used, it is not possible for the noun and verb to be separated.

The example in (6b) is ruled out because the affixal predicate *-ʔaap* "buy" must be linearized as a suffix.

A purely syntactic account of incorporation does not capture the significance of the bound or free status of the verb in affixation contexts.[2] In languages in which the "incorporating verb" is obligatorily bound, two logical possibilities emerge for the host for the verb, according to the local spell-out hypothesis. As previously noted, if α in (7) is a bound verb, then β may take on the role of host for α at spell-out.

(7)



There is a logically possible alternative, however; an expletive host may be inserted at the point of spell-out to act as "dummy" placeholder for the bound verb. This predicted pattern is attested in Nuu-chah-nulth, which utilizes an expletive host, *ʔu-*, in contexts in which the affixal predicate has not incorporated a host.[3] An example is given below, in which *ʔu-* acts as a host for the affixal predicate *–ʔaap* "buy".

(8) a. ʔuʔaamitʔiš maḥt̓ii čakup
ʔu-**'aap**-mit-ʔiiš maḥt̓ii čakup
∅-**buy**-PST-3.IND house man
A man bought a house.

b. maḥt̓aʔamitʔiš čakup
maḥt̓a-**'aap**-mit-ʔiiš čakup
house-**buy**-PST-3.IND man
A man bought a house.

In (8a), "*ʔu*-support" occurs as an alternative to the noun incorporation of (8b). This expletive is also employed in cases in which the affixal predicate takes a sentential complement. In (9a), for example, the expletive *ʔu–* appears as a host for the affixal predicate *–cuk* "necessary". In (9a), the predicate takes the conditional complement

[2] Baker (1988: 72) argues that it is a morphological component of the grammar which determines whether (syntactic) incorporation is obligatory in some cases, or forbidden in others. This is ascribed to a filtering effect of the morphology.

[3] In the framework of Distributed Morphology, *ʔu–* in Nuu-chah-nulth qualifies as a "dissociated" morpheme – that is, one that is inserted at the point of spell-out (Embick 1997; Noyer and Embick 2001).

c̓uk^{w}*iʔatquu qaawicʔi* "that the potatoes be washed". For the predicate *–cuk* "necessary", the presence of *ʔu–* alternates with the incorporation strategy. In (9b), the affixal predicate *–cuk* "necessary" suffixes to the verbal host, *c̓u-k*^{w}*iɬ* "wash (PERF)", rather than to the expletive *ʔu*.

(9) a.

ʔucukʔiš	c̓ukʷiʔatquu	qaawicʔi
ʔu-**cuk**-ʔiiš	c̓u-kʷiɬ-'at-quu	qaawic-ʔii
∅-**need**-3.IND	wash-PERF-PAS-3.COND	potato-DET

It is best to wash the potatoes. (*lit*: "it is necessary that the potatoes be washed")

b.

c̓ukʷiɬcukʔiš	qaawicʔi
c̓u-kʷiɬ-**cuk**-ʔiiš	qaawic-ʔii
wash-PERF-**need**-3.IND	potatoes-DET

The potatoes need washing.

The expletive *ʔu-* in Nuu-chah-nulth is regularly used in the citation forms of affixal predicates, as in *ʔu-ʔaap* "buy" and *ʔu-cuk* "need". From this point onwards, I adopt the convention of writing affixal predicates in their citation forms when I mention them.

Greenlandic (Eskimo) provides another example of this expletive pattern. In the Greenlandic language, "incorporating verbs" are suffixes, just as in Nuu-chah-nulth (Waldie 2004). There is a "placeholder" morpheme, *pi-*, in Greenlandic which surfaces in contexts in which no incorporation occurs (Sadock 1980). The following examples are adapted from Sadock (1980: 306, ex. 18a and 307, ex. 24).

(10) *Greenlandic*

a.

Qimme-qar-poq
dog-have-3SG.IND

He has a dog.

b.

Qimmi-mik	pe-qar-poq
dog-INST	∅-have-3SG.IND

He has a dog.

In (10a), incorporation unites the nominal *qimme* "dog" with the suffixal verb *–qar* "have". In (10b), in contrast, no incorporation of the nominal occurs, and instead, the bound verb is attached to the empty form *pi-* (surfacing as *pe-*).

Unlike languages with bound verbs, languages with free verbs make no use of an expletive host for a verb in contexts in which incorporation fails to apply. An example of a noun-incorporating language with free verbs is Mohawk (Iroquoian). The incorporation pattern of Mohawk is indicated in (11a), in which the nominal *–nuhs-* "house" is incorporated into the inflected verb *ye-nuhwe'-s* "like 3FS/3N". Note that in Mohawk the verb can surface detached from the noun, as in (11b).

(11) *Mohawk* (examples from Postal 1962, as cited in Baker 1988: 81–82, ex. 14a, b)

a. Yao-wir-a'a ye-nuhs-nuhwe'-s
PRE-baby-SUF 3FS/3N-house-like-ASP
The baby house-likes.

b. Yao-wir-a'a ye-nuhwe'-s ne ka-nuhs-a'
PRE-baby-SUF 3FS/3N-like-ASP DET PRE-house-SUF
The baby likes the house.

When incorporation of the noun into the verb does not occur, there is no process similar to *ʔu*–support for the Mohawk verb. The inflected verb *ye-nuhwe'-s* "like" in (11b) does not receive an expletive host. This difference symbolizes a key contrast between the Nuu-chah-nulth and Mohawk patterns of incorporation. The contrasting patterns fall out from an analysis which takes into account the underlying bound/free status of the verb in affixation contexts.

To summarize, we have seen two ways in which the affixation requirement of an affixal predicate may be met in Nuu-chah-nulth. On the one hand, local spell-out may attach an affixal predicate to an incorporated host, yielding PF incorporation. On the other hand, the expletive element *ʔu-* may be introduced at spell-out as a host. Under this view, *ʔu*-insertion receives an analysis similar to that which Lasnik (1981, 2000) proposes for *do*-support in English: the "dummy" *do* is inserted to meet the requirements of a potentially stranded affix. Over the following chapters, we will return to the discussion of *ʔu*–support as a spell-out solution which applies in cases in which an "edge" separates the affixal predicate from a potential incorporable host. In Nuu-chah-nulth, the use of an expletive host for an affixal predicate is obligatory when the predicate takes a DP or CP complement: incorporation of a host cannot occur across these opaque domains. For example, the use of the expletive is necessary when the object of an affixal predicate is marked with a determiner. The example in (12a) shows a grammatical instance of incorporation when the nominal host *ɬučʔin* "dress" is bare. Incorporation is impossible when the determiner *–ʔii* appears, either in (12b) as the host for the affixal predicate, or in (12c) when suffixed to the nominal. The example in (12d) shows the mandatory *ʔu*–support which occurs when the nominal is marked with the determiner.

(12) a. ɬučʔinsiikitsiš
ɬučʔin-**siik**-mit-siiš
dress-**make**-PST-1SG.IND
I made a dress.

b. * ɬučʔinʔisiikitsiš
ɬučʔin-ʔii-**siik**-mit-siiš
dress-DET-**make**-PST-1SG.IND
I made the dress.

c.	*	ʔiisiikmitsiš	ɬučʔin
		ʔii-**siik**-mit-siiš	ɬučʔin
		DET-**make**-PST-1SG.IND	dress
		I made the dress.	
d.		ʔusiikitsiš	ɬučʔinʔi
		ʔu-**siik**-mit-siš	ɬučʔin-ʔii
		∅-**make**-PST-1SG.IND	dress-DET
		I made the dress.	

We return to the topic of opacity effects in PF incorporation in §2.5.

For either expletive insertion or incorporation of a host, the satisfaction of the affixation requirement in Nuu-chah-nulth constitutes a bare output operation on PF. An inserted or incorporated host allows the bound predicate to meet its linearization requirement. Bound status and linearization are not relevant to the syntax proper; instead, these are conditions on phonological representation.

We now turn to discussion of the trademark properties of PF incorporation in Nuu-chah-nulth which serve to corroborate the claim that this phenomenon is derived post-syntactically, at the point of spell-out. In §2.1, independent evidence is presented in support of the claim that an affixal predicate and its host, whether incorporated or expletive, share an intimate phonological relationship. This is followed in §2.2 with discussion of the observation that incorporation in Nuu-chah-nulth is sensitive to string adjacency, rather than to syntactic c-command. In turn, §2.3 argues that incorporation in Nuu-chah-nulth displays an insensitivity to syntactic category, in the sense that the hosts of incorporation come from a range of lexical and functional categories. Evidence is presented in §2.4 that incorporation in Nuu-chah-nulth shows an absence of LF effects. In §2.5, I illustrate that incorporation in Nuu-chah-nulth, although otherwise insensitive to syntactic and semantic properties, cannot cross a DP or CP. I attribute this opacity effect to the status of DPs and CPs as saturated domains (cf. the notion of "phase" in Chomsky 2001). The chapter concludes with §2.6, which sums up evidence against a strictly syntactic view of Nuu-chah-nulth affixation.

2.1 Morpho-phonological Dependency

The analysis which I am proposing states than an affixal predicate is united with a host at spell-out so that it may be linearized. According to the local spell-out hypothesis, an affixal predicate $-\alpha$ is spelled-out with its host $\beta(-)$, inducing a $\beta-\alpha$ linearization.

(13) *Local spell-out*: *for Merge (α, β), interpret (α, β)*

This section presents independent evidence for a phonological dependency between α and β. This evidence comes from the morpho-phonological "subcategorization" of affixal predicates.

In Nuu-chah-nulth, a striking property of bound morphemes is their ability to prosodically condition their hosts (Sapir and Swadesh 1939; Rose 1981; Davidson 2002; Kim and Wojdak 2002; Kim 2003). For example, the repetitive iterative

suffix *–(y)a* [+R+L] (ITER) causes vowel lengthening and reduplication of the first syllable of a monosyllabic root, as well as vowel lengthening of both the base and the reduplicant (Sapir and Swadesh 1939; Wojdak 2002; Kim and Wojdak 2002).

(14)	a.	c̓uusc̓uusa	b.	kiiƛ̓kiiƛ̓a
		c̓us-a[+R+L]		kiƛ̓-a[+R+L]
		dig-ITER		break-ITER
		‘digging continuously’		‘breaking continuously’

Affixal predicates share this ability to prosodically condition their hosts, while independent predicates never induce prosodic conditioning. Each affixal predicate is associated with a characteristic pattern, although many affixal predicates are “neutral” in that they do not impose changes on their host. A given affixal predicate may induce reduplication, a long vowel, a short vowel, or some combination of the three. (I refer the reader to Kim and Wojdak 2002 and Kim 2003 for a thorough description of which combinations are available.)

(15) *Prosodic conditioning*

a.	[+R]	reduplication
b.	[+L]	long vowel
c.	[+S]	short vowel

Both the expletive morpheme *ʔu–* and incorporated hosts are affected by the prosodic requirements of affixal predicates.

The examples below illustrate the behaviour of the affixal predicate *ʔuu-ḫẃaɬ* “use”, which triggers vowel lengthening of the first syllable of its host. In (16a), the vowel of the expletive morpheme *ʔu–* is lengthened to *ʔuu–*, while in (16b) the first vowel of *yaxy̓ak* “broom” is lengthened to *yaaxy̓ak*.

(16) *Long initial vowel (+L)*

a.	ʔuuḫẃaɬʔi	yaxy̓ak
	ʔu-**ḫẃaɬ**[+L]-’ii	yaxy̓ak
	∅-**use**-2SG.IMP>3OBJ	broom
	Use a broom!	

b.	yaaxy̓akḫẃaɬʔi
	yaxy̓ak-**ḫẃaɬ**[+L]-’ii
	broom-**use**-2SG.IMP>3OBJ
	Use a broom!

The following example shows how reduplication is triggered by the affixal predicate *ʔuʔu-q* “travel with (in a vessel)”. In (17a), the expletive morpheme *ʔu-* surfaces as *ʔuʔu–*, while in (17b), the morpheme *ʔuuš* “someone” appears as *ʔuuʔuuš*. In this pattern, the first consonant and vowel of the host are reduplicated. The vowel length of the reduplicant is determined by the underlying vowel length of the morpheme which serves as the base.

(17) *Reduplication with neutral vowel length (+R)*

a. ʔuʔuqʔiš Louis huupuukʷ̓asukʔi Robin
ʔu-**q**[+R]-ʔiiš Louis huupuukʷ̓as-uk-ʔi Robin
∅-**travel.with**-3.IND Louis car-POSS-3.PS Robin
Louis is travelling in Robin's car.

b. ʔuuʔuušqʔiš Louis
ʔuuš-**q**[+R]-ʔiiš Louis
someone-**travel.with**-3.IND Louis
Louis is travelling with someone (e.g., in his canoe).

Some affixal predicates impose restrictions on vowel length as well as inducing reduplication. For example, the affixal predicate *ʔuʔuu-sapi* "depend on" requires reduplication, as well as a short vowel in the reduplicant and a long vowel in the initial syllable of the base. In the examples below, the expletive surfaces as *ʔuʔuu–* (18a), while *ʔuuš* "someone" surfaces as *ʔuʔuuš* (18b).

(18) *Reduplication with short initial vowel and long second vowel (+R+S+L)*

a. ʔuʔuusapiʔiš Louis ʔin ʔayanak taana waaɬak Vancouver.
ʔu-**sapi**[+R+S+L]-ʔiiš Louis ʔin ʔaya-naak taana waaɬak Vancouver.
∅-**depend.on**-3.IND Louis COMP many-have money go.to Vancouver
Louis is depending on having a lot of money in going to Vancouver.

b. ʔuʔuušsapiʔiš
ʔuuš-**sapi**[+R+S+L]-ʔiiš
someone-**depend.on**-3.IND
S/he is depending on someone.

In contrast, the predicate *ʔuʔu-sum* "want" triggers reduplication with a short vowel in both the reduplicant and the initial syllable of the base. In (19a), the expletive appears as *ʔuʔu–*, while in (19b) the morpheme *taanaq-* "money" surfaces as *tatanaq-*.

(19) *Reduplication with short initial vowel and short second vowel (+R+S+S)*

a. ʔuʔusumʔiš Louis taanaakʔi
ʔu-**sum**[+R+S+S]-ʔiiš Louis taana-ʔak-ʔi
∅-**want**-3.IND Louis money-POSS-DET
Louis wants his money.

b. tatanaqsumʔiš Louis
taanaq-**sum**[+R+S+S]-ʔiiš Louis
money-**want**-3.IND Louis
Louis wants money.

It is also possible for an affixal predicate to require reduplication of the first syllable of the base, as well as a long vowel in the initial syllable of base. In this pattern, the reduplicated syllable retains the underlying vowel length of the base. This is demonstrated in (20) with the predicate *ʔuʔuu-yuk* "cry for". In (20a), the host is reduplicated to *ʔuʔuu–*, while in (20b), the host is reduplicated to *siisii-* "you (PL)".[4]

(20) *Reduplication with neutral initial vowel and long second vowel (+R+L)*

a.	ʔuʔuuyukʔanitwaʔišʔaɬ	nanaʔiiqsak	ʔuḥʔat Kyle
	ʔu-**yuk**[+R+L]-'at-mit-waʔiš-ʔaɬ	naʔiiqsu-[+R]-ʔak	ʔuḥʔat Kyle
	∅-**cry.for**-PAS-PST-3.QUOT-PL	aunt/uncle-PL-POSS	by Kyle
	Kyle was crying for his uncles/aunts. (*lit*: "his uncles were cried for by Kyle")		

b.	siisiiyukʔanitwaʔicuuš	Kyle
	sii-**yuk**[+R+L]-'at-mit-waʔicuuš	Kyle
	you-**cry.for** PAS-PST-2PL.QUOT	Kyle
	Kyle was crying for you (pl). (*lit*: "you (PL) were cried for (by) Kyle")	

Only in the "neutral" pattern is the host prosodically unaffected by the affixal predicate. As the examples in (21) show, the phonemically contrastive vowel lengths of the host are unaltered by the affixal predicate *–uʔaaɬ* "find", and no reduplication is triggered. Accordingly, in (21a), *ʔu–* surfaces without reduplication or a change in vowel length, and in (21b), the same applies for *taanaq-* "money".

(21) *Neutral pattern*

a.	ʔuyuʔaaɬsiš	taana
	ʔu-**uʔaaɬ**-siiš	taana
	∅-**find**-1SG.IND	money
	I found money.	

b.	taanaquʔaaɬsiš
	taanaq-**uʔaaɬ**-siiš
	money-**find**-1SG.IND
	I found money.

Many affixal predicates in the language display this neutral pattern, and impose no prosodic conditioning (see Sapir and Swadesh 1939).

Kim (2003) provides an analysis of the reduplicative patterns triggered by affixal predicates within the framework of Optimality Theory. I present here a brief

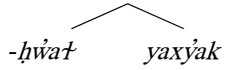
[4] Pronouns such as *sii-* (2PL) are possible as hosts for affixal predicates in Nuu-chah-nulth, despite the evidence that DP is a closed domain for affixation (see §2.5). Investigation is required into the status of Nuu-chah-nulth pronominals in the cross-linguistic typology of pronominal phrase types, as in the DP/φP/nP contrast drawn by Déchaine and Wiltschko (2002).

sketch of the form which an analysis of prosodic conditioning may take if it is articulated in accordance with Minimalist assumptions. I assume that the prosodic "subcategorization" of affixal predicates is specified at the level of the lexical entry. A predicate such as *ʔuu-ḫwaɬ* "use" has the following lexical entry:

(22) *-ḫwaɬ* "use": [USE /ħwaɬ/ affix [+L]]

Together with lexical semantics, phonemic representation, and information on the affixal status of this morpheme, this lexical entry contains a specification for a [+L] feature. This vowel lengthening requirement forms a condition on convergence at the PF interface. When the affixal predicate *ʔuu-ḫwaɬ* "use" is spelled-out to PF, the lengthening requirement is obligatorily realized on its host. If *yaxy̓ak* "broom" is the derivational sister of the affixal predicate, then as a host, it must undergo vowel lengthening.

(23)



This induces a form of *yaaxy̓ak-ḫwaɬ* "broom-use" at PF.

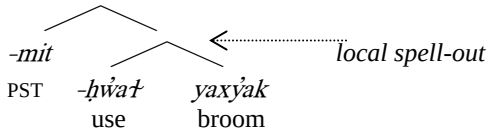
I present this prosodic conditioning as independent evidence for the idea that local spell-out links an affixal predicate with its host at spell-out to PF. The prosodic conditioning of a host by an affixal predicate indicates that the two must be interpreted together at PF. In effect, prosodic conditioning leaves a detectable "foot-print" of local spell-out. The local spell-out hypothesis offers a maximally restrictive prediction regarding which morphemes may be treated by prosodic conditioning, and which may not. According to this hypothesis, the only element which may be prosodically influenced is the derivational sister of the element which is specified for a prosodic requirement. For instance, for (24), the local spell-out hypothesis determines that the morpheme *yaxy̓ak* "broom" is eligible for prosodic conditioning by the affixal predicate *ʔuu-ḫwaɬ* "use", but the past tense marker *–(m)it* (PST) is ineligible. In (24a), the lengthening is realized on *yaxy̓ak* "broom" as *yaaxy̓ak*; however, as indicated by (24b), *–(m)it* (PST) may never be lengthened to *–(m)iit*.

(24) a. yaaxy̓akḫwaɬitʔiš
yaxy̓ak-**ḫwaɬ**[+L]-mit-ʔiiš
broom-**use**-PST-3.IND
S/he used a broom.

b. * yaxy̓akḫwaɬiitʔiš
yaxy̓ak-**ḫwaɬ**[+L]-mit-ʔiiš
broom-**use**-PST-3.IND
S/he used a broom.

According to the local spell-out hypothesis, a derivational sister to the affixal predicate is present at the point of local spell-out of the affix, but the past tense marker is not. In the diagram in (25), the past tense marker is shown to occupy a higher position in the tree than the affixal predicate *ʔuu-ḥẃaƛ* "use", and its complement *yaxy̓ak* "broom". (See Chapter 3 for motivation for this syntactic representation.) Through local spell-out, the lengthening requirement of the affixal predicate is interpreted with *yaxy̓ak* "broom", and not the past tense marker *–(m)it* (PST). Thus, only *yaxy̓ak* "broom" is compatible with prosodic conditioning by the affixal predicate.

(25)

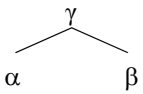


In contrast, the single spell-out and multiple spell-out hypotheses open the door for the possibility that morphemes from the derivation *other than derivational sisters* may be prosodically influenced by the affixal predicate. With these delayed spell-out models, an additional stipulation would be required to rule out why the past tense marker is not equally eligible for prosodic conditioning. One possible stipulation could be directionality – that is, prosodic conditioning should only affect a morpheme to the left of the affixal predicate. The local spell-out hypothesis does not need to resort to directionality in determining the site of prosodic conditioning. Chapter 3 discusses problematic aspects of a directionality-sensitive mechanism for affixation (see §3.3.5.2). Moreover, evidence is shown in Chapter 4 that affixal predicates with unergative semantics are absent in Nuu-chah-nulth: a systematic gap attributable to the need for an affixal predicate to find a host in its complement – not simply a rightward host. Thus, the relationship between an affixal predicate and its host is sensitive to derivational sisterhood, not directionality.

2.2 Linearization is Local

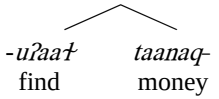
When an element reaches spell-out, it must be linearized with respect to its neighbour. This is the essence of the local spell-out proposal. In the discussion up until this point, the locality constraint on this linearization process has been trivial in that only two syntactic terminals, α and β, were represented as the input to the spell-out rule:

(26)



The syntactic configuration in (26) can be considered to be the basic step of the syntactic derivation, equivalent to a single application of Merge (α, β). An example of this simple arrangement is when an affixal predicate selects a bare noun complement, as in *taanaq-uʔaaƛ* "find money" (from 21b).

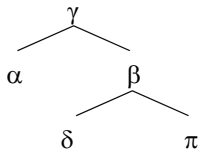
(27)



The linearization forced at spell-out for *taanaq-uʔaaɬ* is a case of PF incorporation. (We will return to the topic of the nominal complements of affixal predicates in Chapter 4.) In this section, we take a first step towards defining the linearization of more complex syntactic constructs.

As we will see in this section, the linearization of affixal predicates in Nuu-chah-nulth is strictly local. For an explanation of this locality constraint, consider the following syntactic construct:

(28)



This configuration is derived via two separate applications of binary concatenation. In the first, δ and π are selected from the numeration [α, δ, π] and are joined through Merge (δ, π). The output of Merge (δ, π) is β, the abstract node label designating the contents of the pairing. For the second concatenation, α is introduced from the numeration. This concatenation unites α with β, through Merge (α, β). The syntactic output of this sequence of operations is γ, the root node label.

According to the local spell-out hypothesis, after the first round of Merge, δ and π are spelled-out. Let us assume that a consequence of spell-out is that the two elements, δ and π, are ordered with respect to each other. (The means by which this ordering takes place is addressed in Chapter 3, but for now we can adopt this assumption.) Take this ordering to be specified first to last as <δ, π>. When the next element, α, enters the computation and attains spell-out, α must be linearized with respect to β, just as it was in the simpler case of (26).

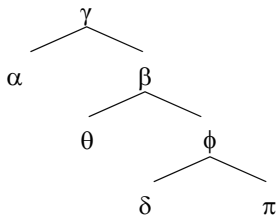
(29) *Local spell-out: for Merge (α, β), interpret (α, β)*

With the derivation in (28), however, β is not a simplex construct; in (28), β is equal to the linearized object <δ, π>.

Assume that α is an affixal predicate (–α). At spell-out to PF, an ordering of α with respect to β requires that the affixal predicate (–α) must be linearized relative to the ordered object <δ, π>. The claim that this section makes is that spell-out of this arrangement consistently yields in Nuu-chah-nulth a linearization of <(δ–α), π>: an affixal predicate in Nuu-chah-nulth only ever suffixes to the element at the initial edge of its derivational sister. For the linearized object <δ, π>, the host for an affixal predicate is identified as δ. The alternative of <δ, (π–α)> never arises in Nuu-chah-nulth.

Furthermore, when even larger derivational samples <θ, δ, π> are considered, we will also see that linearization never "skips" a potential host. Take <θ, δ, π> to be the linearized object specified after two initial applications of Merge. These two concatenations (and corresponding local spell-outs) are following by a third application of Merge, introducing the affixal predicate α.

(30)



At the spell-out point of γ, the affixal predicate –α must be linearized with respect to the ordered object <θ, δ, π>. Affixation is based on linear adjacency in that the resulting linearization is <(θ–α), δ, π> and not <θ, (δ–α), π>. It is the single leftmost element in the string which can serve as the host for the affixal predicate. I label this constraint in Nuu-chah-nulth the *string adjacency effect*.

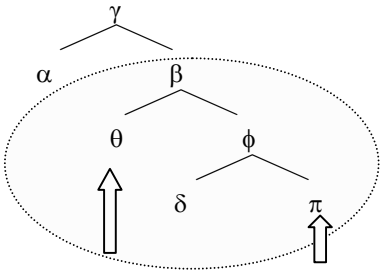
(31) *String adjacency effect*:

An affixal predicate must be linearized as a suffix to the leftmost element in the string which is linearly adjacent to it.

Which property of the grammar is responsible for this adjacency requirement? I consider this effect to be a reflex of the spell-out of the affix. It arises from local spell-out, in which the affixal predicate is evaluated relative to its derivational sister. The simplest view of the interpretative capacity of spell-out is that it operates without recourse to counting. Formally, linearization is therefore insensitive to ordinal position within a complex string <θ, δ, π>. Instead, the linearization mechanism attends to the *boundaries* of the string (cf. Klavans 1985). The initial element of the derivational sister is chosen as host for an affixal predicate in Nuu-chah-nulth due to its peripheral position in the string. This derives the string adjacency effect.

The string adjacency effect follows from the need to linearize an affix with respect to the boundary of its derivational sister. In Nuu-chah-nulth, affixes select as host the element at the left periphery of their derivational sister. There also exists a logically possible alternative: orientation to the right boundary of a derivational sister. Although this option does not arise in Nuu-chah-nulth, it may be observed in languages with "phrasal" affixes which are positioned relative to the final element in a syntactic constituent (Klavans 1985). The two options for orientation of an affix at the boundaries of its derivational sister are illustrated in (32). In (32), the affix α has as its derivational sister the linearized object <θ, δ, π>.

(32) *Peripheral positions within the derivational sister of an affix*



Orientation to the initial boundary will yield a string adjacency effect in which the element θ will be selected as host for α, as in Nuu-chah-nulth. Positioning relative to the final boundary will determine that π is chosen as host for α. Thus, the local spell-out model predicts two alternative orientations for choice of hosts. These alternative realizations appear to be attested cross-linguistically (Klavans 1985). This prediction distinguishes the local spell-out model from Marantz's (1988, 1989) Morphological Merger, which allows only string adjacent elements to be chosen as host for an affix.

In the following subsections, we will see empirical evidence for the string adjacency effect in Nuu-chah-nulth affixation. I start in §2.2.1 by showing that affixation in Nuu-chah-nulth does not skip potential hosts, but instead feeds a potentially iterative affixation process. In §2.2.2, I present evidence that PF incorporation targets non-heads of a syntactic constituent, so long as these elements are positioned at spell-out contiguous to the affixal predicate. In §2.2.3, it is shown that this operation breaks up coordinated objects – disregarding the Coordinate Structure Constraint (CSC) – by targeting the conjoined element which abuts the affixal predicate at spell-out.

2.2.1 Iterativity

This section discusses the make-up of complex strings of dependencies. Consider (33), in which a sequence of affixes (including two affixal predicates, *-ʾiiƛ̓* "try to" and *-maƛ̓sa* "want to") are suffixed to the verb *huƛ̓tak* "know".

(33)	huuƛ̓takšiiƛ̓maƛ̓saʔiš	Lucy	quuquuʔaca
	huƛ̓tak-ši-**ʾiiƛ̓**[+L]-**maƛ̓sa**-ʔiiš	Lucy	quuʔac-[+R]-(y)a
	know-PERF-**try.to**-**want.to**-3.IND	Lucy	person-speak-CONT
	Lucy wants to learn how to speak Nuu-chah-nulth.		

I have described the process of affixation in Nuu-chah-nulth as one applying to pairs of items: an affix and a host. If the linearization specified by local spell-out is a pairwise function, then how can complex sequences such as (33) be formed? It seems on the surface that there are many affixes, and only a single host (the verb *huƛ̓tak* "know"). If the host for an affixal predicate must be linearly adjacent to the affixal

predicate, then why is that *–maḥsa* "want to" is attaching to another bound element (*-'iiḥ* "trying to"), and not attaching directly to the free form *huḥtak* "know"? Strictly speaking, the affixal predicates *–maḥsa* and *–'iiḥ* cannot be serving as hosts for each other. Each of these affixal predicates are suffixes, so if they must find a host between them, then one will necessarily be left without. Recall from Chapter 1 that the combination of two suffixes, –α and –β, results in an indeterminate ordering of (–α–β) or (–β–α). If the ordering of (–α–β) is selected, the result fails in that the element –α is not bound as a suffix. Conversely, if the ordering of (–β–α) is picked, then –β fails to appear as a suffix. Thus, the relationship between the elements is inherently incompatible, and as such, no dependency obtains.

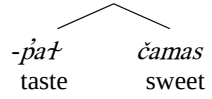
The solution to this problem is iterative application of local spell-out, an idea first introduced in Chapter 1. In the framework I am assuming, spell-out applies for each occurrence of Merge. By the Order Preservation hypothesis (Fox and Pesetsky 2005), spell-out of later cycles adds information to previous cycles. A consequence of this proposal is that successive applications of local spell-out enforce a build-up of hosts, induced when one affixal predicate finds a host, and then this affix-host complex in turn serves as the host for another affix. We can take the data in (34) as an illustration of this process.

(34) čamasp̓aƚc̓uqši?in
čamas-**p̓aƚ**-**c̓uq**-šiƛ-'in
sweets-**taste**-**in.mouth**-PERF-1PL.IMP
Let us put something sweet in our mouths.

In (34), there are two affixal predicates: *ʔu-p̓aƚ* "taste of" and *ʔu-c̓uq* "in mouth". The affixal predicates are followed by the perfective suffix *–šiƛ* (PERF), and the imperative marker *–'in* (1PL.IMP).

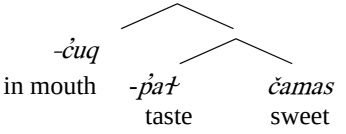
Recall that syntactic derivations are built from bottom to top. We assume the first step of the syntactic derivation to be one in which the predicate *-p̓aƚ* "taste of" joins with *čamas* "sweet" via Merge (*p̓aƚ* , *čamas*). (In Chapter 4, I show in detail how arguments of affixal predicates such as *ʔu-p̓aƚ* "taste of" are syntactically introduced.)

(35)



Because *–p̓aƚ* is a suffix, this arrangement must be linearized at spell-out as <*čamas-p̓aƚ*> "sweet-tasting". Successive steps of Merge result in a longer string of morphemes. In the next stage, *-c̓uq* "in mouth" is merged into the derivation, via Merge (*c̓uq*, *čamas-p̓aƚ*).

(36)

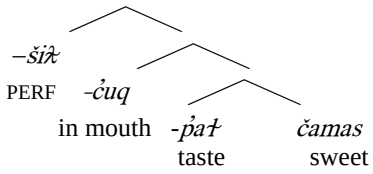


Because *–ċuq* is a suffix, this string is linearized as <*čamasṗaɬ-ċuq*> "something sweet tasting in the mouth".

Suffixes introduced later in the derivation *follow* a previously positioned suffix. "Tucking in" of suffixes is not permitted, ruling out a form such as * <*čamas-ċuq-ṗaɬ*>, in which a later suffix (*-ċuq* "in mouth") would adjoin directly to the original host of the derivation (*čamas* "sweet"), rather than falling outside the last suffix (*-ṗaɬ* "taste of"). "Tucking in" is countercyclic, and its impermissibility follows directly from the role that local spell-out plays in fixing phonological content. If suffixes were to adjoin iteratively to the original host, rather than the last suffix, then this would disrupt the placements of earlier cycles. Under the local spell-out model, linearization is fixed at each cycle.

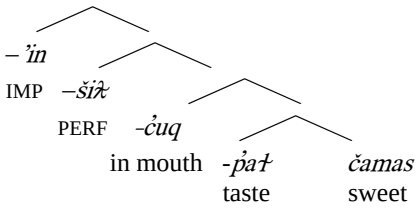
Returning to the derivation of (34), the non-predicative suffixes, *–šiƛ* (PERF) and *– ʔin* (1PL.IMP), are also eligible for positioning through local spell-out. When the perfective suffix *–šiƛ* (PERF) is merged into the derivation, it is spelled-out to PF with its derivational sister *čamasṗaɬċuq*, inducing a linearization of <*čamasṗaɬċuq-šiƛ*> "put something sweet tasting in the mouth".

(37)



Finally, the imperative suffix *– ʔin* (1PL.IMP) is then positioned at spell-out after it has been merged.

(38)



As a suffix, the imperative marker *– ʔin* (1PL.IMP) is spelled-out following the previously linearized components. The resulting arrangement is <*čamasṗaɬċuqši-ʔin*> "let us put something sweet in our mouths". The principles of iterative local spell-out therefore correspond to the effects of Baker's (1988) Mirror Principle: the left to right arrangement of suffixes reflects the first to last steps of the syntactic derivation. Suffixes introduced later in the derivation will be linearized towards the end of the word. In effect, each step of the syntax induces a "phonologization" of the elements of the syntactic tree.

According to my proposal, the "phonologizing" effects of local spell-out are reflected in a sensitivity to string adjacency at PF. Sensitivity to linear ordering is a property of the phonological system, not the syntax (Chomsky 1995; Fox and

Pesetsky 2005). As I have described, the syntax does not operate on the basis of linear arrangements: it is simply a device of binary concatenation. The next sections add weight to the argument that PF incorporation is a non-syntactic phenomenon. The data which I will present demonstrate that PF incorporation operates in Nuu-chah-nulth on linearly adjacent items, irrespective of their internal syntactic structure.

2.2.2 Modifier Incorporation

The analysis predicts that any element which is string adjacent to an affixal predicate should be chosen to act as its host; elements which are not linearly adjacent to the affix should not be eligible as hosts. Here, we examine the phenomenon of modifier incorporation as evidence for sensitivity to string adjacency in Nuu-chah-nulth incorporation. The prediction is that a modifier will serve as host for an affixal predicate if it occurs at the left-periphery of its derivational sister. Two types of modifier incorporation will be considered in detail: the first, targeting adjectives; the second, targeting adverbials.

2.2.2.1 Adjective Incorporation

Within nominal phrases in Nuu-chah-nulth, there is a strict ordering relationship between constituent elements, such that a modifier necessarily precedes the nominal. (In Chapter 3, I will attribute this regularity to a spell-out "convention"). A modifier such as *haʔum* "tasty" must obligatorily precede a nominal such as *ʔaapinis* "apples".

(39) a.

ʔuʔiicʔišʔaɬ	haʔum	ʔaapinis
ʔu-**ʾiic**-ʔiiš-ʔaɬ	haʔum	ʔaapinis
∅-**consume**-3.IND-PL	tasty	apples

They are eating delicious apples.

b. *

ʔuʔiicʔišʔaɬ	ʔaapinis	haʔum
ʔu-**ʾiic**-ʔiiš-ʔaɬ	ʔaapinis	haʔum
∅-**consume**-3.IND-PL	apples	tasty

They are eating delicious apples.

Let us assume for the present discussion that in (39), the affixal predicate *ʔu-ʔiic* "consume" takes the nominal phrase *haʔum ʔaapinis* "tasty apples" as its complement. (Chapter 4 provides an analysis of the syntactic configuration of arguments of affixal predicates.) In this section, we will see that, as predicted, the choice of host for an affixal predicate is determined by the linear ordering of elements with the nominal phrase that it takes as a complement. An affixal predicate incorporates whatever host is "leftmost in the order Q[uantifier] > Q[uantity] > A[djective] > N[oun]" (Rose 1981: 294). In other words, an affixal predicate obligatorily attaches to the element in the complement which is *string adjacent* to the affixal predicate.

It is this sensitivity to linear ordering which determines that PF incorporation is not "noun incorporation" in a strict sense. Although affixal predicates may select a noun as host in a simplex nominal complement, this preference switches

once a prenominal constituent enters the picture. For example, although the nominal *ʔaapinis* "apples" is the host for *ʔu-ʔiic* "consume" in (40a), it cannot act as a host when the prenominal modifier *haʔum* "tasty" appears, as in (40b).

(40) a. ʔaapiniɣicʔišʔaɬ
ʔaapinis-**'iic**-ʔiiš-ʔaɬ
apples-**consume**-3.IND-PL
They are eating apples.

b. * ʔaapiniɣicʔišʔaɬ haʔum
ʔaapinis-**'iic**-ʔiiš-ʔaɬ haʔum
apples-**consume**-3.IND-PL tasty
They are eating delicious apples.

In this context, the adjective is necessarily chosen to be the host, rather than the modified noun. In (41), the affixal predicate *ʔu-ʔiic* "consume" suffixes to the modifier *haʔum* "tasty".

(41) haʔumʔicʔišʔaɬ ʔaapinis
haʔum-**'iic**-ʔiiš-ʔaɬ ʔaapinis
tasty-**consume**-3.IND-PL apples
They are eating delicious apples.

Quantifiers, which like adjectives necessarily precede a nominal, show a parallel pattern of being selected as host for the affixal predicate. The example in (42a) shows this quantifier-initial order. An affixal predicate incorporates a quantifier (42b), rather than the quantified noun (42c).

(42) a. ʔuʔisʔiš ʔaya ṁuksʔi
ʔu-**'is**-ʔiiš ʔaya ṁuksʔi
∅-**on.beach**-3.IND many rocks
There's lots of rocks on the beach.

b. ʔayiisʔiš ṁuksʔi
ʔaya-**'is**-ʔiiš ṁuksʔi
many-**on.beach**-3.IND rocks
There's lots of rocks on the beach.

c. * ṁuksʔiʔisʔiš ʔaya
ṁuksʔi-**'is**-ʔiiš ʔaya
rock-**on.beach**-3.IND many
There's lots of rocks on the beach.

This sensitivity to linear adjacency extends to object *wh*-questions formed by incorporation into an affixal predicate. In "which"-questions, the *wh*-word hosts the predicate, while the restriction is stranded (Davis and Sawai 2001):

(43) waayaʕamiṭḥ Louis č̓upč̓upšumɬ
waayaq-**’aap**-mit-ḥ Louis č̓upč̓upšumɬ
which-**buy**-PST-3.Q Louis sweater
Which sweater did Louis buy?

The restriction which Nuu-chah-nulth incorporation has on targeting the “leftmost” element (Rose 1981: 295) is not in the vocabulary of the syntax. This is because incorporation in Nuu-chah-nulth is not a syntactic process. In the Minimalist model I have adopted, syntactic processes operate on the basis of hierarchical relationships – created by binary concatenation – while PF processes operate on the basis of linearly defined relationships. In the terminology of Lasnik (2000), the two types of analyses may be teased apart in contexts in which *linear* adjacency does not correspond to *hierarchical* adjacency. Let us consider how these types of adjacency differ.

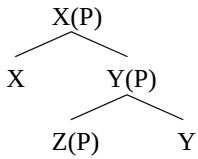
Syntactic head movement is possible only in accordance with the Head Movement Constraint, a restriction which operates on the basis of hierarchical dominance relations within a syntactic tree:

(44) *Head Movement Constraint (Travis 1984):*
A head Y may only move to X if Y is the sister of X

Matushansky (2006) terms this relation a “head-of-the-complement” locality. Following Matushansky, I will assume that it is fundamentally a syntactic restriction, as the same notion of locality is at play in c-selection, the means by which heads select the syntactic category of their complement.[5] Indeed, as Matushansky argues, head movement is possible only between elements when one is c-selected by the other.

For the tree in (45), Y is the sister of X, but Z is not. In other words, Y is the head of the complement of X.

(45)



Thus, according to the Head Movement Constraint, only Y should be eligible to move to X.[6] Movement of Z–X should be impossible. The “head-of-the-complement”

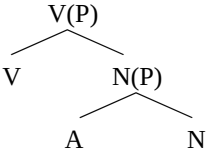
[5] Matushansky’s (2006) proposal counters the speculation of Chomksy (2001) that head movement is non-syntactic. See also Donati (2003) and Surányi (2003), among others for related arguments that head movement is a syntactic phenomenon. I return to this topic in Chapter 6.

[6] I wait until Chapter 6 to discuss a particular technical implementation of syntactic head movement. The traditional model of head adjunction (Travis 1984, Baker 1988) is at odds with the Minimalist requirement that movement (remerge) only be effected at the root node (the Extension Condition). Surányi (2003) and Matushansky (2006) each offer analyses of syntactic head movement compatible with the Extension Condition. Either of these approaches would be compatible with my assumptions here. See Chapter 6 for further discussion of syntactic head movement.

locality of head movement is a hierarchically defined restriction. This locality is sensitive to which element of a syntactic pairing is the one to project. In (45), Y projects after Merge (Z, Y). Therefore, Y is the head-of-the-complement. Y may be said to be "hierarchically" adjacent to X, because it is Y(P) which is united with X in the next round of structure-building, Merge (Y, X). This notion of hierarchical adjacency is not equivalent to linear adjacency. If the syntactic object of (45) is realized as the linearized object <X, Z, Y>, then X shares a linear adjacency to Z *despite the fact that Z is not hierarchically adjacent to X*.

As Baker (2003: 152) describes, it is a consequence of this hierarchical adjacency restriction that adjective incorporation is explicitly forbidden syntactically: "the head movement constraint implies that one can never incorporate the attributive modifier of a noun to form a A_k + V [$_{NP}$ t_k N] structure" Thus, even if an adjective in complement position of a verb is linearly adjacent to the verb ("leftmost" of the complement), it is not "hierarchically adjacent" to the verb in the syntax. In the tree in (46), the N is the head-of-the-complement of V; A is not the head-of-the-complement.

(46)



By the Head Movement Constraint, it is therefore predicted to be impossible for A to move to V.

In contrast, operations which are processed on the basis of linear adjacency are not restricted by head-of-the-complement locality. Let us consider the case of adjectival incorporation in Nuu-chah-nulth as evidence that incorporation operates on the basis of linear adjacency within derivational sisters, and not on the basis of hierarchical adjacency. Recall from the preceding discussion that an affixal predicate incorporates an adjective contained in its complement. I repeat here the example of adjective incorporation shown earlier in (41).

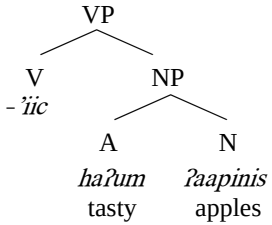
(47) haʔumʔicʔišʔaɬ ʔaapinis
haʔum-**'iic**-ʔiiš-ʔaɬ ʔaapinis
tasty-**consume**-3.IND-PL apples
They are eating delicious apples.

It is impossible for an affixal predicate to incorporate the noun if an adjective is present. Crucially for our discussion, it was also noted that an adjective necessarily precedes a modified noun in Nuu-chah-nulth. Thus, where δ is a modifer and π a noun, the affixal predicate –α is attached to the leftmost element in its complement <δ, π>, yielding a linearization of <(δ–α), π>.

Adjective incorporation is an ideal test case for determining whether linearization of affixal predicates is a syntactic or PF phenomenon because for an adjective contained with the complement of a verb, *linear* adjacency between the

adjective and verb does not correspond to *hierarchical* adjacency. That is, while an adjective may directly follow a verb, it is the noun which heads the complement that is hierarchically adjacent to the verb, not the adjective contained within the complement. The diagram in (48) shows the proposed syntactic structure for a modified noun phrase *haʔum ʔaapinis* "tasty apples" which occurs as the complement of the affixal predicate *ʔu-ʔiic* "consume".

(48)



If incorporation in Nuu-chah-nulth were a case of syntactic head movement, then the movement should be in accordance with the Head Movement Constraint. This constraint determines that for (48), the noun should incorporate, but the adjective should not. This is not what occurs in Nuu-chah-nulth incorporation. In Nuu-chah-nulth, it is ungrammatical if the noun incorporates into the affixal predicate when an adjective is present. This is shown in (49a), in which the affixal predicate *–ʾiic* "consume" incorrectly suffixes to the noun *ʔaapinis* "apples". As indicated in (49b), the affixal predicate must instead suffix to the adjective *haʔum* "tasty".

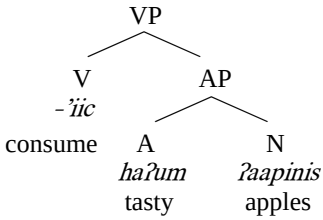
(49) a. * ʔaapiniɬʾicʔišʔaɬ haʔum
ʔaapinis-**ʾiic**-ʔiiš-ʔaɬ haʔum
apples-**consume**-3.IND-PL tasty
They are eating delicious apples.

b. haʔumʔicʔišʔaɬ ʔaapinis
haʔum-**ʾiic**-ʔiiš-ʔaɬ ʔaapinis
tasty-**consume**-3.IND-PL apples
They are eating delicious apples.

This behaviour follows from the generalization that an affixal predicate suffixes to whatever element is leftmost in the noun phrase. The fact that incorporation in Nuu-chah-nulth targets whatever element is contiguous to the affixal predicate, irrespective of hierarchical adjacency, is predicted by a local spell-out analysis in which incorporation operates on the basis of string adjacency. However, such behaviour is not predicted by a syntactic head movement analysis of incorporation.

In order to maintain a syntactic head-movement analysis of Nuu-chah-nulth incorporation, it would become necessary to abandon a noun-headed analysis of the complement phrase, in favour of a representation in which modifiers head the phrase containing the nominal (Stonham 2004). Such an analysis is represented in (50).

(50)



However, this putative case of syntactic incorporation is at odds with independent evidence for the nominal headedness of adjective-noun combinations. This independent evidence comes from categorial restrictions on modification in Nuu-chah-nulth.

Modification in Nuu-chah-nulth is sensitive to a constraint on syntactic category (Wojdak 2000, 2001). While adjectives may modify a noun (such as *ḥaakʷaaƛ* "girl"), an adjective (such as *ʔaapḥii* "friendly") is barred from serving as the modifier of another adjective.

(51) a.

ʔuʔukʷinkitsiš	[qʷaċaɬaqʔi	ḥaakʷaaƛ]
ʔu-kʷink-[+R]-mit-siiš	[qʷaċaɬ-aq[+S]-ʔii	ḥaakʷaaƛ]
∅-with-speak-PST-1SG.IND	beautiful-AUG-DET	girl

I talked with the beautiful girl.

b. *

ʔuʔukʷinkitsiš	[qʷaċaɬaqʔi	ʔaapḥii]
ʔu-kʷink-[+R]-mit-siiš	[qʷaċaɬ-aq[+S]-ʔii	ʔaapḥii]
∅-with-speak-PST-1SG.IND	beautiful-AUG-DET	friendly

I talked with the beautiful friendly (one).

The distinction between nominals and adjectives in such modification constructions is clearly not reducible to a non-categorial difference such as a contrast between stage-level and individual-level predication (Kratzer 1995) or between transitives and intransitives. Lexical items like *ḥaakʷaaƛ* "girl" and *qʷaċaɬ* "beautiful" are each one-place predicates which denote individual-level (non-transient) properties. Thus, I follow the argument which Demirdache and Matthewson (1995) make for Salish in proposing that the factor which distinguishes the class of these lexical items is inherent lexical category.

The argument for the headedness of adjective–noun combinations comes from consideration of iteratively modified forms such as (52).

(52)

ʔuʔukʷinkitsiš	[qʷaċaɬaqʔi	ʔaapḥii	ḥaakʷaaƛ]
ʔu-kʷink-[+R]-mit-siiš	[qʷaċaɬ-aq[+S]-ʔii	ʔaapḥii	ḥaakʷaaƛ]
∅-with-speak-PST-1SG.IND	beautiful-AUG-DET	friendly	girl

I talked with the beautiful friendly girl.

Given the category-sensitive restriction in (53a, b), we can deduce for an iteratively modified form that adjectival headedness of the phrase is ruled out (54b), in favour of nominal headedness (54a). In other words, since we know that adjective-adjective modification is impossible, it must be the case that the internal consituent denoted

by bracketing in (54) must be behaving syntactically as a noun phrase, and not an adjective phrase. If the internal constituent in (54) were behaving as an adjective phrase, then it would be incorrectly predicted that combination with another adjective, as in (54b), should be impossible.

(53)	a.		AP + NP	⇒	(54)	a.		AP + $_{NP}$[AP + NP]
	b.	*	AP + AP	⇒		b.	*	AP + $_{AP}$[AP + NP]

Thus, in an adjectivally modified noun, it must be the noun that is the head of the phrase.

This, in turn, implies that incorporation in Nuu-chah-nulth applies to morphemes (e.g., adjectives) which are not the syntactic heads of the complement of an affixal predicate. This constitutes strong evidence against a syntactic account of Nuu-chah-nulth incorporation in which the head movement is subject to the Head Movement Constraint. Adjectives are not hierarchically adjacent to the affixal predicate; however, they do maintain a linear adjacency to the affixal predicate. A linearization mechanism sensitive to linear adjacency, but not hierarchical adjacency, predicts this incorporation pattern in Nuu-chah-nulth.

2.2.2.2 Adverbial Incorporation

This sensitivity to linear ordering may also be observed with affixal predicates which take verbal, rather than nominal, complements. Affixal predicates in this class include *–qaatḥ* "claim" and *ʔu-ʕiƛ* "come upon". These predicates allow incorporation of a verb from their logical complement.

(55) a. waɬšiƛqatḥitsiš
waɬ-šiƛ-**qaatḥ**-mit-siiš
go.home-PERF-**claim**-PST-1SG.IND
I claimed I went home.

b. waʔičʕiƛitsiš Ken
waʔič-**ʕiƛ**-mit-siiš Ken
sleep-**come.upon**-PST-1SG.IND Ken
I came upon Ken sleeping.

This section considers the pattern of adverbials which respect to these "verb-incorporating" affixal predicates.

Outside of incorporation contexts, adverbials in Nuu-chah-nulth split into two classes, depending on whether they are subject to flexible or rigid positioning relative to the main predicate. "High" adverbials (Cinque 1999), such as subject-oriented or temporal adverbs, have a flexible order, and may either precede or follow a main predicate. This class includes subject-oriented *qʷaʔuuḥ* "purposely" and temporals *čaani* "first" and *naʔiik* "immediately". The two patterns for these flexibly positioned adverbs are shown in the examples below. In each of the

(a) cases, the adverb appears before the main verb. In the (b) examples, the adverb follows the main verb. (Inflectional morphemes, as "second position" enclitics, suffix to whatever word is first in the clause – it will be argued in Chapter 3 that these inflectional morphemes are linearized at local spell-out, just as with the linearization of affixal predicates.)

(56) a. qʷaʔuuḥʔiš Florence nunuuk
qʷaʔuuḥ-ʔiiš Florence nunuuk
purposely-3.IND Florence sing
Florence is purposely singing.

b. nunuukʔiš Florence qʷaʔuuḥ
nunuuk-ʔiiš Florence qʷaʔuuḥ
sing-3.IND Florence purposely
Florence is purposely singing.
(context: *Florence's neighbour kept her awake last night and now she wants to get even by being loud*)

(57) a. čaaniʔaqʔiš waʔič
čaani-ʔaqʔ-ʔiiš waʔič
first-FUT-3.IND sleep
He will sleep first (i.e., before doing something else).

b. waʔičʔaqʔiš čaani
waʔič-ʔaqʔ-ʔiiš čaani
sleep-FUT-3.IND first
He will sleep first (i.e., before doing something else).

(58) a. naʔiikʔaqʔsiš waɬšiʔ hawiiʔaʔquu
naʔiik-ʔaqʔ-siiš waɬ-šiʔ hawii-'aʔ-quu
immediately-FUT-1SG.IND go.home-PERF finish-TEMP-3.COND
I will immediately go home when it's finished.

b. waɬšiʔaqʔsiš naʔiik hawiiʔaʔquu
waɬ-šiʔ-ʔaqʔ-siiš naʔiik hawii-'aʔ-quu
go.home-PERF-FUT-1SG.IND immediately finish-TEMP-3.COND
I will immediately go home when it's finished.

Manner adverbials, in contrast, belong to a second class which must rigidly precede the main predicate. These manner adverbials include *wityʔax* "slowly", *čaƛmaqʔ* "properly" and *ƛacuk* "(sleep) deeply". As shown in the following (a) examples, it is grammatical for the manner adverbial to precede the predicate it modifies. In the (b) examples, in contrast, ungrammaticality arises when the manner adverbial follows the main predicate.

(59) a. witɣaxits waaɬšiƛ
witɣax-mit-s waɬ-[+L]-šiƛ
slow-PST-1SG.ABS go.home-CONT-PERF
I was going home slowly.

b. * waaɬšiƛits witɣax
waɬ-[+L]-šiƛ-mit-s witɣax
go.home-CONT-PERF-PST-1SG.ABS slow
I was going home slowly.

(60) a. čamaqƛʔiš titiqs Florence
čamaqƛ-ʔiiš titiqs Florence
properly-3.IND dry Florence
Florence is drying dishes properly.

b. * titiqsʔiš čamaqƛ Florence
titiqs-ʔiiš čamaqƛ Florence
dry-3.IND properly Florence
Florence is drying dishes properly.

(61) a. ḥacukʷitʔiš waʔič Ken
ḥacuk-mit-ʔiiš waʔič Ken
deeply-PST-3.IND sleep Ken
Ken was sleeping deeply.

b. * waʔičitʔiš ḥacuk Ken
waʔič-mit-ʔiiš ḥacuk Ken
sleep-PST-3.IND deeply Ken
Ken was sleeping deeply.

What is the suffixation pattern of affixal predicates which take adverbially modified complements? Rose (1981: 296) makes the following general statement about sentential complements: "[p]arallel to NP incorporation, it is the leftmost and highest constituent of the clause governed by the suffix which serves as base to the suffix". Rose's generalization makes the correct predictions about the incorporation pattern of adverbials. In the case of flexibly positioned adverbials, an affixal predicate has the option of attaching to either the adverbial or the verb. In the following (a) examples, the affixal predicate suffixes to the adverbial; in the (b) examples, suffixation is to the verb.

(62) a. qʷaʔuuḥqatḥʔiš taʔiɬ Ken
qʷaʔuuḥ-**qaatḥ**-ʔiiš taʔiɬ Ken
purposely-**claim**-3.IND sick Ken
Ken is pretending to be sick on purpose.

b. taʔiɬqatḥʔiš Ken qʷaʔuuḥ
taʔiɬ-**qaatḥ**-ʔiiš Ken qʷaʔuuḥ
sick-**claim**-3.IND Ken purposely
Ken is pretending to be sick on purpose.

(63) a. čaaniwiťassiš waʔič
čaani-**wiťas**-siiš waʔič
first-**gonna**-1SG.IND sleep
I'm gonna sleep first (i.e., before doing something else)

b. waʔičwiťassiš čaani
waʔič-**wiťas**-siiš čaani
sleep-**gonna**-1SG.IND first
I'm gonna sleep first (i.e., before doing something else)

(64) a. naʔiikqatḥitsiš waɬšiƛ ʔatquu wiktumsa
naʔiik-**qaatḥ**-mit-siiš waɬ-šiƛ ʔatquu wik-tum-sa
immediately-**claim**-PST-1SG.IND go.home-PERF although NEG-PST-1SG.DEP
I claimed I went home immediately, but I didn't.

b. waɬšiƛqatḥitsiš naʔiik ʔatquu wiktumsa
waɬ-šiƛ-**qaatḥ**-mit-siiš naʔiik ʔatquu wik-tum-sa
go.home-PERF-**claim**-PST-1SG.IND immediately although NEG-PST-1SG.DEP
I claimed I went home immediately, but I didn't.

For adverbials which rigidly precede a predicate, however, the choice of host for the affixal predicate is inflexible: the affix must attach to the adverbial, rather than to the verb. As the following (a) examples illustrate, it is grammatical for the affixal predicate to attach to the manner adverbial. However, the (b) examples show that it is ungrammatical for the affixal predicate to suffix to the verb, rather than the manner adverbial.

(65) a. wiťaxmaḥsasiš waaɬšiƛ
wiťax-**maḥsa**-siiš waɬ-[+L]-šiƛ
slow-**want.to**-1SG.IND go.home-CONT-PERF
I want to go home slowly.

b. * waaɬšiƛmaḥsasiš wiťax
waɬ-šiƛ[+L]-**maḥsa**-siiš wiťax
go.home-CONT-PERF-**want.to**-1SG.IND slow
I want to go home slowly.

(66) a. čamaqƛqatḥʔiš titiqs Florence
čamaqƛ-**qaatḥ**-ʔiiš titiqs Florence
properly-**claim**-3.IND dry Florence
Florence is pretending to dry dishes properly.

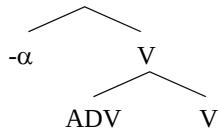
b. * titiqsqatḥʔiš čamaqƛ Florence
titiqs-**qaatḥ**-ʔiiš čamaqƛ Florence
dry-**claim**-3.IND properly Florence
Florence is pretending to dry dishes properly.

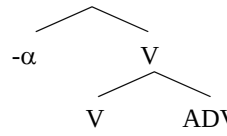
(67) a. ḥacukʕiɬitsiš waʔič Ken
ḥacuk-**ʕiɬ**-mit-siiš waʔič Ken
deeply-**come.upon**-PST-1SG.IND sleep Ken
I came upon Ken in a deep sleep.

b. * waʔičʕiɬitsiš ḥacuk Ken
waʔič-**ʕiɬ**-mit-siiš ḥacuk Ken
sleep-**come.upon**-PST-1SG.IND deeply Ken
I came upon Ken in a deep sleep.

This difference in the incorporation pattern of the two sets of adverbials follows from an analysis in which PF incorporation is sensitive to the linear ordering of elements. If an adverbial permits a post-verbal syntactic positioning, then it is possible for the verb to serve as a host for the affixal predicate at local spell-out. However, if an adverbial is only ever linearized preceding the verb, then the verb will not be in the "leftmost" position which allows it to be string adjacent to the affixal predicate at spell-out. The distinct linearization schemes of pre-verbal and post-verbal adverbials are indicated in (68), in which the verbal phrase is the derivational sister to an affixal predicate –α. Variably positioned adverbs allow either ordering, while manner adverbials require (68a).[7]

(68) a. *Pre-verbal adverbials* b. *Post-verbal adverbials*





At spell-out, the affixal predicate –α requires a host. In the case of pre-verbal adverbials as in (68a), it is the adverbial which is contiguous to the affixal predicate; as such, the adverbial acts as the host for the affixal predicate. For post-verbal adverbials such as (68b), however, it is the verb which is "leftmost" in the phrase; consequently, the verb is selected as the host for the affixal predicate. Thus, adverbial incorporation in Nuu-chah-nulth shows a sensitivity to independently attested restrictions on linear ordering.

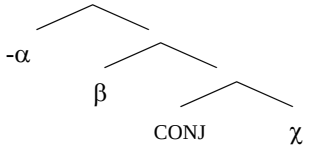
2.2.3 Coordinated Objects

According to the local spell-out hypothesis, an affix is linearized with respect to an immediately neighbouring element. The host for an affix is necessarily selected from the derivational sister of the affix. Since this linearization process operates on the basis of string adjacency, the analysis predicts that the internal syntactic structure of the derivational sister to the affix should be irrelevant to the linearization process. This section concerns the specific prediction of this model for coordinated

[7] This raises the question of what determines this ordering. See Chapter 3 for discussion.

structures. The string adjacency effect determines that an affix should be linearized relative to a linearly adjacent element in a coordinated object. In the following diagram, a conjunction (CONJ) joins two conjuncts, β and χ. This coordinated phrase is the derivational sister of the affix –α.

(69)



The prediction of the analysis is that in Nuu-chah-nulth β should act as the host of the affix –α. This section illustrates that this prediction holds.

The behaviour of coordinated objects provides evidence that PF incorporation operates on the basis of linear adjacency in Nuu-chah-nulth. The conjunction *ʔuḥʔiiš* (CONJ) is used exclusively to conjoin nominals in Nuu-chah-nulth. Its use is shown in (70), in which it appears between the two conjuncts, *ḥaakʷaaƛ* "girl" and *maʔiƛqac* "boy" in (70a) and *Bill* and *Mary* in (70b).

(70) a.

ṅaačp̓iiḥamitsiš	ḥaakʷaaƛ	ʔuḥʔiiš	maʔiƛqac	
ṅaač-p̓iiḥa-mit-siiš	ḥaakʷaaƛ	ʔuḥʔiiš	maʔiƛqac	
see-glimpse-PST-1SG.IND	girl	CONJ	boy	
I caught a glimpse of a girl and a boy.				

b.

huuɬhuuɬamitʔiš	Bill	ʔuḥʔiiš	Mary	
huuɬ-a[+R]-mit-ʔiiš	Bill	ʔuḥʔiiš	Mary	
dance-ITER-PST-3.IND	Bill	CONJ	Mary	
Bill and Mary were dancing.				

First, we must note that the CSC is operative in syntactic movement in Nuu-chah-nulth, as with the *wh*-questions shown below. The examples in (71) are object *wh*-questions, while the examples in (72) are subject *wh*-questions. In the (a) examples, we have a grammatical case of *wh*-movement which does not make use of conjunction. In the (b) and (c) examples, however, it is shown that it is ungrammatical for *wh*-movement to target a single conjunct of the argument. These CSC-violating examples are ruled out in Nuu-chah-nulth, parallel to the English cases which are given as their literal translation.

(71) a.

ʔaačačiɬitk	ṅaačp̓iiḥa
ʔačaq-čiɬ[+L]-mit-k	ṅaač-p̓iiḥa
who-AUX-PST-2SG.Q	see-glimpse
Who did you catch a glimpse of?	

b. *

ʔaačačiɬitk	ṅaačp̓iiḥa	ʔuḥʔiiš	maʔiƛqac
ʔačaq-čiɬ[+L]-mit-k	ṅaač-p̓iiḥa	ʔuḥʔiiš	maʔiƛqac
who-AUX-PST-2SG.Q	see-glimpse	CONJ	boy
(*lit*: "Who did you catch a glimpse of and a boy?")			

c. * ʔaačačiɬitk ƛ̓aačp̓iiƛa ƛaakʷaaƛ ʔuƛ̓ʔiiš
ʔačaq-čiɬ[+L]-mit-k ƛ̓aač-p̓iiƛa ƛaakʷaaƛ ʔuƛ̓ʔiiš
who-AUX-PST-2SG.Q see-glimpse girl CONJ
(*lit*: “Who did you catch a glimpse of a girl and?”)

(72) a. ʔačaqitɬ huuɬhuuɬa
ʔačaq-mit-ɬ huuɬ-a[+R]
who-PST-3.Q dance-ITER
Who was dancing?

b. * ʔačaqitɬ huuɬhuuɬa ʔuƛ̓ʔiiš Mary
ʔačaq-mit-ɬ huuɬ-a[+R] ʔuƛ̓ʔiiš Mary
who-PST-3.Q dance-ITER CONJ Mary
(*lit*: “Who and Mary was dancing?”)

c. * ʔačaqitɬ huuɬhuuɬa Bill ʔuƛ̓ʔiiš
ʔačaq-mit-ɬ huuɬ-a[+R] Bill ʔuƛ̓ʔiiš
who-PST-3.Q dance-ITER Bill CONJ
(*lit*: “Bill and who was dancing?”

In the case of PF incorporation, however, a different pattern emerges. In the Ahousaht dialect of Nuu-chah-nulth, the first word of a coordinated object is chosen to host an affixal predicate, in striking contrast to the pattern of CSC-obeying syntactic movement. Examples of this characteristic of PF incorporation are shown below. For example, in (73b), the affixal predicate *ʔu-kʷisṫ̓ap* “take away” incorporates the nominal *hamuut* “bones”, leaving stranded the remainder of the conjunction *ʔuƛ̓ʔiiš kuuna* “and gold”. Additional cases of incorporation targeting the first word of the conjunct are shown in (74b) and (75b).

(73) a. ʔukʷisṫ̓amitʔiš mamaɬn̓i hamuut ʔuƛ̓ʔiiš kuuna
ʔu-**kʷist**-’ap-mit-ʔiiš mamaɬn̓i hamuut ʔuƛ̓ʔiiš kuuna
∅-**move.away**-TR-PST-3.IND white.people bones CONJ gold
White people took away the bones and gold.

b. hamuutkʷisṫ̓amitʔiš mamaɬn̓i ʔuƛ̓ʔiiš kuuna
hamuut-**kʷist**-’ap-mit-ʔiiš mamaɬn̓i ʔuƛ̓ʔiiš kuuna
bones-**move.away**-TR-PST-3.IND white.people CONJ gold
White people took away the bones and gold.

(74) a. ʔuʔaamitsiš čp̓ac ʔuƛ̓ʔiiš c̓ima
ʔu-**’aap**-mit-siiš čp̓ac ʔuƛ̓ʔiiš c̓ima
∅-**buy**-PST-1SG.IND canoe CONJ net
I bought a canoe and a net.

b. čp̓acʔamitsiš ʔuƛ̓ʔiiš c̓ima
čp̓ac-**’aap**-mit-siiš ʔuƛ̓ʔiiš c̓ima
canoe-**buy**-PST-1SG.IND CONJ net
I bought a canoe and a net.

(75) a.

ʔuḥaaƛ̓asči	ƛ̓iƛ̓icḵ̓uk		ʔuḥʔiiš	šuukʷaa
ʔu-**ḥaa**-**ʾas**-čii	ƛ̓iƛ̓icḵ̓uk		ʔuḥʔiiš	šuukʷaa
∅-**buy**-**go**-2SG.GO	flour		CONJ	sugar
Go buy flour and sugar!				

b.

ƛ̓iƛ̓icḵ̓ukḥaaƛ̓asči	ʔuḥʔiiš	šuukʷaa	
ƛ̓iƛ̓icḵ̓uk-**ḥaa**-**ʾas**-čii	ʔuḥʔiiš	šuukʷaa	
flour-**buy**-**go**-2SG.GO	CONJ	sugar	
Go buy flour and sugar!			

Under a purely syntactic analysis of incorporation, examples such as (73b–75b) should be banned by the CSC. However, since sensitivity to linear order is a property of phonology (Chomsky 1995), this behaviour is directly predicted under an account which derives these linearizations from spell-out to PF.

In this section, we saw that the linearization of affixal predicates in Nuu-chah-nulth shows an insensitivity to syntactic constituency. The next section discusses the observation that this process is similarly blind to syntactic category.

2.3 Insensitivity to Syntactic Category

The local spell-out hypothesis states that an affix is linearized with whatever element is adjacent to the affix at the point of spell-out. This linearization is predicted to be insensitive to syntactic category, as the process is attuned to string adjacency. As this section demonstrates, PF incorporation in Nuu-chah-nulth is unselective for syntactic category.

Affixal predicates which select nominal complements may incorporate a noun, adjective, quantifier, *wh*-pronoun, or relative pronoun. This range of possible hosts is illustrated in (76) for the affixal predicate *ʔu-ʔaap* "buy".

(76) a.

č̓upč̓upšumɬʔamitsiš	
č̓upč̓upšumɬ-**ʾaap**-mit-siiš	
sweater-**buy**-PST-1SG.IND	
I bought a sweater.	*(noun)*

b.

ƛ̓iḥʔaamitsiš	č̓upč̓upšumɬ	siy̓a	
ƛ̓iḥ-**ʾaap**-mit-siiš	č̓upč̓upšumɬ	siy̓a	
red-**buy**- PST-1SG.IND	sweater	1SG	
I bought a red sweater.			*(adjective)*

c.

hiy̓aap̓atukʔiš	nuutinum(m̓inḥ)	
hiš-**ʾaap**-ʾat-uk-ʔiiš	nuutinum(-m̓inḥ)	
all-**buy**-PASS-POSS-3.IND	necklace(-PL)	
All his/her necklaces were bought.		*(quantifier)*

d. ʔaqiʔamitḥ Louis
ʔaqi-**'aap**-mit-ḥ Louis
what-**buy**-PST-3.Q Louis
What did Louis buy? *(wh-pronoun)*

e. kʷinʔaɬitʔiš John ɬučʔin yaʕaamitʔitk
kʷinʔaɬ-mit-ʔiiš John ɬučʔin yaq-**'aap**-mit-ʔiitk
like-PST-3.IND John dress REL-**buy**-PST-2SG.RL
John liked the dress you bought. *(relative pronoun)*

In a strict sense, PF incorporation is therefore not equivalent to "noun incorporation". Although an affixal predicate (which takes a nominal complement) is capable of incorporating a noun, elements with a range of other syntactic categories can serve the role of host.

The same is true for the phenomenon described as "verb incorporation" in Nuu-chah-nulth. As previously discussed, adverbial modifiers show the ability to incorporate, along with verbs.

(77) a. kamatqukmaḥsaʔiš Florence
kamatq-uk-**maḥsa**-ʔiiš Florence
run-DUR-**want.to**-3.IND Florence
Florence wants to run.

b. ƛ̓aʔixmaḥsaʔiš kamatquk Florence
ƛ̓aʔix-**maḥsa**-ʔiiš kamatq-uk Florence
fast-**want.to**-3.IND run-DUR Florence
Florence wants to run fast.

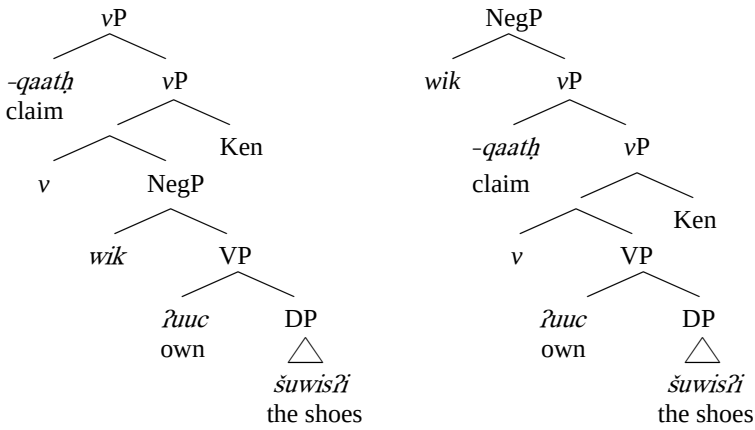
The negative particle *wik* can also incorporate into an affixal predicate. However, this pattern is restricted by constraints on string adjacency, and is thus indirectly conditioned by syntactic structure. In Nuu-chah-nulth, suffixation to the negative particle *wik* applies only with "low" scope negation, and not with "high" scope negation. In the "low" negation example of (78a), the affixal predicate *–qaatḥ* "claim" suffixes to *wik* NEG; in the "high" negation example of (78b), the affixal predicate instead suffixes to the verb *ʔu-uc* "own".

(78) a. wikqaatḥʔiš Ken ʔuuc šuwisʔi
wik-**qaatḥ**-ʔiiš Ken ʔu-ic šuwis-ʔii
NEG-**claim**-3.IND Ken ∅-own shoes-DET
Ken claims he doesn't own the shoes. (*'low' negation*)

b. wikʔiiš ʔuucqatḥ Ken šuwisʔi
wik-ʔiiš ʔu-ic-**qaatḥ** Ken šuwis-ʔii
NEG-3.IND ∅-own-**claim** Ken shoes-DET
Ken doesn't claim to own the shoes. (*'high' negation*)

As with adverbial incorporation, the availability of *wik* NEG to incorporate relates to linear ordering restrictions on the incorporation process. As Rose (1981: 296) describes, "it is the left-most and highest constituent of the clause governed by the suffix which serves as base to the suffix". With "low" negation, *wik* NEG hosts the affixal predicate, while in "high" negation, a verb takes over as host. This can be related to the spell-out position of the respective hosts. In "low" negation, the negative particle *wik* appears in the derivational sister to the affixal predicate *–qaatḥ* "claim", and is spelled-out adjacent to the affixal predicate. (Chapter 5 provides argumentation for the syntactic representation that I assume here.) In "high" negation, however, the verb *ʔu-uc* "own" is spelled-out adjacent to the affixal predicate. Only in "low" negation does the negation particle *wik* (NEG) fall into a position where it is the leftmost element in the derivational sister of *–qaatḥ* "claim", as shown in (79a). In (79b), in contrast, it is the verb *ʔu-uc* "own" which is the leftmost element of the derivational sister of *–qaatḥ* "claim".

(79) a. *"low" negation* b. *"high" negation*



Thus, due to the string adjacency effect on incorporation, for (79a), a linearization of <*wik-qaatḥ ʔuuc šuwisʔi Ken*> is anticipated. In (79b), the ordering of <*ʔuucqaatḥ šuwisʔi Ken*> is predicted. This linearization mechanism is not sensitive to a difference in syntactic category between the negation host *wik* (NEG) and the verbal host *ʔu-uc* "own".

2.4 Absence of LF Effects

Under a model in which LF effects are restricted to the narrow syntax (Chomsky 1995), spell-out to PF is predicted to have no semantic effects. This section considers two domains in which an observable LF effect is absent from Nuu-chah-nulth PF incorporation: first, the referentiality of the incorporee (§2.4.1), and second, scopal effects (§2.4.2).

2.4.1 Discourse Transparency

In many languages in which verbs affix to nouns, the incorporated noun shows distinct referential properties from independent nouns in the language (Mithun 1984). As Mithun reports, in Huahtla Nahuatl, when a noun is first introduced in the discourse, it must not be incorporated. The following examples are from Mithun (1984: 860–861, ex. 58).

(80) *Nahuatl*

A:	askeman	ti-'-kwa	nakatl.
	never	you-it-eat	meat
	You never eat meat.		

B:	na'	ipanima	ni-naka-kwa.
	I	always	I-meat-eat
	I eat it (meat) all the time.		

In the first portion of this discourse, the noun *nakatl* "meat" occurs independently of the verb *kwa* "eat". In the following sentence, however, *naka* "meat" is able to be incorporated into the verb. The incorporability of the noun corresponds to its discourse role in Nahuatl. The restriction that incorporated nouns may not appear as the initial token of the argument suggests that incorporated nouns in Nahuatl cannot establish a discourse referent.

If incorporation in Nuu-chah-nulth occurs at spell-out to PF, then it is predicted that incorporated nouns should be discourse transparent. That is, the spell-out properties of the noun should have no consequence for discourse effects. Indeed, as this section demonstrates, incorporation of an element into an affixal predicate in Nuu-chah-nulth does not affect this element's ability to occur as a discourse antecedent (Rose 1981). The referentiality of a Nuu-chah-nulth incorporee is indicated in examples (81a–c). In (81a), the incorporated bound nominal *čapx̌-* "man" serves as the discourse referent for the pronoun (*pro*) "he" in *ʔapḥiqaqitʔiš* "He was very friendly". Similarly, the free nominal *siičpax* "cougar" which is incorporated into the affixal predicate in (81b) acts as the antecedent for the object of the following sentence, *qaaccaʔnaqʷuuḥitwaʔiš John* "John saw three (of them)". A final example of the discourse transparency of incorporated elements is given in (81c), in which *ʔaƛtaqumɬ* "two kinds" is incorporated into the affixal predicate, but still serves as the discourse referent for the following question *waayaqḥwaɬmaḥsak* "Which of them do you want to use?".

(81) a.

čapx̌čaasitsiš	hintšiƛ	ʔapḥiqaqitʔiš
čapx̌-**čaas**-mit-siiš	hint-šiƛ	ʔapḥiiq-aq[+S]-mit-ʔiiš
man-**beside**-PST-1SG.IND	come-PERF	friendly-AUG-PST-3.IND
I was (sitting) beside a man coming this way. He was very friendly.		

b.

sičpaxpaɬʔiš	qaaccaʔnaqʷuuḥitwaʔiš	John
siičpax-**paɬ**[+S]-ʔiiš	qaccа-**ʔnaqʷuuḥ**[+L]-mit-waʔiš	John
cougar-**around**-3.IND	three-**observe**-PST-3.QUOT	John
There's cougars around. John saw three (of them).		

c. ʔaƛtaqumɬnaksiš waayaqḥẘaɬmaḥsak
ʔaƛ-taqumɬ-**naak**-siiš waayaq-**ḥẘaɬ**[+L]-**maḥsa**-k
two-kinds-**have**-1SG.IND which-**use**-**want**-2SG.Q
I have two sets (e.g., of lahal bones). Which (of them) do you want to use?

The referentiality of the incorporee follows if PF incorporation has no LF consequences.

2.4.2 Absence of Scopal Effects

Additional evidence for the lack of an LF effect comes from quantifier scope. As predicted by the local spell-out hypothesis, the choice of host for an affixal predicate should have no effect on scope at LF. As predicted, the surface order derived by PF incorporation appears to have no consequence for quantifier scope. Quantified subjects are ambiguous between wide and narrow scope over objects if the object is incorporated into the affixal predicate or if it is not.[8] In (82), the object *muunaa* "engine" of the affixal predicate *ʔuu-taq* "fix, work on" hosts the predicate, and linearly precedes the quantifier *hišuk* "all". Both a wide scope and a narrow scope interpretation of the quantifier are permitted.

(82) a. muunaataqitʔiš *hišuk* čaakupiiḥ. c̓aawacnaʕaaɬʔaɬ
muunaa-**taq**[+L]-mit-ʔiiš *hišuk* čakup-iiḥ[+L] c̓awa-naʕaaɬ[+L]-∅-ʔaɬ
motor-**fix**-PST-3.IND all-DUR man-PL one-handle-3.ABS-PL
All the men were working on an engine. They were all working on the same one.

b. muunaataqitʔiš *hišuk* čaakupiiḥ c̓ac̓awanak
muunaa-**taq**[+L]-mit-ʔiiš hiš-uk čakup-iiḥ[+L] c̓awa-naak-∅-[+R]
motor-**fix**-PST-3.IND all-DUR man-PL one-have-3.ABS-PL
All the men were working on an engine. They each had one.

In the following example, *muunaa* "engine" does not host the affix, and it instead appears below the quantifier. Here, the expletive *ʔu–* hosts the affixal predicate *ʔuu-taq* "fix, work on". Still, both scope interpretations are possible.

(83) a. ʔuutaqitʔiš *hišuk* čakupiiḥ muunaa c̓aawacnaʕaaɬʔaɬ
ʔu-**taq**[+L]-mit-ʔiiš *hiš-uk* čakup-iiḥ[+L] muunaa c̓awa-naʕaaɬ[+L]-∅-ʔaɬ
∅-**fix**-PST-3.IND all-DUR man-PL motor one-handle-3.ABS-PL
All the men were working on an engine. They were all working on the same one.

[8] The source of this ambiguity remains to be determined.

b. ʔuutaqitʔiš *ḥišuk* čakupiiḥ muunaa c̓ac̓awanak
ʔu-**taq**[+L]-mit-ʔiiš *ḥiš-uk* čakup-iiḥ[+L] muunaa c̓awa-naak-∅-[+R]
∅-**fix**-PST-3.IND all-DUR man-PL motor one-have-3.ABS-PL
All the men were working on an engine. They each had one.

The equivalence of (82a–83a) and (82b–83b), respectively, follows under an analysis in which spell-out to PF has no LF effect.

2.5 Opacity Effects

As I have described, an affixal predicate in Nuu-chah-nulth incorporates a host chosen from its derivational sister, the complement of the verb. This linearization process has been stated to be insensitive to syntactic category. All else being equal, we should therefore expect that incorporation should be possible when any of NP, DP, *v*P, or CP are the complements of the affixal predicate.

(84) a. V NP b. V DP c. V *v*P d. V CP

This section presents evidence that not all else is equal. I hypothesize that DP and CP differ from other projections in that they are *saturated domains* of the derivation (cf. the notion of "phase" in Chomsky 2001, 2005). A variety of syntactic evidence has been presented for an inherent symmetry between D and C, to the exclusion of other categories (Abney 1987; Szabolcsi 1994). According to these analyses, DPs and CPs possess parallel functional structures. Endowed by their make-up is the capacity for propositional independence – a symmetry reflected in (85), in which the DP and CP qualify equally as the propositional complement of *recall*.

(85) a. I recalled [the city's destruction]$_{DP}$.
b. I recalled [that the city was destroyed]$_{CP}$.

According to the saturated domain hypothesis, DPs and CPs constitute completed units of the derivation, in that the needs of the members of DP and CP are met within these respective domains.

(86) *Saturated domain hypothesis*:
The contents of DP and CP are fully interpreted.

As will be described in this section, the consequence of saturation is derivational inertness. The opacity effects associated with these domains arise as a section of the derivation is completed, and consequently abandoned. As a D(P) or C(P) is introduced, the contents of these saturated phrases thus become impervious to further derivational manipulations (cf. Chomsky 2001; Svenonius 2004; Fox and Pesetsky 2005). In effect, the presence of a D(P) or C(P) imposes a "border" between portions of the derivation, as the details of the make-up of DPs and CPs are no longer open to the workspace of the derivation. An attractive conceptual consequence of this

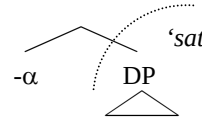
postulation is that it reduces the amount of information held in active memory (Chomsky 2001; Matushansky 2005), as only one portion of the derivation is considered at a time. In this way, saturation is tied to derivational independence: once a domain becomes saturated, the workspace is closed as it turns to unsaturated material. This characteristic reflects economy, as the derivation works to satisfy "needy" elements, and no more. As this section demonstrates, the opacity effects of Nuu-chah-nulth affixation arise due to the impermeability of saturated domains in this language: Nuu-chah-nulth lacks any "escape hatch" at the border of CP and DP which would allow a host to cross these opaque derivational domains.

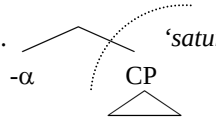
In Nuu-chah-nulth, there is salient prosodic evidence that DPs and CPs constitute phonologically independent constituents. This evidence comes from the two distinct cliticization domains found in Nuu-chah-nulth. (See Chapter 3 for further discussion.) Clitic strings may be built up within a DP, or at a clausal level which excludes the DP(s). In (87), there are two separate cliticization domains, indicated by bracketing. In the CP domain, the clitics *–mit* (PST) and *–siiš* (1SG.IND) are found; in the DP domain are placed the clitics *–uk* (POSS) and *-ʔiitk* (2SG.PS).

(87) [hiixtaqči***mitsiš***] CP domain [huupuuk̓ʷas***uk̓ʔitk***] DP domain
hiixtaq-čip-***mit-siiš*** huupuuk̓ʷas-***uk-ʔiitk***
have.accident-BEN-PST-1SG.IND car-POSS-2SG.PS
I had an accident with your car.

As presented in more detail in Chapter 3, these DP-level and CP-level clitics may each be described as "second position" morphemes: they occur (potentially in a string) at the left edge of the phrase, attached in "second position" as a suffix to a host. The saturated domain hypothesis presents a straightforward means of explaining how two sets of items (DP-level and CP-level clitics) may each equally be described as "second position" morphemes, when in fact they occur in distinct positions in the clause. According to the saturated domain hypothesis, there is no single "second position" in a clause, because the derivation is considered in separate chunks: CPs and DPs are independent domains, and each has their own "second position".

In §2.5.1 and §2.5.2, I show that PF incorporation can never cross a DP or CP in Nuu-chah-nulth. According to my proposal, members of DPs and CPs are inaccessible as hosts for a sister affixal predicate because these derivational units are saturated domains. This opacity effect is schematized in (88). As illustrated, a "border" marks the edge between the affixal predicate and the saturated domains taken as complement. When an affix –α taking a DP or CP complement is spelled out in Nuu-chah-nulth, the expletive *ʔu–* must surface in order to provide a host for the affix and rescue the derivation.

(88) a. 

b. 

In §2.5.3, I discuss the source of this opacity effect under the local spell-out model. This explanation relies on the distinction between the interpretive capacity of

spell-out, and the inaccessibility of saturated domains in the derivation. The opacity effects of Nuu-chah-nulth arise as domains become saturated.

2.5.1 Opaque DPs and the Bare Nominal Requirement

In Nuu-chah-nulth, an affixal predicate may not suffix to an element of its complement when the phrase contains the determiner *-ʔii*. The consequence of this restriction is a bare nominal requirement on incorporation. In (89a), incorporation targets the bare nominal *ɬučʔiɲ* "dress". The example in (89b) indicates that a nominal marked with the determiner *-ʔii* cannot be incorporated. Furthermore, as shown in (89c), the determiner cannot itself act as a host for the affixal predicate When the nominal complement of an affixal predicate is marked with a determiner, *ʔu-*support must occur, as shown in (89d).

(89) a. ɬučʔinsiikitsiš
ɬučʔin-**siik**-mit-siiš
dress-**make**-PST-1SG.IND
I made a dress.

b. * ɬučʔinʔisiikitsiš
ɬučʔin-ʔii-**siik**-mit-siiš
dress-DET-**make**-PST-1SG.IND
I made the dress.

c. * ʔiisiikmitsiš ɬučʔin
ʔii-**siik**-mit-siiš ɬučʔin
DET-**make**-PST-1SG.IND dress
I made the dress.

d. ʔusiikitsiš ɬučʔinʔi
ʔu-**siik**-mit-siiš ɬučʔin-ʔii
∅-**make**-PST-1SG.IND dress-DET
I made the dress.

This restriction may be attributed to the identity of DPs as saturated units. The presence of a determiner, as in (89b, c), closes a "border" between the affixal predicate and its complement. In such contexts, an expletive host must be inserted to satisfy the affixal predicate's affixation requirement, as in (89d).

This restriction on incorporation in contexts with the determiner *-ʔii* can also be illustrated in the following stretch of discourse. The sentences in (90) establish the context for the test sentences in (91).

(90) waɬaakitsiš naquẃas ʔatḥiimitʔi
waɬaak-mit-siiš naqu-ẃas ʔatḥii-mit-ʔii
go.to-PST-1SG.IND drink-building night-PST-DET

ʔukʷink	ʔuušḥ̓umsukqs	Lucy	qacc̓iiɬitʔiš
ʔu-kʷink	ʔuušḥ̓ums-uk-qs	Lucy	qacc̓a-iiɬ-mit-ʔiiš
∅-with	friend-POSS-1SG.PS	Lucy	three-AUX-PST-3.IND

čaakupiiḥ	mamaɬn̓i	huwayiiʔatḥ	ʔuḥʔiiš	quuʔas
čakup-iiḥ[+L]	mamaɬn̓i	huwayiiʔatḥ	ʔuḥʔiiš	quuʔas
man-PL	white	black	and	First.Nations

I went to the bar last night with my friend Lucy. There were three guys there: a white guy, a black guy, and a First Nations guy.

This context establishes the nominal *ḥuwayiiʔatḥ* "black person" as discourse-familiar. In this context, the preferred means of stating "Lucy liked the black man" is with an expletive host for the affixal predicate *ʔuu-ʔaɬsumḥi* "to like", as in (91a). It is marked for the definite nominal *ḥuwayiiʔatḥ* "black person" to be incorporated, as shown in (91b). Furthermore, it is not possible to incorporate the nominal if it is marked by the determiner *-ʔii*, as in (91c).

(91) a. ʔuuʔaɬsumḥimitʔiš — Lucy — ḥuwayiiʔatḥʔi
ʔu-**'aɬsumḥi**[+L]-mit-ʔiiš — Lucy — huwayiiʔatḥ-ʔii
∅-**like**-PST-3.IND — Lucy — black.person-DET
Lucy liked the black man.

b. # ḥuwayiiʔatḥʔaɬsumḥimitʔiš — Lucy
huwayiiʔatḥ-**'aɬsumḥi**-mit-ʔiiš — Lucy
black.person-**like**- PST-3.IND — Lucy
Lucy liked the black man.

c. * ḥuwayiiʔatḥʔiʔaɬsumḥimitʔiš — Lucy
huwayiiʔatḥ-ʔii-**'aɬsumḥi**-mit-ʔiiš — Lucy
black.person-DET-**like**-PST-3.IND — Lucy
Lucy liked the black man.

The restriction that a discourse-familiar nominal cannot serve as a host for the affixal predicate follows from the bare nominal requirement on Nuu-chah-nulth incorporation. I attribute this effect to the status of DP as a saturated constituent. The content of this saturated domain is hypothesized to be inaccessible as a host for a higher affixal predicate.

2.5.2 Opaque CPs and "Restructuring" Effects

Parallel examples may be supplied to illustrate a ban on incorporation across CPs. Incorporation is possible only out of uninflected complements, not full CPs (see Chapter 5). In (92a), an example is given showing a full CP complement for the affixal predicate *ʔuu-n̓aḵ̓uuḥ* "observe". This full complement contains the complementizer *ʔin* (COMP), the past tense marker *–mit* (PST), and the dependent mood inflection *–suuk* (2SG.DEP). In contexts of verb incorporation, it is ungrammatical for such

clausal demarcations to appear, as indicated in (92b). The grammatical instance of verb incorporation in (92c) shows no complementizer, no tense marking, and no dependent mood inflection. In effect, the clausal content of (92c) is "restructured" to exclude these clausal demarcations.

(92) a. ʔuuƛ̓aq̓uuḥitsiš ʔin tuuxtuuxʷamitsuk
ʔu-**ƛ̓aq̓uuḥ**[+L]-mit-siiš ʔin tuuxʷ-a[+R]-mit-suuk
∅-**observe**-PST-1SG.IND COMP jump-IT-PST-2SG.DEP
I observed that you were jumping.

b. * tuuxtuuxʷamitƛ̓aq̓uuḥitsiš (ʔin) suw̓a
tuuxʷ-a[+R]-mit-**ƛ̓aq̓uuḥ**[+L]-mit-siiš (ʔin) suw̓a
jump-IT-PST-**observe**-PST-1SG.IND (COMP) you
I observed you jumping.

c. tuuxtuuxʷaƛ̓aq̓uuḥitsiš suw̓a
tuuxʷ-a[+R]-**ƛ̓aq̓uuḥ**[+L]-mit-siiš suw̓a
jump-IT-**observe**-PST-1SG.IND you
I observed you jumping.

In Chapter 5, I will analyse the verb incorporation case in (92c) as having a *v*P complement, rather than the sort of CP complement in (92a). The inability of incorporation to occur across a CP complement may be attributed to the status of CP as a saturated domain, whose "border" has closed. When no CP structure is present, there is no demarcation imposed between the affixal predicate and its complement.

2.5.3 Impermeability of Saturated Domains

This section presents additional evidence for the derivational independence of the saturated domains CP and DP, based on proof of a ban on cross-domain syntactic movement in Nuu-chah-nulth. With respect to the CP domain, Nuu-chah-nulth has been shown to lack cross-clausal *wh*-movement (Davis and Sawai 2001). This restriction is illustrated below with an example in which the matrix predicate *t̓aaquk* "believe" takes an embedded clause as complement. A grammatical declarative sentence is shown in (93a). In (93b,c), it is shown to be ungrammatical to *wh*-question the subject of the embedded clause.

(93) a. t̓aaqukʷiʔaƛ̓ʔiš John ʔin kuuẃiɬitḥuk Mary č̓apac
t̓aaquk-čiƛ̓-'aƛ̓-ʔiiš John ʔin kuuẃiɬ-mit-ḥuuk Mary č̓apac
believe-PERF-TEMP-3.IND John COMP steal-PST-3.DEP Mary canoe
John believes that Mary stole the canoe. (cf. Davis and Sawai 2001: 133)

b. * ʔačaqḥ t̓aaqukʷiʔaƛ̓ John ʔin kuuẃiɬitḥuk č̓apac
ʔačaq-ḥ t̓aaquk-čiƛ̓-'aƛ̓ John ʔin kuuẃiɬ-mit-ḥuuk č̓apac
who-3.Q believe-PERF-TEMP John COMP steal- PST-3.DEP canoe
Who does John believe stole the canoe? (cf. Davis and Sawai 2001: 133)

c. *	ʔačaqḥ	t̓aaqukʷiʔaƛ	John	(ʔin)	kuuẇiɬitḥ	č̓apac
	ʔačaq-ḥ	t̓aaquk-čiƛ-ʾaƛ	John	(ʔin)	kuuẇiɬ-mit-ḥ	č̓apac
	who-3.Q	believe-PERF-TEMP	John	(COMP)	steal- PST-3.Q	canoe
	Who does John believe stole the canoe?					

Wh-movement which crosses a CP is not possible in Nuu-chah-nulth. Instead, as I describe in Chapter 5, "long" *wh*-movement in Nuu-chah-nulth only occurs in monoclausal "restructuring" environments. The sentence in (94) provides an example of such a monoclausal *wh*-question.

(94)	ʔačaqqatḥʔapḥ	John	kuuẇiɬ	č̓apac
	ʔačaq-**qaatḥ**-ʾap-ḥ	John	kuuẇiɬ	č̓apac
	who-**claim**-TR-3.Q	John	steal	canoe
	Who does John claim stole the canoe?			

As argued in Chapter 5, the embedded clause in (94) is "reduced" in that it fails to project up to a CP. As such, movement is possible out of this unsaturated domain.

Likewise, there is also indication that syntactic movement out of a DP is restricted in Nuu-chah-nulth. Possessor raising in Nuu-chah-nulth is possible only out of reduced nominal phrases, which lack the outer housing of a DP. Ravinski (2005) illustrates that possessor raising is illicit out of a nominal phrase marked with the determiner *–ʔii* (DET). The sentences in (95) exemplify this pattern. In these examples, the predicate is suffixed by the possessive morpheme *–uk* (POSS), as is characteristic of possessor raising in the language. The contrast in grammaticality between (95a) and (95b) indicates that possessor-raising may not occur when the determiner appears in the possessive nominal.

(95)	a.	ƛuɬukʔiš	huupuk̓ʷas	Lucy	
		ƛuɬ-uk-ʔiiš	huupuk̓ʷas	Lucy	
		good-POSS-3.IND	car	Lucy	
		Lucy's car is nice.		(Ravinski 2005: 65, ex. 177a)	
	b. *	ƛuɬukʔiš	huupuk̓ʷasʔi	Lucy	
		ƛuɬ-uk-ʔiiš	huupuk̓ʷas-ʔii	Lucy	
		good-POSS-3.IND	car-DET	Lucy	
		Lucy's car is nice.		(Ravinski 2005: 65, ex. 177b)	

The determiner *–ʔii* overtly marks a DP. The necessary absence of this determiner in contexts of possessor raising is consistent with an analysis in which only reduced nominals permit extraction. Such a restriction is in line with the status of DPs as impermeable domains in Nuu-chah-nulth.

Thus, restrictions on *wh*-movement and possessor-raising corroborate the claim that CPs and DPs in Nuu-chah-nulth are independent domains of the derivation whose borders are closed to derivational manipulation. Taken together with the evidence for two separate prosodic domains of cliticization, we see that phonological and syntactic criteria in Nuu-chah-nulth converge on a representation of CPs and

DPs as saturated domains. In Nuu-chah-nulth, these saturated domains are impermeable in that elements from one domain may not "escape" to another. In Chapter 6, we revisit the permeability of saturated domains, and examine cross-linguistically attested "escape hatches" for movement. It is suggested that long-range movement arises from incomplete interpretation.

2.6 Conclusion

In this chapter, evidence was presented for the analysis that the positioning of affixal predicates in Nuu-chah-nulth is a reflex of the need to linearize bound morphemes. According to the proposal, the affixal predicate must find a host from within its derivational sister at the point of spell-out. This derivational sister is a linearized object, leading to the restriction that suffixation operates on the basis of linear adjacency. I have argued that the notion of local spell-out elegantly captures the dual sensitivities which affixal predicates show to derivational sisterhood and linear adjacency. The syntax indirectly conditions the input to the linearization process through its composition of local spell-out domains. Two conditioning effects of the syntax were emphasized: the first is the locality requirement induced by the binary concatenation of the syntax, which yields a complement restriction in Nuu-chah-nulth; the second, the creation of DP and CP constituents which form distinct domains for affixation processes.

A purely syntactic analysis of incorporation fails to predict the sensitivity which Nuu-chah-nulth affixal predicates have to linear adjacency. As described in §2.2.2, an affixal predicate incorporates a modifier, rather than the element which syntactically heads the complement. Such insensitivity to hierarchical adjacency is at odds with the syntactic incorporation process described by Baker (1988), as it violates the syntactic Head Movement Constraint (Travis 1984). Moreover, in §2.2.3, it was shown that incorporation in Nuu-chah-nulth displays an insensitivity to a restriction on extraction from a conjoined object, the CSC. This constraint was shown to hold in Nuu-chah-nulth in contexts of true syntactic movement.

Just as a purely syntactic analysis of Nuu-chah-nulth fails, so too does a strictly phonological one. Note that the host for an affixal predicate cannot be defined in strictly phonological terms, such as a syllable or a prosodic foot (cf. Halpern 1992). Instead, the host is equivalent to a unit of the syntactic derivation (i.e., one of the two elements treated by syntactic Merge). As the following examples illustrate, hosts for an affixal prediate in Nuu-chah-nulth can be mono- or polysyllabic. The host in (96a), *ʔuuš* "someone", is monosyllabic. The host in (96b), *quuʔac-* "(First Nations) person", is bisyllabic. Finally, the host in (96c), *mamaƛƛiq-* "white person" is trisyllabic.

(96) a. ʔuušiƛʔaƛʔiš
ʔuuš-**iƛ**-'aƛ-ʔiiš
someone-**inside**-TEMP-3.IND
There's someone inside (the house) now.

b. quuʔaciɬʔiš
quuʔac-‘**iɬ**-ʔiiš
person-**inside**-3.IND
There's a person inside (the house).

c. mamaɬn̓iqiɬʔiš
mamaɬn̓iq-‘**iɬ**-ʔiiš
white.person-**inside**-3.IND
There’s white people inside (the house).

Feet in Nuu-chah-nulth are maximally bisyllabic (Werle 2002; Stonham 2004). Thus, hosts for an affixal predicate may be equal to, smaller than, or larger than a prosodic foot. These mismatches with prosodic definitions lend support to a syntactically constrained definition of the host (i.e., a derivational sister).

In the following chapters, it will be shown that the combinatory properties of affixal predicates are conditioned by their argument structure. The syntactic positions in which arguments are introduced indirectly constrain the post-syntactic linearization operation of affixation. Argument structure determines derivational sisterhood, which in turn defines the domains which local spell-out applies to. The next chapter serves as an introduction to the clausal architecture of Nuu-chah-nulth.

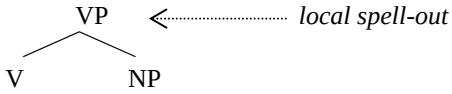
3. Clausal Architecture of Nuu-chah-nulth

Every phrase and every sentence is an end and a beginning...
~T.S. Eliot *Four Quartets no. 4*

3.0 Introduction

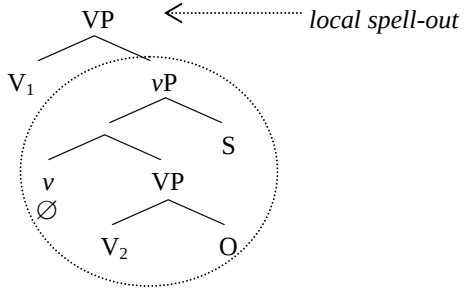
Up until this point, there has been an implicit assumption that affixal predicates take an argument as their derivational sister. The following chapters will provide evidence for such a conclusion. In this chapter, I take a first step towards this analysis by arguing that nominal arguments of Nuu-chah-nulth predicates are introduced within verbal projections of the affixal predicate. This analysis has consequences for the local spell-out hypothesis, since it determines that an argument (or part of an argument), as the derivational sister of an affixal predicate (V), will be selected as the host for an affixal predicate.

(1)



This chapter adopts the analysis that the "basic" word order for Nuu-chah-nulth is VOS. I propose that this word order is not derived via movement; instead this ordering results from a syntactically underived predicate-initial system in which subjects appear in right-linearized specifier positions. The consequence of this predicate-initial system is that when an affixal predicate (V_1) takes a propositional complement, the embedded verb (V_2) precedes the embedded arguments as the left-most element in the complement. This is represented in (2), in which the affixal predicate's complement (circled in the diagram) is assumed to be equivalent to *v*P.

(2)



The *v* head is represented here as phonologically null (∅).[1] As such, the embedded verb (V_2) is string adjacent to the affixal predicate, (V_1). By the string adjacency

[1] The *v* may be overt or covert in Nuu-chah-nulth. If overt, the *v* is realized as an aspectual suffix on the embedded verb.

effect, it therefore follows naturally that the verb (V_1) should select the embedded verb (V_2) as its host at spell-out.

In the next section, we turn to a discussion of how the PF component is responsible for the linearization of syntactic terminals. According to the analysis, syntactic outputs are linearized at the point of spell-out.

3.1 Linearization of Syntactic Terminals

In the framework assumed for this book, the syntax is equivalent to the structure-building operations of Merge or Move ("remerge"). The syntactic constructs formed by this binary concatenation are unspecified for linear order.

(3) *Merge*: *concatenate α with β, forming γ*

Although the binary concatenation of Merge or Move fails to impose a linearization of the joined elements, it is nonetheless an unmistakable characteristic of natural language that linear orderings do exist. In the following English sentence, for example, *not* must precede *rushed*, and not the reverse.

(4) a. I am [not rushed].
b. * I am [rushed not].

If linearization is not reducible to the structure-building properties of the syntax, then what is responsible for its effects? In the Minimalist model, the linear ordering of linguistic constructs constitutes a bare output condition at PF (Chomsky 1995). The temporal nature of speech determines that linguistic representations must be mapped to a linearized speech stream. Thus, the "phonologization" of syntactic constructs entails that relative orderings must be imposed on the syntactic terminals {α, β}. In Chapters 1 and 2, I introduced the idea that affixation is one means by which ordering may be imposed on these elements. However, this linearization mechanism is only applicable if one or the other of α and β is an affix. Nothing has yet been said about linearization in non-affixal contexts.

Linearization is itself necessary, but what particular linearization scheme of syntactic terminals is required? Two hypotheses may be distinguished, one of which attributes linearization to an invariant syntax-phonology mapping, and the other which opens the door to variations in linearization schemes for syntactic terminals.

(5) *PF Linearization mechanisms*
(i) Universal linearization scheme
(ii) Language-specific linearization

In the following subsections, I will consider each of these possibilities in turn, and will make arguments for the latter.

3.1.1 A Universal Linearization Scheme?

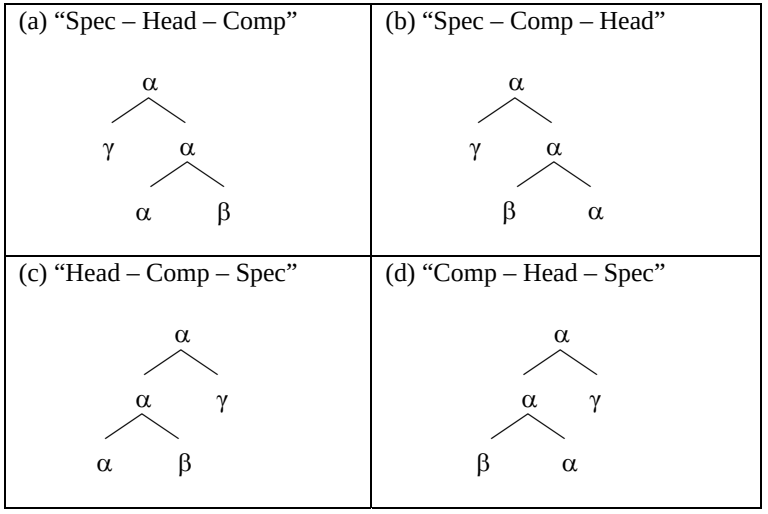
According to the Universal Base Hypothesis (Lakoff 1970; Bach 1968), all languages share a common architecture. With respect to linearization schemes, Kayne (1994) presents the hypothesis that languages have an invariant mapping algorithm from syntax to linear ordering. According to Kayne's Linear Correspondence Axiom (LCA), the structural relationships of the syntax unambiguously determine ordering in that asymmetric c-command entails precedence. Originally formalized as a syntactic filter, this principle has been recast in various Minimalist approaches as a post-syntactic principle which applies at spell-out (e.g., Chomsky 1995; Dobashi 2003). This linearization scheme may be defined by statement (6):

(6) *Linear correspondence axiom (LCA)*

If X asymmetrically c-commands Y, then the terminals in X precede the terminals of Y.

This axiom entails that the sole linearization option available for a head projecting a specifier (Spec) and taking a complement (Comp) is that shown in (7a).

(7) *Linearization schemes*



C-command relationships of the above configurations can be evaluated according the following definition in (8), supplied by Reinhart (1979).[2]

[2] Epstein (1999) proposes a derivational notion of c-command which follows from the properties of binary concatenation. According to derivational c-command, an element c-commands those elements with which it was paired in the course of a derivation. The choice of a representational or derivational view of c-command does not affect the argument here.

(8) *X c-commands Y iff*
(i) The first branching node dominating X dominates Y, *and*
(ii) X does not dominate Y, *and*
(iii) X is not equal to Y

Asymmetric c-command, in turn, may be determined through reference to the following additional statement:

(9) *X asymmetrically c-commands Y iff*
(i) X c-commands Y, *and*
(ii) Y does not c-command X

Let us now consider how the LCA applies to each of the linearization schemes in (7). The "Spec – Head – Comp" configuration of (7a) satisfies the LCA, since the specifier (γ) both asymmetrically c-commands and precedes the head (terminal α); the head (terminal α), in turn, asymmetrically c-commands and precedes the complement (β). Assuming transitivity of precedence relations, asymmetric c-command therefore exhaustively orders the terminals in (7a). The structure of (7b), in contrast, violates the precedence requirement with respect to sequencing the head (α) *following* the complement (β). According to the LCA, since α asymmetrically c-commands β in (7b), α should precede β, not follow it. The configuration in (7c) shows a similar precedence violation involving the specifier (γ). By the LCA, it is impermissable for γ to follow the head and complement, since this node asymmetrically c-commands them. Finally, the option in (7d) is ruled out by the LCA, since its linear ordering is the reverse of that required by the LCA. In (7d), nodes follow, not precede, the terminals they asymmetrically c-command.

If the LCA is adopted, directionality parameters are inapplicable as a means of accounting for different surface word orders. By the LCA, only a single linearization scheme is universally available, whether it applies to the base-generated syntax (as in the pre-Minimalist formulation originally proposed by Kayne 1994), or in the syntax to PF mapping (as in Chomsky 1995). The consequence of this proposal is that word order variations between languages (Greenberg 1966) must derive from different combinations of movement. Let us now consider a key conceptual problem facing the LCA hypothesis.

According to the LCA, asymmetric c-command induces a linear ordering between syntactic terminals. Kayne (1994: 36) argues that this hierarchical relationship consistently results in a *precedence* relation. However, this particular linearization requirement is a stipulation. There is an alternative ordering which would equally allow a consistent mapping between asymmetric c-command and linear sequencing; if c-commanding terminals follow rather than precede other elements of the tree, then syntactic relations will also strictly determine linear correspondence. The two possible options for invariant mappings between c-command and ordering are given below.

(10) *LCA (reformulated)*
option (i):
If X asymmetrically c-commands Y, then the terminals in X *precede* the terminals of Y.
option (ii):
If X asymmetrically c-commands Y, then the terminals in X *follow* the terminals of Y.

If the first option is selected, then a "Spec – Head – Comp" order is expected (7a). However, if the second option is chosen, then a "Comp – Head – Spec" order arises (7d). Note that the two configurations are mirror images of each other and whatever asymmetric c-command relations hold for one will necessarily hold for the other (see Uriagereka 2002 for discussion).

In a crucial sense, asymmetric c-command therefore *underspecifies* linear ordering. Kayne observes this complication, and rules out the "Comp – Head – Spec" order through an independent stipulation. According to Kayne (1994: 36–38), this alternative order is inconsistent with the asymmetry of time. However, I contend that this is simply a restatement of the phono-temporal mapping problem, rather than a solution. A linearization of any of (7a–d) would be compatible with forward-moving time, in that they each specify a temporal sequence for the terminals. Either of (7a) or (7d) allows an invariant branching-to-linearization mechanism. I therefore conclude that the conceptual motivation is lacking for a single, optimally "harmonic" linearization scheme induced by the c-command relation of the syntax (cf. Uriagereka 2002).

In the next section, an alternative linearization mechanism is investigated. According to this hypothesis, language-specific variation in linearization is permitted.

3.1.2 Directionality is Determined at Spell-out

As argued in the previous sections, syntactic structures are indeterminate for linear ordering. Yet, linearization is a bare output constraint at the PF interface. An independent mechanism is therefore necessary for fixing the sequencing of non-affixal syntactic terminals. I present here the hypothesis that linearization schemes arise at the point of spell-out to PF (cf. Chomsky 1995). For Merge (α, β), the syntactic object may be spelled-out as the phonological objects $<\alpha, \beta>$ or $<\beta, \alpha>$.

Regularities in linearization may be attributed to language-specific *directionality conventions*, as will be discussed in §3.1.2.1. In §3.1.2.2, these conventions are compared to the notion of "parameters". I propose that these conventions are not specific to the linearization of non-affixal syntactic terminals, and argue in §3.1.2.3 that directionality conventions are also at play in the choice of a prefixation or suffixation pattern for affixal elements. This discussion concludes in §3.1.2.4 with a summary of the directionality conventions assumed for Nuu-chah-nulth.

3.1.2.1 Directionality Conventions

In many languages, syntactic objects and phonological objects stand in an implicational relationship. That is, a syntactic object may be consistently mapped to a

particular linearization. The examples in (11) may be understood to be distinct linearization schemes for a syntactic object in which α "heads" the phrase (owing to the fact that it is the category which projects its label). In a language in which syntactic form has implications for ordering, the syntactic object may be realized regularly as an α-initial linearization; alternatively, it may be consistently ordered as an α-final pattern.

(11) a. *α-initial* b. *α-final*

These regularities in linearization may be attributed to language-specific ordering "conventions" imposed at spell-out. The *directionality convention* hypothesis may be stated as follows:

(12) *Directionality convention: Order (α, β)*

Ordering is stipulated phrase by phrase, and language by language. I assume that these ordering conventions are established through language acquisition. The decision for an α-initial or α-final ordering is conditioned by the language which the learner is exposed to. I assume that an α-initial or α-final ordering may hold uniformly across the language or it may be specific for certain syntactic categories, dependent on the regularities of the language. In either case, the convention establishes one out of the two logically possible orderings as a regularity at spell-out. Languages with free word order, which show no regularity in ordering, are assumed to lack directionality conventions for spell-out: a linearization is necessarily induced at spell-out, but one linearization scheme is not preferable over the other.

Let us consider the contrast between English prepositions and Hungarian postpositions as an illustration of the proposed spell-out directionality conventions. Each of these language show regular patterns. In English, prepositions (e.g., *above*, *beside*, *under*) reliably precede a nominal. In Hungarian, however, postpositions (e.g., *fölött* "above", *mellett* "beside", *alatt* "under") consistently follow a nominal. This difference is illustrated in (13) with *above*/*fölött*. In (13a), *above* precedes *the table*; in (13b), *fölött* "above" follows *az asztal* "the table".

(13) a. The picture is above the table. *(English)*

b. A kép az asztal fölött van.
DET picture DET table above BE-3SG
The picture is above the table. *(Hungarian)*

It is ungrammatical for English prepositions to follow the nominal, as shown in (14a, b). Conversely, it is ungrammatical in Hungarian for postpositions to precede the nominal, as shown in (15a, b).

(14) *English*

a. There are pictures everywhere: under, over and beside the table.

b. * There are pictures everywhere: the table under, over and beside.

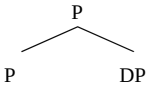
(15) *Hungarian*

a. Képek vannak mindenütt: az asztal alatt, fölött, mellett.
picture-PL BE-3PL every-where DET table under above beside
There are pictures everywhere: under, over, and beside the table.

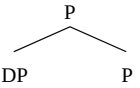
b. * Képek vannak mindenütt: alatt, fölött, mellett az asztal.
picture-PL BE-3PL every-where under above beside DET table
There are pictures everywhere: under, over, and beside the table.

How are the distinct English and Hungarian patterns derived? Note that if a preposition (P) is concatenated with a nominal (DP) via Merge (P, DP), then there are two logically possible linearizations for this unordered syntactic object: the preposition may precede (16a) or follow (16b) the nominal.

(16) a.



b.



According to the directionality convention hypothesis, the difference between English prepositions and Hungarian postpositions reduces to a spell-out regularity in linearization. English learners adopt (16a) as a linearization convention, while Hungarian learners opt for (16b). In the case of English, the pattern for prepositions is consistent with the general head-initial nature of the language. In Hungarian, however, head-final pattern for prepositions may be viewed as a convention specific to this syntactic category: determiners, for example, are subject to a head-initial pattern, as in *az asztal* "the table".

3.1.2.2 Comparison to Headedness "Parameters"

How does the notion of directionality "conventions" compare to the principles-and-parameters options for headedness "parameters"? In the principles-and-parameters framework, learning a language entails selecting one of the possible settings made available by the parameters of Universal Grammar. By this view, language learners are "hard-wired" (or innately endowed) with a variety of possible parameters. For example, Universal Grammar is postulated to allow either an α-initial or α-final setting for the headedness parameter(s).

(17) *Headedness parameter(s)*

(i) SETTING A (α-initial): α precedes β

(ii) SETTING B (α-final): α follows β

If a learner is exposed to English prepositions, then SETTING A is switched on. If a learner is exposed to Hungarian postpositions, then SETTING B is switched on.

What the directionality convention hypothesis shares with this notion of parameter-setting is the aspect of acquisitional choices. However, the directionality convention hypothesis diverges from the parameter hypothesis in the grammatical source of these choices. According to the directionality convention hypothesis, a language learner simply selects one of only two *logically possible* linearizations for a syntactic object at local spell-out: the choices are not innately endowed in the language faculty. This follows from the reasoning that the choices of α-initial and α-final orderings need not be designated biologically, because they are inherently learnable (see Newmeyer 2005).

3.1.2.3 Affixation Patterns

The previous discussion was concerned with the linearization schemes of non-affixal elements. According to the directionality convention hypothesis, a language learner selects one of the two logically possible linearizations when it comes time to order α with respect to β at spell-out. This choice determines whether a language utilizes, for example, a head-initial or specifier-final pattern.

How does this specification of directionality for syntactic terminals compare with word-internal directionality? Within a word, a bound element may be designated as either prefixal or suffixal. A prefixal ordering linearizes the bound element to the left of its host; a suffixal ordering linearizes the bound element to the right of its host. I propose that the choice between a prefixation and a suffixation pattern is also a spell-out convention. In Nuu-chah-nulth, for example, affixal predicates are consistently linearized as suffixes. A language learner adopts this pattern over the logically possible alternative of ordering these affixal predicates as prefixes. Note that the learner is exposed to abundant evidence for the language-specific choice of suffixation or prefixation in Nuu-chah-nulth. Thus, prefixation–suffixation patterns may be seen as a subtype of directionality convention. If α or β is an affix, then Order (α, β) establishes a preference for a regular prefixation or suffixation linearization.

3.1.2.4 Directionality Conventions of Nuu-chah-nulth

In this book, five linearization regularities for spell-out are proposed for Nuu-chah-nulth. These order a specifier relative to a head (18a), a head relative to a complement (18b), an adjective relative to a noun (18c), and a manner adverb relative to a modified verb (18d). A final convention establishes the suffixation pattern of affixal elements in Nuu-chah-nulth (18e).[3]

(18) *Directionality conventions of Nuu-chah-nulth*
- a. SPECIFIER-FINAL: a head precedes a specifier
- b. HEAD-INITIAL: a head precedes a complement

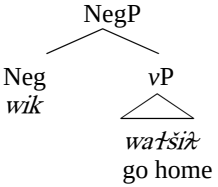
[3] Clearly, this is a heterogenous set. It remains to be shown whether these regularities reduce to a more abstract characterization.

c. ADJECTIVE-INITIAL: an adjective precedes a modified noun
d. MANNER ADVERB-INITIAL: a manner adverb precedes a modified verb
e. SUFFIXATION: a host precedes an affixal predicate

As determined by (18a), specifiers are realized in a "right-branching" orientation in which they follow the head of the phrase. I will propose in §3.3 that this convention applies to subjects of clauses, inducing a subject-final ordering of VOS.

According to the convention of (18b), Nuu-chah-nulth has a head-initial pattern in which complements follow heads (Davis and Sawai 2001; Stonham 2004; Ravinski 2005, among others). In Nuu-chah-nulth, heads of phrases are often affixes, which may obscure this head-initial linearization pattern. However, non-affixal heads such as *wik* (NEG) show a consistent head-initial pattern with respect to their complements.[4]

(19)



In sentence (20), *wik* must precede, not follow, the phrase which it takes scope over, *waɬ-šiƛ* "go.home (PERF)".

(20) a.

wikitsiš	waɬšiƛ	
wik-mit-siiš	waɬ-šiƛ	
NEG-PST-1SG.IND	go.home-PERF	
I didn't go home.		

b. *

waɬšiƛitsiš		wik
waɬ-šiƛ-mit-siiš		wik
go.home-PERF-PST-1SG.IND		NEG
I didn't go home.		

As was discussed in Chapter 2, a consistent ordering relation holds between an adjective and a modified noun in Nuu-chah-nulth (§2.2.2.1). This is captured by the convention of (18c). As shown in (21), the adjective *haʔum* "tasty" must obligatorily precede the nominal *ʔaapinis* "apples".

(21) a.

ʔuʔiicʔišʔaɬ		haʔum	ʔaapinis
ʔu-**'iic**-ʔiiš-ʔaɬ		haʔum	ʔaapinis
∅-**consume**-3.IND-PL		tasty	apples
They are eating delicious apples.			

[4] For the sake of simplicity, I exclude tense (*–mit*) and subject agreement (*–siiš*) from this diagram. I assume these morphemes are introduced in higher projections, and surface suffixed to *wik* in (20a) through local spell-out of these affixes.

b. * ʔuʔiicʔišʔaɬ ʔaapinis haʔum
ʔu-**'iic**-ʔiiš-ʔaɬ ʔaapinis haʔum
∅-**consume**-3.IND-PL apples tasty
They are eating delicious apples.

This initial ordering of the modifier also applies to manner adverbials, as determined by the convention of (18d). As discussed in Chapter 2, a manner adverbial such as *wityʾax* "slow" precedes a verb in Nuu-chah-nulth (§2.2.2.2).

(22) a. wityʾaxits waaɬšiƛ
wityʾax-mit-s waɬ-[+L]-šiƛ
slow-PST-1SG.ABS go.home-CONT-PERF
I was going home slowly.

b. * waaɬšiƛits wityʾax
waɬ-[+L]-šiƛ-mit-s wityʾax
go.home-CONT-PERF-PST-1SG.ABS slow
I was going home slowly.

The suffixation convention of (18e) determines that affixal predicates are linearized as suffixes to their hosts, and not as prefixes.[5] In (23), the affixal predicate *–ʾaap* "buy" attaches to the right of its host, *maḥtʾa-* "house", and not to its left.

(23) a. maḥtʾaʔamitʔiš čakup
maḥtʾa-**'aap**-mit-ʔiiš čakup
house-**buy**-PST-3.IND man
A man bought a house.

b. * ʔaamaḥtʾamitʔiš čakup
'aap-maḥtʾa-mit-ʔiiš čakup
buy-house-PST-3.IND man
A man bought a house.

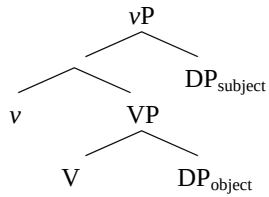
In the next section, we return to the topic of the linearization schemes for syntactic terminals, with a focus on the syntactic structure of Nuu-chah-nulth.

3.2 Configurationality

Before discussing evidence for a VOS linearization scheme in Nuu-chah-nulth in §3.3, let us first cover background topics on the position of arguments in a Nuu-chah-nulth clause. In this section, I argue that Nuu-chah-nulth is a "configurational" language (cf. Hale 1983; Baker 1996) in which DP arguments are introduced with the verbal projections, as in (25).

[5] This suffixation appears to hold for all bound forms in Nuu-chah-nulth, with the exception of bound nominal allomorphs which host an affixal predicate (§1.3).

(24)



This section addresses the basic structural properties of the Nuu-chah-nulth language, and argues for a syntactic asymmetry between subjects and objects.

3.2.1 Partial Head Marking

In "partial head marking" languages, agreement morphology associated with a predicate obligatorily registers some, but not all, arguments of the predicate. Nuu-chah-nulth is a partial head marking language (Davis, Waldie, and Wojdak 2007): portmanteau mood/agreement enclitics agree with *subjects* (Rose 1981; Davidson 2002). Objects are not registered via agreement, with the exception of a limited form of object marking which appears in imperative environments (see Davidson 2002). The subject agreement paradigm for the Ahousaht dialect is indicated in the following table. This table is closely based on Nakayama (1997, 2001), although I distinguish between "absolutive" and "dependent" moods, as well as propose a "confirmation" mood. For third persons, plurality is optionally indicated by the plural enclitic *-ʔaɬ* (Nakayama 1997: 30).

(25) *Subject agreement in Nuu-chah-nulth (Ahousaht dialect)*

Mood/Person	*1sg*	*2sg*	*3*	*1pl*	*2pl*
INDICATIVE	-siiš	-ʔiick	-ʔiiš	-niiš	-ʔiicuuš
INTERROGATIVE	-ḥs	-k	-ḥ	-ḥin	-ḥsuu
CONFIRMATION	-ḥaas	–	-ḥaa(č)	–	–
QUOTATIVE	-waaʔič'as	-waaʔick	-waaʔiš	-waaʔič'in	waaʔicuuš
ABSOLUTIVE	-s	?	∅	-na	-suu
SUBORDINATE	-qs	-k	-q	-qin	-qsuu
DEPENDENT	-sa	-suuk	-ḥuuk	-na	-suu
SIMPLE RELATIVE	-qs	-ʔiitk	-ʔiitq	-qin	-ʔiitqsuu
"INDEFINITE" RELATIVE	-(y)iis	-(y)iik	-(y)ii	-(y)in	-(y)iisuu
CONDITIONAL	-quus	-quuk	-quu	-q^{w}in	-quusuu

The contrast between subjects and objects with respect to registering agreement correlates with the ability to license *pro*-drop. Subject DPs are freely omissible in Nuu-chah-nulth, given appropriate discourse contexts. The sentences in (26) may equally be uttered, for example, in the following specified scenerio:

(26) *Context*: *You have been out with Kyle on the beach and he saw a sea anemone for the first time. You want to report what happened.*

a. ƛ̓aatsiičiɁitʔiš kinɬumc Kyle
ƛ̓aatsii-šiɁ-mit-ʔiiš kinɬumc Kyle
see-PERF-PST-3.IND sea.anemone Kyle
Kyle saw a sea anemone.

b. ƛ̓aatsiičiɁitʔiš kinɬumc
ƛ̓aatsii-šiɁ-mit-ʔiiš kinɬumc
see-PERF-PST-3.IND sea.anemone
He saw a sea anemone.

For objects, however, *pro*-drop is not freely available, even with appropriate context. An overt object (27a) is permitted in the context below, but a covert object (27b) is not.

(27) *Context:* *You know that Ken is planning to buy a sweater for his mother. You see a new sweater on the couch, and want to know if Ken bought it.*

a. maakukʷitḥ čʼupčʼupšumɬʔi
maakuk-mit-ḥ čʼupčʼupšumɬ-ʔii
buy-PST-3.Q sweater-DET
Did he buy the sweater?

b. * maakukʷitḥ
maakuk-mit-ḥ
buy-PST-3.Q
Did he buy it?

Following Rizzi (1986), I adopt the analysis that "rich" subject inflection formally licenses a null pronominal *(pro)* as subject in cases where overt subject DPs are absent (Davis et al. 2007). In effect, the properties of the subject can be recovered by the inflection. Objects, which lack rich inflectional agreement, do not formally license a null pronominal argument.[6]

The asymmetry between subjects and objects with respect to agreement and the licensing of *pro* has key implications for the structural representations of DPs in the language. Specifically, Nuu-chah-nulth does not meet the definition of a "polysynthetic" language in the technical sense of Baker (1996).[7] Baker (1996) draws a link between the rich inflection exhibited by certain polysynthetic languages, and the lack of structural asymmetries between lexical DPs. Under Baker's analysis, lexical DPs in these non-configurational "polysynthetic" languages occupy adjunct positions. Pronominal inflection, which agree with null *pro* arguments, are licensed

[6] Nuu-chah-nulth does allow limited *pro*-drop of objects under certain discourse conditions; this is discourse-licensed and not agreement-licensed.

[7] Note that Sapir's (1921) discussion of "polysynthesis" was partly in response to observations about Nuu-chah-nulth. In the original sense of the term, a "polysynthetic" language is one which exhibits a high morpheme to word ratio.

for theta role assignment by the verb via the Morphological Visibility Condition. This condition states that theta roles of the verb are to be found within the same word as the verbal head, either as (i) inflection or (ii) an incorporated noun.

(28) *Morphological visibility condition* (Baker 1996: 17)

A phrase X is visible for θ-role assignment from a head Y only if it is coindexed with a morpheme in the word containing Y via:
(i) An agreement relationship
(ii) A movement relationship

In Nuu-chah-nulth, however, objects violate Baker's Morphological Visibility Condition on the licensing of pronominal arguments because they are not registered morphologically. In a similar vein, it is also the case that Nuu-chah-nulth does not match the definition of a "pronominal argument" language (Jelinek and Demers 1994) in which pronominal inflection occur directly as arguments: objects in the language may be directly represented by non-pronominal DPs. Thus, the absence of object inflection in Nuu-chah-nulth implies that at least object DPs must occupy argument positions in Nuu-chah-nulth.

In the next section, I turn to additional evidence for a syntactic asymmetry between the structural representation of subjects and objects in Nuu-chah-nulth.

3.2.2 An Asymmetry in Possessor Raising

Evidence for an asymmetry between subjects and objects in Nuu-chah-nulth comes from restrictions on a construction known as "possessor raising". In this construction, the possessive marker *–uk/–(ʔ)ak* (POSS) is suffixed to a predicate, instead of (or in addition to) its base position suffixed to the possessum (Davidson 2002; Ravinski 2005).[8] The basic pattern of possessor raising is illustrated below with the intransitive predicate *wiwiɬʕaqƛ* "lazy". Note that either possessor raising or possessor doubling behaviours are generally possible. In (29a), the nominal *tʼaƞa* "child" is suffixed by the possessive marker and is interpreted as the possessum. In (29b), the predicate *wiwiɬʕaqƛ* "lazy" is suffixed by *–uk* (POSS), while the nominal *tʼaƞa* "child" receives no such marking but is still interpreted as the possessum. The example in (29c) shows both the predicate and the nominal suffixed by possessive markers.

(29) a.

wiwiɬʕaqƛʔiš	tʼaƞaakʔi	ʔuuštaqyuʔi	
wiwiɬʕaqƛ-ʔiiš	tʼaƞa-ʔak-ʔii	ʔuuštaqyu-ʔii	
lazy-3.IND	child-POSS-3.PS	healer-DET	
The doctor's child is lazy.			*(unraised)*

[8] The choice between *–uk* (POSS) and *–(ʔ)ak* (POSS) is phonologically constrained. As Ravinski (2005: 25) notes, *–uk* follows consonants, while *–(ʔ)ak* follows vowels. Both *–uk* (POSS) and *–(ʔ)ak* (POSS) indicate alienable possession. A different suffix, *-ʔat* (IPOSS) occurs with inalienable possession (see Rose 1981; Davidson 2002; Ravinski 2005).

	b.	wiwišʕaqƛ̓ukʔiš	t̓an̓a	ʔuuštaqyuʔi
		wiwišʕaqƛ̓-uk-ʔiiš	t̓an̓a	ʔuuštaqyu-ʔii
		lazy-POSS-3.IND	child	healer-DET
		The doctor's child is lazy.		*(possessor raising)*
	c.	wiwišʕaqƛ̓ukʔiš	t̓an̓aakʔi	ʔuuštaqyuʔi
		wiwišʕaqƛ̓-uk-ʔiiš	t̓an̓a-ʔak-ʔii	ʔuuštaqyu-ʔii
		lazy-POSS-3.IND	child-POSS-3.PS	healer-DET
		The doctor's child is lazy.		*(possessor doubling)*

The subject agreement in possessor raising (and possessor doubling) constructions necessarily agrees with the possessor, unlike in unraised examples. This is indicated in the examples below. In the unraised (30a), the subject agreement is third person *-ʔiiš* (3.IND), corresponding to the nominal *t̓an̓aakqs* "my child". In the raised example in (30b), the subject agreement is first person *-siiš* (1SG.IND), matching the person of the possessor.

(30)	a.	wiwišʕaqƛ̓ʔiš	t̓an̓aakqs	
		wiwišʕaqƛ̓-ʔiiš	t̓an̓a-ʔak-qs	
		lazy-3.IND	child-POSS-1SG.PS	
		My child is lazy.		*(unraised)*
	b.	wiwišʕaqƛ̓uksiš	t̓an̓a	
		wiwišʕaqƛ̓-uk-siiš	t̓an̓a	
		lazy-POSS-1SG.IND	child	
		My child is lazy.		*(possessor raising)*

In Chapter 4, I discuss the analysis in which the possessive marker *–uk* (POSS) on the predicate licenses a position for a raised DP possessor (Ravinski 2005). For our present purposes, we can set aside the mechanics of this raising operation and focus instead on the use of possessor raising as a diagnostic for distinguishing between subjects and objects.

The behaviour of transitives with respect to possessor raising gives evidence for a distinction between subjects and objects in Nuu-chah-nulth. For transitives, there is a restriction that a possessive marker on the predicate is only ever associated with a possessum subject, and not a possessum object (Davidson 2002; Ravinski 2005). As indicated by (31a, b), a subject ("cat") and an object ("bird") are equally compatible with possessive marking in "unraised" contexts.[9] Crucially, however, it is shown by the interpretation of the possessor-raised (31c) that objects face a restriction which subjects do not.

(31)	a.	hinkʷaʔiiḥitʔiš	piišpiš	maamaatakqs
		hin-kʷaʔiiḥ-mit-ʔiiš	piišpiš	maamaati-ʔak-qs
		LOC-go.after-PST-3.IND	cat	bird-POSS-1SG.PS
		A cat was after my bird.		*(unraised)*

[9] Post-predicative word order in these examples, and in the language generally, is largely variable (see §3.3 for discussion).

b. hinkʷaʔiiḥitʔiš piišpišukqs maamaati
hin-kʷaʔiiḥ-mit-ʔiiš piišpiš-uk-qs maamaati
LOC-go.after-PST-3.IND cat-POSS-1SG.PS bird
My cat was after a bird. *(unraised)*

c . hinkʷaʔiiḥuksiš piišpiš maamaati
hin-kʷaʔiiḥ-uk-siiš piišpiš maamaati
LOC-go.after-PST-POSS-1SG.IND cat bird
= (i) My cat was after a bird. *(possessor raising)*
≠ (ii) A cat was after my bird.

In (31c), the raised possessor controls clausal subject agreement, as is standard for Nuu-chah-nulth possessor raising. The sole available interpretation for (31c) is one in which the nominal "cat" is the possessum; an interpretation in which the nominal "bird" is the possessum is unavailable. This difference in the behaviour of the two nominals reflects a systematic difference between subjects and objects: possessor raising is only possible out of a subject in Nuu-chah-nulth (Ravinski 2005).

3.2.3 An Asymmetry in Incorporation

Further evidence for the configurationality of arguments in Nuu-chah-nulth is the restriction that only *complements* of affixal predicates are able to act as hosts (Woo 2000; Davis and Sawai 2001; Yiu 2001; Wojdak 2003a, b, 2004). In the realm of "noun incorporation", arguments which occur as objects of an affixal predicate can be suffixed by the affixal predicate, but, as is indicated by (32b), subjects do not undergo a similar type of suffixation.

(32) a. haaʔumʔiƛ̓asʔiš ƛ̓uẇiiq
haʔum-**ʔiƛ̓**[+L]-'as-ʔiiš ƛ̓uẇiiq
food-**take**-go-3.IND father
Father went to get food.

b. * ƛ̓uẇiicʔiƛ̓asʔiš haʔum
ƛ̓uẇiic-**ʔiƛ̓**-'as-ʔiiš haʔum
father-**take**-go-3.IND food
Father went to get food.

In (32a), the affixal predicate *ʔu-ʔiƛ̓* "take" suffixes to the object nominal *haʔum* "food". The example in (32b) shows that it is illicit for the subject *ƛ̓uẇiic-* "father" to be suffixed by the affixal predicate. Such asymmetries are found across all affixal predicates in Nuu-chah-nulth, a topic that we will return to in Chapter 4.

Possessor raising and incorporation thus pick out complementary sets of arguments: incorporation applies to objects, while possessor-raising applies to

subjects.[10] In the next section, we turn to a final argument for a structural asymmetry between subjects and objects.

3.2.4 Weak Crossover Effects

Davis et al. (2007) introduce Weak Crossover effects as proof of a distinction between subjects and objects in Nuu-chah-nulth. Examples of this asymmetry are presented in (33), which indicate that a subject *wh*-phrase in Nuu-chah-nulth may bind a possessive pronominal inside an object DP, but an object *wh*-phrase may not bind a possessive pronominal inside a subject DP. This directly parallels the available interpretations of the English sentences given as translations.

(33) a. ʔačaqitḥ k̓ʷik̓ʷixasiƛ ʔumʔiiqsakʔi
ʔača-q-mit-ḥ k̓ʷix-asiƛ[+R] ʔumʔiiqsu-ak-ʔi
who-AUX-PST-3.Q kiss-on.cheek mother-POSS-3.PS
= (i) Who$_i$ kissed their$_i$ mother on the cheek?
= (ii) Who$_i$ kissed their$_j$ mother on the cheek?

b. ʔaačačiɬitḥ ʔumʔiiqsakʔi k̓ʷik̓ʷixasiƛ
ʔača-čiɬ[+L]-mit-ḥ ʔumʔiiqsu-ak-ʔi k̓ʷix-asiƛ[+R]
who-AUX-PST-3.Q mother-POSS-3.PS kiss-on.cheek
≠ (i) Who$_i$ did their$_i$ mother kiss on the cheek?
= (ii) Who$_i$ did their$_j$ mother kiss on the cheek?

This can be taken as strong evidence that Nuu-chah-nulth must distinguish hierarchically between subjects and objects, and therefore that clausal structure cannot be "flat" (Davis et al. 2007).

In the following section, I introduce a particular analysis for the asymmetrical representation of subjects and objects in Nuu-chah-nulth. My analysis of Nuu-chah-nulth clausal structure proposes that canonical predicate-initial word order arises from a "basic" VOS linearization.

3.3 Predicate-initial Word Order

Word order in Nuu-chah-nulth is predicate-initial. When both subject and object are overtly expressed, either VSO or VOS word orders are generally available (Rose 1981; Whistler 1985; Jacobsen 1993).

(34) a. kuuẇiɬitʔiš čakup huupuk̓ʷas
kuuẇiɬ-mit-ʔiiš čakup huupuuk̓ʷas
steal-PST-3.IND man car
A man stole a car. (VSO)

[10] Note that the two constructions do not pick out completely complementary sets (Davis et al. 2007). Incorporation operates on *underlying* objects, including the subjects of unaccusative verbs; in contrast, possessor raising is linked to *surface subjects*, also including the subjects of unaccusative verbs. As Davis et al. (2007) note, however, this should make no difference to the argument against non-configurationality.

b.	kuuẃiɬitʔiš	huupuk̓ʷas	čakup
	kuuẃiɬ-mit-ʔiiš	huupuuk̓ʷas	čakup
	steal-PST-3.IND	car	man
	A man stole a car. (VOS)		

There is evidence that post-predicative word order is not strictly free, and that it is linked to constraints on animacy and discourse (Rose 1981; Woo 2004). As Rose (1981: 179) maintains, alternate word orders in Nuu-chah-nulth are "a function of the communicative salience of the constituents, e.g. newness of information, definiteness, particularity, contrastiveness, and role in the discourse." Woo (2004) generalizes that VOS in Nuu-chah-nulth most readily obtains when the object is "unmarked" – inanimate and/or indefinite. Consonant with Woo's generalization, the primary Ahousaht consultants for this book show a strong preference for the subject to precede the object when the object is animate. These speakers generally disprefer VOS with an animate object, as indicated in the sentence below, in which word order serves to restrict the possible interpretations.[11]

(35)	ʔuʔuuyukʔiš	Ken	Kay
	ʔu-**yuk**[+R]-ʔiiš	Ken	Kay
	∅-**cry.for**-3.IND	Ken	Kay
	= (i) Ken is crying for Kay. (VSO)		
	≠ (ii) Kay is crying for Ken. (VOS)		

In (35), the nominal *Ken* must precede *Kay* in order for *Ken* to interpret as a subject. This may be contrasted with the case in (34), in which the inanimate object *ẖuupuuk̓ʷas* "car" has the option of preceding or following the subject.

Rose (1981: 112) proposes that an object may precede a subject when the object is new and salient, as she illustrates with the following examples from the Kyuquot dialect of Nuu-chah-nulth.

(36)	a.	ʔukʷiiɬiš	qaʔuuc	Mary
		ʔu-**čiiɬ**-ʔiiš	qaʔuuc	Mary
		∅-**make**-3.IND	basket	Mary
		Mary is making a BASKET. (VOS)		
		(Kyuquot; Rose 1981: 113, ex. 373)		
	b.	hišimy̓uup	maacqʷin	ɬuucma
		hiš-qimɬ-ʾuup-∅	maacqʷin	ɬuucma
		all-around-CAUS-3.ABS	fly	woman
		The lady collected HOUSEFLIES. (VOS)		
		(Kyuquot; Rose 1981: 113, ex. 375)		

[11] A topic worthy of future research is inter-speaker (or inter-dialectal) variation in word order. As a whole, factors influencing word order in this language have not been adequately investigated to date.

However, a flavour of optionality must be recognized, as she notes that an order of VSO is also possible in this discourse context.

The presence of the determiner *–ʔii* is correlated with word order permutations in the Ahousaht dialect of Nuu-chah-nulth. If an object is marked with this determiner, then the object preferentially appears after the subject. This is illustrated in (37–38). In (37), the determiner-marked nominal *maamaati-ʔi* "the bird" must follow *piišpiš* "cat" in order for *maamaati-ʔi* "the bird" to be interpretable as the object. Similarly, in (38), the determiner-marked nominal *ʕiniiƛ-ʔi* "the dog" must follow *čakup* "man" if it is to be interpreted as an object.

(37) a.
ʔuʔiicitʔiš	piišpiš	maamaatiʔi
ʔu-**'iic**-mit-ʔiiš	piišpiš	maamaati-ʔii
∅-**consume**-PST-3.IND	cat	bird-DET

A cat is eating the bird. (VSO)

b. #
ʔuʔiicitʔiš	maamaatiʔi	piišpiš
ʔu-**'iic**-mit-ʔiiš	maamaati-ʔii	piišpiš
∅-**consume**-PST-3.IND	bird-DET	cat

= (i) The bird is eating a cat. (VSO)
≠ (ii) A cat is eating the bird. (VOS)

(38) a.
hisqinƛʔiš	čakup	ʕiniiƛʔi	ʔuuḥẃaɬ	hisy̓ak
his-qinƛ-ʔiiš	čakup	ʕiniiƛ-ʔii	ʔu-ḥẃaɬ[+L]	hisy̓ak
hit-on.head-3.IND	man	dog-DET	∅-use	hatchet

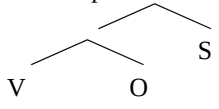
A man hit the dog on the head using a hatchet. (VSO- OBL)

b. !
hisqinƛʔiš	ʕiniiƛʔi	čakup	ʔuuḥẃaɬ	hisy̓ak
his-qinƛ-ʔiiš	ʕiniiƛ-ʔii	čakup	ʔu-ḥẃaɬ[+L]	hisy̓ak
hit-on.head-3.IND	dog-DET	man	∅-use	hatchet

= (i) The dog hit a man on the head using a hatchet. (VSO- OBL)
≠ (ii) A man hit the dog on the head using a hatchet. (VOS- OBL)

A variety of analyses has been proposed to account for the derivation of the world's predicate-initial systems. Although these analyses are constrained by theory-internal restrictions on admissable clause structure (see, e.g., Anderson 1984; Lee 2000), there is mounting cross-linguistic evidence that there are multiple "routes" available to achieving predicate-initial word order (Chung 1998; Davis 2005). That is, predicate-initial status amounts to a superficial characteristic which masks potentially distinct underlying syntactic systems. On the one hand, predicate-initial systems may be directly linearized as VOS, under a right-linearized specifier analysis (Chung 1991). This is represented schematically below, abstracting away from node labelling.

(39) *"Basic" predicate-initial word order*

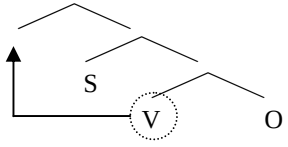


With this line of analysis, VSO is also possible as a derived word order, surfacing after movement of the object, as has been argued for mixed VOS/VSO systems including Mayan (England 1991), Austronesian (Chung 1991, 1998, 2004), and Salish (Davis 2005).

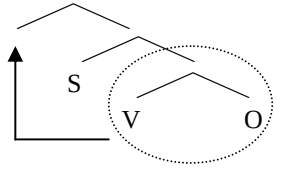
On the other hand, predicate-initial systems may be derived from an underlying SVO configuration. Within this option, two general possibilities are to be distinguished: V-raising targeting the predicate head, as in McCloskey's (1991) treatment of VSO in tensed clauses in Irish; or VP-raising which targets the predicate at the level of the phrase, as has been argued for Malagasy (Pearson 1998), Niuean (Massam 2000), and Zapotec (Lee 2000). In the latter case, VOS straightforwardly obtains. However, VSO may be derived in conditions of VP remnant-raising (Lee 2000), in which the object evacuates the VP before the VP "remnant" is raised. The diagrams in (40) illustrate head-raising and phrase-raising, respectively.

(40) *"Derived" predicate-initial word orders*

a. Verb-raising



b. Raising of verbal phrase



Conclusive empirical evidence is lacking for the superiority of one of these analyses over the others for Nuu-chah-nulth. Indeed, any of these analyses are compatible with the central claims of this book. What is crucial to the analysis at hand is an asymmetrical representation of subjects and objects, within a predicate-initial system for both "small" and "full" clauses: these criteria may be satisfied by either "basic" or "derived" predicate-initial systems. In the interest of explicitness, I adopt in this book an analysis of Nuu-chah-nulth predicate-initial word order as a "basic" VOS system. In what follows, I will describe this proposal in more detail, followed by a discussion of existing evidence against alternative raising approaches. In §3.3.1, a right-branching specifier analysis of subjects is proposed, while §3.3.2 extends this right-branching specifier analysis to possessive phrases. Evidence against a verb-raising analysis of Nuu-chah-nulth predicate-initial word is presented in §3.3.3, and discussion of problems for a verb phrase raising treatment is given in §3.3.4. The analysis of predicate-initial word order concludes in §3.3.5 with a summary of the implications of variable word order for the linearization of affixal predicates.

3.3.1 Proposal: "Basic" Predicate-initial Order (VOS)

According to the analysis proposed here, predicate-initial word order in Nuu-chah-nulth is not derived by syntactic movement. That is, no syntactic movement operation is necessary in order for the verb to precede the arguments of the clause. This

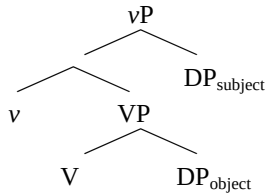
is achieved via implementation of a right-branching specifier system, as in (41a), rather than a left-branching one, as in (41b). These systems represent two distinct linearizations schemes for identical syntactic objects.

(41) a. *Right-branching specifier* b. *Left-branching specifier*

Right-branching specifiers are unavailable under the model of syntax proposed by Kayne (1994). However, according to the directionality convention hypothesis, right- and left-branching systems are equally available across languages as distinct post-syntactic linearization schemes for universally *unlinearized* syntactic objects. By hypothesis, a directionality convention at spell-out in Nuu-chah-nulth determines that specifiers follow, rather than precede, the inner layers of the projection (the head and complement).

Based on this right-branching specifier analysis, I propose the following representation of Nuu-chah-nulth predicates relative to their arguments. In (42), I adopt the analysis that a verbal head *v* introduces a subject, and takes a VP as complement. According to this arrangement, arguments appear on the right-periphery of morphemes which head the verbal projection(s) of the clause.

(42)



This yields an underived VOS word order. This linearization is consistent with the following generalization of Sapir (1924: 83): “verb, object, subject- this is the most common Nootka order”.

As indicated at the outset, however, VSO word orders compete with VOS in Nuu-chah-nulth, generating controversy as to which, if either, of these word orders can be construed as more “basic” (Woo 2004). Indeed, Jacobsen (1993) counters Sapir’s assertion by showing that VSO is in fact statistically more common than VOS in the text examined by Sapir (1924), and furthermore, that sentences with two overt arguments are rare in text contexts. I follow England (1991) in maintaining that frequency of natural occurrence is not a determining criterion in the analysis of underlying word order (see also Woo 2004), as syntactic and non-syntactic factors conspire on a language by language basis to determine the specific word order permutations which arise. Definiteness effects, animacy restrictions, and topic/focus are

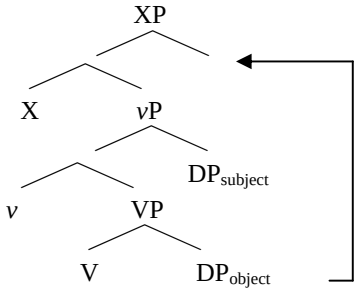
all observed to affect the available word orders of the daughter languages of Proto-Mayan (England 1991). Strictly "stylistic" factors such as prosodic heaviness have also been argued to play a role in the argument order in predicate-initial Salish systems (Davis 2005). There is inadequate evidence at present to allow for a conclusive characterization of which mix of factors are at play in restricting the word order permutations of Nuu-chah-nulth. However, existing research is consistent with the hypothesis that argument order is influenced by information structure.

Adopting England's (1991) analysis of the mixed VOS/VSO systems of Mayan, I therefore propose that VSO in Nuu-chah-nulth may plausibly be derived from a "basic" VOS order when a "reordering" rule moves a marked object to the right-periphery.

(43) [V __ S] 'reordered' O (England 1991: 480)

This falls in line with claims that "marked" animate and/or definite objects in Nuu-chah-nulth often follow a subject (Rose 1981; Woo 2004). The "reordering" of the object can be represented by movement of the object to a specifier position above the subject, as in (44).

(44)



The XP projection can be understood to be a privileged position for animate and/or definite objects. For example, in the sentence in (45a), the determiner-marked object *maamaati-ʔi* "bird-DET" necessarily raises above the subject *piišpiš* "cat". A VOS ordering is unavailable, as indicated by (45b).

(45) a.

ʔuʔiicitʔiš	piišpiš	maamaatiʔi
ʔu-**'iic**-mit-ʔiiš	piišpiš	maamaati-ʔii
∅-**consume**-pst-3.ind	cat	bird-DET

A cat is eating the bird. (VSO)

b. #

ʔuʔiicitʔiš	maamaatiʔi	piišpiš
ʔu-**'iic**-mit-ʔiiš	maamaati-ʔii	piišpiš
∅-**consume**-pst-3.ind	bird- DET	cat

= (i) The bird is eating a cat. (VSO)
≠ (ii) A cat is eating the bird. (VOS)

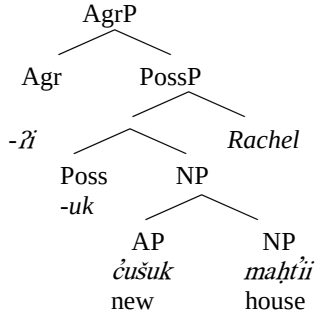
3.3.2 Evidence for Right-branching Specifiers

A right-branching specifier system elegantly captures the canonical word order of Nuu-chah-nulth possessed phrases. As Ravinski (2005) describes, the unmarked word order for possessed noun phrases when the possessum is adjectivally modified is adjective- possessum-possessor.

(46) ƛaatsiičiɬitwaʔiš Christine [c̓ušukukʔi maƛ̓ii Rachel]
ƛaatsii-šiɬ-mit-waʔiš Christine [c̓uš-uk-uk-ʔi maƛ̓ii Rachel]
see-PERF-PST-3.QUOT Christine new-DUR-POSS-3.PS house Rachel
Christine saw [Rachel's new house]. (Ravinski 2005: 41, ex 114c)

The availability of this word order is straightforwardly predicted by an analysis in which the possessor (*Rachel*) occupies a specifier position to the right of the possessed nominal. This may be represented by a structure in which a possessor occurs as the specifier of the PossP phrase, as in (47).[12]

(47) *Right-branching possessor*



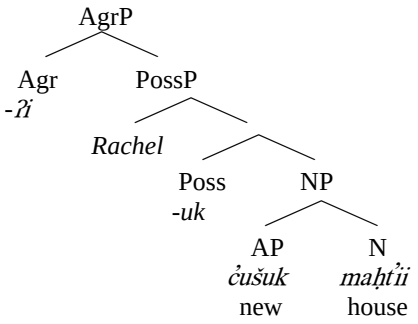
Following Ravinski's (2005) analysis, the possessive morpheme *–uk* (POSS) is shown to head the Possessive Phrase (PossP).[13] An Agreement Phrase (AgrP) is postulated, which is headed by an agreement marker registering the possessor. In (47), the possessor agreement is third person *-ʔi* (3.PS), to match the third person possessor *Rachel*.

If a left-branching analysis of possessors is assumed, then the possessor is predicted to *precede*, not follow, the noun possessum (see Braithwaite 2003 for discussion). This is illustrated in the tree below.

[12] This departs from Ravinski (2005), who represents the possessor as occuring as a right-branching internal argument of the NP.

[13] The diagram in (47) abstracts away from syntactic locus of the aspectual marking *–uk* (DUR) on the adjective *c̓us-uk* "new (DUR)". The aspectual properties of Nuu-chah-nulth adjectives require additional research.

(48) *Left-branching possessor*

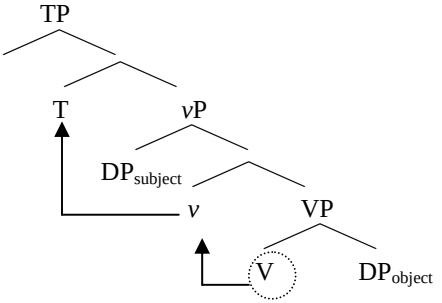


As Ravinski (2005) notes, a right-branching specifier analysis straightforwardly predicts the attested possessor-final word order, as well as the placement of the inflectional clitics on the (first word of) the possessum.

3.3.3 Evidence Against Verb-raising

Previous treatments of Nuu-chah-nulth word order have analysed predicate-initial word order as arising from head-movement of the verb (Davis and Sawai 2001; Stonham 2004, among others). These analyses assume that head movement applies to an underlying SVO structure, raising the head of the predicate to a position past the subject, where it syntactically adjoins to tense and/or agreement occupying higher functional projection (e.g., TP, Mood). This may be represented by the following:

(49)



In this section, I illustrate empirical problems with this analysis as applied to Nuu-chah-nulth.

The first hurdle confronting a head-raising analysis is the question of evidence for verb movement to a functional projection above the *v*P. Since inflectional morphemes such as tense and subject agreement are "second position" enclitics in Southern Wakashan (Klokeid 1978; Davidson 2002), their appearance suffixed to the verb is phonologically conditioned, and as such, does not necessarily entail a syntactic mode of placement (see §3.4.2 for a local spell-out analysis of this

cliticization pattern). The examples below illustrate the "second position" effect in which tense and subject agreement encliticize to the first word of the sentence, whether it is the predicate itself (50a), a preceding adverbial (50b), or a negation particle (50c).

(50) a. waaɬšiƛ***its***
waɬ-[+L]-šiƛ-***mit-s***
go.home-CONT-PERF-PST-1SG.ABS
I was in the process of going home.

b. witɁax***its*** waaɬšiƛ
witɁax-***mit-s*** waɬ-[+L]-šiƛ
slowly-PST-1SG.ABS go.home-CONT-PERF
I was slow in going home.

c. wik***its*** witɁax waaɬšiƛ
wik-***mit-s*** witɁax waɬ-[+L]-šiƛ
NEG-PST-1SG.ABS slowly go.home-CONT-PERF
I wasn't slow in going home.

The fact that a verb in Nuu-chah-nulth may bear tense and/or agreement morphology does not therefore constitute evidence for syntactic raising of the verb to these functional projections. If a verb is the first word in the predicate phrase, it will bear tense and/or agreement morphology; if it is not first, then it will not.

Moreover, there is the broader issue of a trigger for the putative verb-raising. Based on the observation that VSO word order obtains in Modern Irish in tensed clauses, while SVO occurs in infinitival ones, McCloskey (1991) argues that Irish [+finite] verbs are attracted to an inflectional projection. In Nuu-chah-nulth, however, no parallel argument can be constructed.[14] In Nuu-chah-nulth, predicate-initial word order is possible in small clause environments. On the assumption that small clauses lack functional projections above the *v*P which could house a raised verb, predicate-initial word order in this environment should be impossible. This verb-initial pattern is illustrated for the non-finite complements of the perception verb *ʔuu-ƞaḵ'uuḥ* "observe". (In Chapter 5, I provide evidence that the complement here is equivalent to a *v*P.)

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[14] Davis and Sawai (2001: 125) argue based on the behaviour of the perception verb *ƞaatsiičiƛ* "to see" that SVO word order occurs in non-finite complements. However, given that *ƞaatsiičiƛ* "see" is compatible with nominal complements (e.g., *ƞaatsiičiƛitʔiš Mary John* "Mary saw John"), combined with the availability of null pronouns and null "absolutive" third person subject agreement in Nuu-chah-nulth, it is unclear whether their test sentence involves nominal complementation (as indicated by the bracketing below) or clausal complementation. Note that the third person inflection (*-ḥuk*/∅) in the second clause is optionally overt.

(i) [ƞaatsiičiƛitʔiš Mary John] kʷ'iḵʷ'ixasiƛ(ḥuk) *pro* Wanda
[ƞaatsii-šiƛ-mit-ʔiiš Mary John] kʷ'iḵʷ'ixas-šiƛ(-ḥuk) *pro* Wanda
see-PERF-PST-3.IND Mary John kiss.on.cheek-PERF-(3.DEP) *pro* Wanda
Mary saw John, (he was) kissing Wanda on the cheek. (Davis and Sawai 2001: 125, ex. 5)

(51) ʔuuƛ̓aq̓uuḥitsiš [waʔič̓as ḥaa čakupʔi]
ʔu-ƛ̓aq̓uuḥ[+L]-mit-siiš [waʔič-'as ḥaa čakup-ʔii]
∅-observe-PST-1SG.IND sleep-on.ground DEIC man-DET
I observed that man sleeping on the ground.

The same generalization may be made of non-finite complements of negation (52a), as well as in contexts with auxiliaries (52b) and non-affixal modals (52c). Each of these environments allows the predicate to precede the subject, in the absence of an overt syntactic trigger (such as tense or finiteness).[15] In the negation context in (52a), the predicate *waʔič* "sleep" precedes the subject, *Ken*. The example in (52b) shows a relative clause which is formed when the relative pronoun *yaq* (REL) is suffixed by the auxiliary *ʔuu-kʷiɬ* (AUX): what follows this auxiliary is the verb *maakuk* "buy", crucially *preceding* the subject of the relative clause, *čakup-ʔi* "the man". In (52c), the verb *waɬ-šiƛ* "go home (PERF)" is sandwiched between the modal *ʕapaak* "willing" and the subject *Kay*.

(52) a. wikitʔiš ḥacuk waʔič Ken
wik-mit-ʔiiš ḥacuk waʔič Ken
NEG-PST-3.IND deeply sleep Ken
Ken wasn't in a deep sleep. *(negation)*

b. ƛ̓iiḥumɬʔiš šuwis [yaaqʷiɬitii maakuk čakupʔi]
ƛ̓iiḥ-umɬ-ʔiiš šuwis [yaq-čiɬ[+L]-mit-ii maakuk čakup-ʔii]
red-RD-3SG.IND shoes REL-AUX-PST-3SG.IRL buy man-DET
The shoes the man bought are red. *(auxiliary environment)*

c. ʕapaakʔiš waɬšiƛ Kay
ʕapaak-ʔiiš waɬ-šiƛ Kay
willing-3.IND go.home-PERF Kay
Kay is willing to go home. *(modal environment)*

What these environments share is a word order in which the verb precedes the subject. However, in the negation context in (52a), the predicate phrase is irrealis, and so the trigger for the pututive raising cannot therefore be finiteness. Similar arguments can be constructed for (52b, c): why would the presence of the pre-verbal auxiliaries not preclude the need for the verb itself to raise?

Complex nominal predicates also constitute a challenge to a head-raising analysis of predicate-initial word order.[16] Since head movement can apply to only a single head in the predicate phrase, this operation is predicted to "break up" a

[15] An alternative word order is also possible where the verb phrase follows the subject. The availability of this word order requires further research, as do other cases of word order variability in the language (see Rose 1981; Davidson 2002). What is crucial for the present argument against verb-raising is that the predicate-initial word should not be possible in this environment.

[16] Nuu-chah-nulth allows any of the lexical categories (A, V, N) to occur directly as predicates in clause-initial position; there is no copula in the language (Wojdak 2000, 2001).

complex predicate composed of a predicate and its modifier, by forcing the subject to intervene between the raised element and unraised residue left in the VP. In fact, contrary to expectations, the standard pattern is for the subject to *follow* a complex nominal in Nuu-chah-nulth (Davidson 2002: 128).[17] In such contexts, the "fronted" element resembles a maximal projection, not a head. In (53), the nominal predicate *ƛuɬ ɬuucma* "good woman" precedes the subject *Kay*.

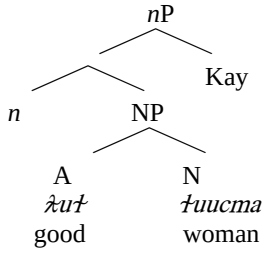
(53) *Complex nominal predicate (subject-peripheral)*

[ƛuɬʔiiš	ɬuucma]	Kay
[ƛuɬ-ʔiiš	ɬuucma]	Kay
good-3.IND	woman	Kay

Kay is a good woman.

In contrast, for an underived predicate-initial system, this subject-peripheral word order follows naturally, as the nominal occupies initial position in the clause, together with its modifer. This word order is represented in the following structure, adopted from Ravinski's (2005) analysis of nominal predicates.[18] In (54), the nominal head *n* introduces the subject (*Kay*) of the nominal predicate.

(54) *Complex nominal predicates in right-branching specifier system*



In conclusion, I suggest that a plausible solution to the problems posed by a head-raising account – lack of evidence for raising, lack of a syntactic trigger for raising, unpredicted word orders – is to assume that Nuu-chah-nulth clause structure is VOS, with rightward movement of the object deriving the VSO variant.

3.3.4 Evidence Against Raising of Verbal Phrase

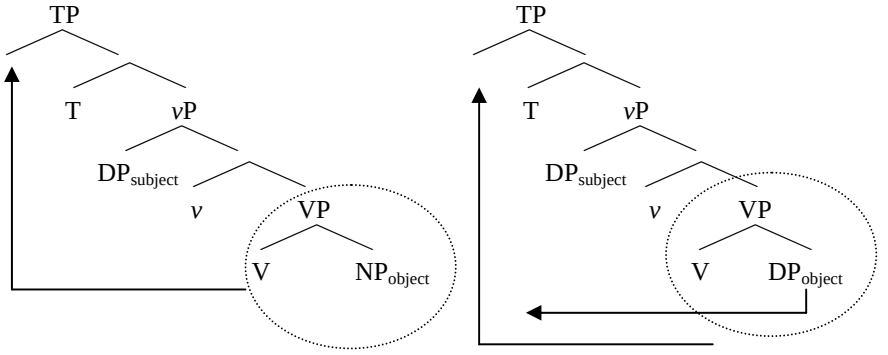
The issues noted above with respect to head-raising also create complications for a predicate-raising analysis of Nuu-chah-nulth. On the topic of word order variability,

[17] Davidson (2002: 128) notes that "the words in a multi-word nominal predicate. are usually strictly ordered: quantifier/number > property > noun." Subject-intervening patterns, though marked, are attested in my own fieldwork, however. Additional research is required into this pattern, as with other instances of word order variability in Nuu-chah-nulth.

[18] I assume that encliticization of the subject agreement marker *–ʔiiš* to the adjective is achieved through local spell-out (§3.4.1).

any analysis of Nuu-chah-nulth clausal structure will need to employ special machinery to account for the VOS/VSO alternations and other word order permutations in the language. A potential advantage of a VP-raising analysis over a head-raising approach, however, is that it has been demonstrated independently that it can successfully deal with VOS/VSO alternations (Massam 2000, 2001). In the predicate-initial system of Niuean, post-predicative word order is not strictly flexible, as it is tied to a definiteness effect on the object. In Massam's VP-fronting analysis of Niuean, VSO word order is obtained when a definite object vacates the VP before the remnant of the phrase raises. Indefinite objects which are "pseudo-incorporated" into the V remain as part of the VP complex, generating VOS order when the VP raises. The distinct derivations of VOS and VSO orders are represented below.

(55) a. *VP-raising* (= VOS) b. *VP-remnant raising* (= VSO)



The VP-remnant raising derivation is essentially a "two-step" process in which the object raises on its own first, before the rest of the VP undergoes movement.

It is apparent, however, that the analysis which Massam applies to Niuean cannot be directly translated to Nuu-chah-nulth. As Woo (2004) observes, this analysis makes the crucial prediction that existential clauses must have VOS order, since the indefinite object has no motivated escape route out of the VP. Under this view, the indefinite object of an existential clause should be "pseudo-incorporated" into the V, and should never raise outside of the VP. This runs counter to the observation that VSO word orders are the preferred pattern for locative existentials in Nuu-chah-nulth (Wojdak and Woo 2004). In (56a), the object *haʔum* "food" follows the subject *niisy̓ak-ʔi* "the pot"; in (56b), the indefinite object *ciixsac* "frying pan" comes after the subject *č̓am̓aqx̌y̓ak-ʔi* "the oven".[19]

(56) a.

ʔuc̓uuʔiš	niisy̓akʔi	haʔum
ʔu-c̓uu-ʔiiš	niisy̓ak-ʔii	haʔum
∅-in.container-3.IND	pot-DET	food

There's food in the pot. (VSO)

[19] The indefinite locatum argument (*haʔum* "food", *ciixsac* "frying pan") in these locative existentials can be clearly shown to be objects of the predicate (§4.4.1).

b.	ʔuuqʌ̓ʔiiš	č̓aṁaqʌ̓y̓akʔi	ciixsac
	ʔu-ʾaqʌ̓-ʔiiš	č̓aṁaqʌ̓y̓ak-ʔi	ciixsac
	∅-inside-3.IND	oven-DET	frying.pan

There's a frying pan in the oven. (VSO)

An indefinite object is incorrectly predicted to follow the verb for these existentials.[20]

In sum, given the challenges faced by derivational mechanisms for generating predicate-initial word order in Nuu-chah-nulth, I present a "basic" VOS configuration as a plausible alternative for this language. The factors which govern post-predicative word order variability in the language await clarification by future research.

In the next section, I examine the implications of post-predicative word order variability for the linearization of affixal predicates.

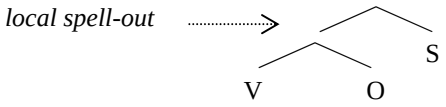
3.3.5 Implications for the Linearization of Affixal Predicates

According to the local spell-out hypothesis, an affixal predicate finds a host chosen from its derivational sister. In §3.3.5.1, I illustrate how this has the implication of creating a "complement" effect in incorporation, whereby only elements from the complement of an affixal predicate are eligible as hosts. I then argue that the local spell-out analysis is superior to alternative models of linearization which select a host for the affixal predicate via constraints on directionality. In §3.3.5.2, it is shown that direction-sensitive mechanisms for affixations have difficulty coping with the variable post-predicative word order of Nuu-chah-nulth.

3.3.5.1 The "Complement" Effect

According to the analysis I have proposed, affixal predicates are spelled-out in a minimal domain containing only the affix and its derivational sister. Under the assumption that objects, but not subjects, occur as complements to a predicate, the local spell-out hypothesis predicts that only objects of an affixal predicate are eligible as hosts. This is illustrated in (57), in which an object acts as the derivational sister to the verb, while the subject is introduced in a higher projection. The verb is spelled-out with the object, its complement.

(57) *The "complement" effect in Nuu-chah-nulth affixation*



[20] A topic for future research is the surface position of the definite subjects in (56). As proposed in §3.3.1, determiner-marked *objects* are moved rightward in Nuu-chah-nulth. It is not known whether determiner-marked *subjects* ever show a similar preference in Nuu-chah-nulth.

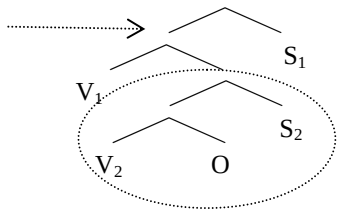
For verbs which take nominal complements, there is robust evidence for an affixation asymmetry between the subjects and objects of affixal predicates (Woo 2000; Davis and Sawai 2001; Stonham 2004, among others). (This is argued in detail in Chapter 4.) This effect is illustrated in (58) for the affixal predicate *ʔu-ʔaap* "buy". The object of this verb, *maḥtʼa-* "house" may serve as host for the affix, but the subject *čapx̣-* "man" cannot.

(58) a. maḥtʼaʔamitʔiš čakup
maḥtʼa-**'aap**-mit-ʔiiš čakup
house-**buy**-PST-3.IND man
A man bought a house.

b. * čapx̣ʔaamitʔiš maḥtʼii
čapx̣-**'aap**-mit-ʔiiš maḥtʼii
man-**buy**-PST-3.IND house
A man bought a house.

This complement effect is also observed with affixal predicates which take verbal complements, such as *ʔuu-ƛaqʼuuḥ* "observe". The syntactic structure for an affixal predicate which takes a verbal (sentential) complement may be represented abstractly as in (59). (A detailed analysis of the structure of such predicates is presented in Chapter 5.)

(59) *local spell-out*



The affixal predicate occupies matrix position as V_1, and takes the sentential complement (VOS) as its complement (circled). According to the local spell-out hypothesis, V_1 is linearized with respect to this complement, since it is its derivational sister. The subject of V_1 (i.e., S_1) falls outside of this local spell-out domain, predicting an asymmetry between S_1 and the complement. Evidence for such an asymmetry is given in (60). In (60a), the embedded verb *tuuxtuuxʷa* "jump (ITER)" hosts the affixal predicate *ʔuu-ƛaqʼuuḥ* "observe". As shown in (60b), the subject of the affixal predicate, *čapx̣-* "man", is ineligible as host.

(60) a. tuuxtuuxʷaƛaqʼuuḥitʔiš čakup tʼaatƛaʔis
tuxʷ-a[+R]-**ƛaqʼuuḥ**-mit-ʔiiš čakup tʼaatƛaʔis
jump-ITER-**observe**-PST-3.IND man children
A man observed the children jumping.

b. * čapx̣ƛaqʼuuḥitʔiš tuuxtuuxʷa tʼaatƛaʔis
čapx̣-**ƛaqʼuuḥ**-mit-ʔiiš tuxʷ-a[+R] tʼaatƛaʔis
man-**observe**-PST-3.IND jump-ITER children
A man observed the children jumping.

This asymmetry follows if *čapx̣-* "man" is not a derivational sister of the affix. By the "complement" effect in affixation, only derivational sisters of affixal predicates are able to act as hosts.

The following section presents an argument against an alternative analysis of the observed affixation asymmetry.

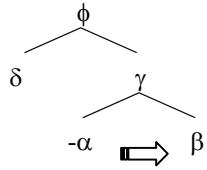
3.3.5.2 Evidence Against Directionality of Affixation

This section argues that sensitivity to derivational sisterhood is not reducible to an independent effect of directionality. Let us label this alternative analysis the *RIGHT-directionality* hypothesis. This hypothesis is defined by statement (61):

(61) *RIGHT-directionality* hypothesis:
An affixal predicate attaches to whatever host is found to its right

Given a syntactic structure as in (62), this rule would determine that an affix -α choses β as its host because β is right-adjacent to -α. The element δ, in contrast, would be ineligible as a host for -α because it occurs to the left of -α.

(62)



R-adjacent

Under such an analysis, it is irrelevant that β is the derivational sister of –α. All that matters according to the RIGHT-directionality hypothesis is that β follows –α.

Evidence against the RIGHT-directionality hypothesis comes from two independent properties: first, the post-predicative word order possibilities of Nuu-chah-nulth; second, the systematic absence of unergative affixal predicates in the language. We will consider each of these characteristics in turn, beginning with word order variability. As noted in the earlier discussion, in Nuu-chah-nulth, there is often variation in the word order of an object with respect to an overt subject. This variability is illustrated in (63) for the affixal predicate *ʔu-ʔaap* "buy". In (63a), the object *maḥt̓ii* "house" precedes the subject *čakup* "man". In (63b), the ordering of the arguments is reversed.

(63) a.

ʔuʔaamitʔiš	maḥt̓ii	čakup
ʔu-**ʾaap**-mit-ʔiiš	maḥt̓ii	čakup
∅-**buy**-PST-3.IND	house	man

A man bought a house.

b.	ʔuʔaamitʔiš	čakup	maḥt̓ii
	ʔu-**'aap**-mit-ʔiiš	čakup	maḥt̓ii
	∅-**buy**-PST-3.IND	man	house
	A man bought a house.		

Thus, either an object or a subject may follow the affixal predicate. Despite this flexibility in word order of subject and object, the affixation mechanism is invariant: an affixal predicate may only attach to *maḥt̓a-* "house" and not to *čapx̣-* "man".

(64) a.

maḥt̓aʔamitʔiš	čakup	
maḥt̓a-**'aap**-mit-ʔiiš	čakup	
house-**buy**-PST-3.IND	man	
A man bought a house.		

b. *

čapx̣ʔaamitʔiš	maḥt̓ii	
čapx̣-**'aap**-mit-ʔiiš	maḥt̓ii	
man-**buy**-PST-3.IND	house	
A man bought a house.		

This finding is at odds with the predictions of the RIGHT-directionality hypothesis. According to this hypothesis, if an element can occur right-adjacent to the affix, it should be eligible as a host. Thus, a subject which precedes an object, such as *čakup* "man" in (62b), is incorrectly predicted to act as a host.

Unlike with the RIGHT-directionality hypothesis, for the local spell-out hypothesis, the host for an affixal predicate is determined by derivational sisterhood. Local spell-out matches an affixal predicate and a host at an initial stage of the derivation: the point at which an affixal predicate is merged into the derivation. According to this analysis, the surface position of the arguments of the affixal predicate is irrelevant: affixation is determined before the relative ordering of the arguments is manipulated. Thus, the local spell-out hypothesis elegantly captures the generalization that the affixation pattern is invariant, despite variability in post-predicative word order.

A further argument against the RIGHT-directionality hypothesis comes from the make-up of the inventory of affixal predicates. Evidence will be shown in Chapter 4 that affixal predicates with the semantics of unergatives are systematically absent in Nuu-chah-nulth (see §4.2.3). Intransitive verbs with meanings such as *cry*, *run*, or *dance* occur only as independent predicates in the language, as in the example below with the non-affixal verb *ḥuuɬ-* "dance".

(65)

huuɬhuuɬamitk	ʔatḥiimitʔi
huuɬ-a[+R]-mit-k	ʔatḥii-mit-ʔii
dance-ITER-PST-2SG.Q	night-PST-DET
Did you dance last night?	

In Chapter 4, I relate the absence of unergative affixal predicates to the requirement that a viable affix in Nuu-chah-nulth must find its host from within its derivational

sister. Unergatives, which inherently lack a suitable pairing of host and affix at the local spell-out of the predicate, fail as bound morphemes under the local spell-out analysis. By contrast, the RIGHT-directionality hypothesis predicts no similar restriction: choice of host is not sensitive to derivational sisterhood, and is therefore predicted to be insensitive to argument structure. Since unergatives may be followed by words (such as the temporal modifier in (65)), there is no explanation under the RIGHT-directionality hypothesis why an affixal predicate could not select a non-sister, right-adjacent element as a host.

In the next section, I demonstrate how the local spell-out hypothesis can be extended from affixal predicates to other affixes found in Nuu-chah-nulth. By the analysis, both clause-level and nominal-level inflectional clitics are linearized by local spell-out.

3.4 Cliticization Domains

There are two distinct cliticization domains in Nuu-chah-nulth. Clitic strings may be built up within a DP, or at a clausal level which excludes the DP(s). The bracketing in (66) illustrates these two zones of cliticization.

(66)

hiixtaqči[***mitsiš***]$_{\text{CP domain}}$	huupuk̓^{w}as[***uk-ʔitk***]$_{\text{DP domain}}$
hiixtaq-čip-***mit-siiš***	huupuk̓^{w}as-***uk-ʔiitk***
have.accident-BEN-PST-1SG.IND	car-POSS-2SG.PS
I had an accident with your car.	

In §3.4.1 and §3.4.2, I consider each of these cliticization domains in turn.

3.4.1 DP Domain

Within a Nuu-chah-nulth DP, functional morphemes appear in a strictly ordered clitic string suffixed to a root (Davidson 2002; Werle 2002; Ravinski 2005).

(67) *Organization of the DP clitic sequence in Nuu-chah-nulth*

= POSS=TENSE=AGR/DET

This clitic string includes the following enclitics: possessive markers, tense, possessive agreement, and the determiner *–ʔii*.[21] These morphemes appear in the following examples, suffixed to a nominal (in brackets).

(68) a.

ṅaatsiičiƛitsiš	[maḥt̓iimitʔi]
ṅaatsii-šiƛ-mit-siiš	[maḥt̓ii-mit-ʔii]
see-PERF-PST-1SG.IND	house-PST-DET
I saw the former house.	(Ravinski 2005: 16, ex.29)

[21] Nuu-chah-nulth permits tense markings in the nominal domain, as well as in the clausal domain. This phenomenon is not uncommon in the Pacific Northwest *Sprachbund* (see Burton 1996 for discussion of the Salish language Halkomelem).

b. ƛ̓iiḥumɬitʔiš [huupuuk̓ʷasukʷitqs]
ƛ̓iiḥ-umɬ-mit-ʔiiš [huupuuk̓ʷas-uk-mit-qs]
red-RD-PST-3.IND car-POSS-PST-1SG.PS
My former car was red.

These inflectional morphemes encliticize to the leftmost root with a DP, illustrated below with the "second position" placement of the enclitic determiner *–ʔii*. In (69a), the determiner suffixes to *ḥaakʷaaƛ* "girl", while in (69b) it appears instead on the modifier *qʷaċaɬ(aq)* "(very) beautiful". In (70a), the determiner suffixes to *pišmis* "problem(s)", and in (70b) it attaches to *ʔaya* "many".

(69) a. ʔuʔukʷinkitsiš [ḥaakʷaaƛʔi]
ʔu-kʷink[+R]-mit-siiš [ḥaakʷaaƛ-ʔii]
∅-talk.with-PST-1SG.IND girl-DET
I talked with the girl.

b. ʔuʔukʷinkitsiš [qʷaċaɬaqʔi ḥaakʷaaƛ]
ʔu-kʷink[+R]-mit-siiš [qʷaċaɬ-aq[+S]-ʔii ḥaakʷaaƛ]
∅-talk.with-PST-1SG.IND beautiful-AUG-DET girl
I talked with the beautiful girl.

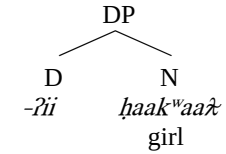
(70) a. ʔuucwaʔiš Kay qʷačiiɬ [pišmisʔi]
ʔu-ic-waʔiš Kay qʷa-čiiɬ [piš-mis-ʔii]
∅-own-3.QUOT Kay like-make bad-NOM-DET
Kay's the instigator of the problems.

b. ʔuucwaʔiš Kay qʷačiiɬ [ʔayaʔi pišmis]
ʔu-ic-waʔiš Kay qʷa-čiiɬ [ʔaya-ʔii piš-mis]
∅-own-3.QUOT Kay like-make many-DET bad-NOM
Kay's the instigator of the many problems.

As can be seen in these examples, when the DP contains only a nominal, the determiner encliticizes to this word; however, when a modifier or quantifier takes on leftmost position in the DP, the placement consistently shifts to this leftmost element (Davidson 2002).

This "affix hopping" behaviour is ably handled by the local spell-out analysis. Let us take the positioning of the determiner in the examples in (69) as illustration of the spell-out properties of DP-level clitics. When the determiner is syntactically merged with a noun, such as *ḥaakʷaaƛ* "girl" in (69a), local spell-out determines that the determiner and the noun must be linearized with respect to each other at spell-out to PF.

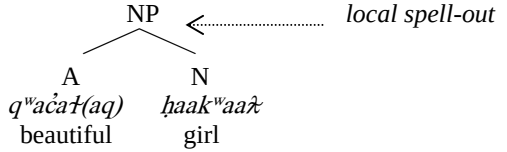
(71)



Because the determiner is a suffix, a linearization of <*ḥaakʷaaƛ-ʔi*> is induced.

The placement of the determiner suffixed to the modifier in (69b) proceeds much the same way, although there is additional round of spell-out when the noun is first merged with the modifier *qʷaċaɬ(aq)* "(very) beautiful". Before the determiner may be merged with the noun phrase, the following syntactic operation takes place: Merge (*qʷaċaɬaq, ḥaakʷaaƛ*). This builds a modified noun. (The category label of the noun is projected, as argued in Chapter 2.)

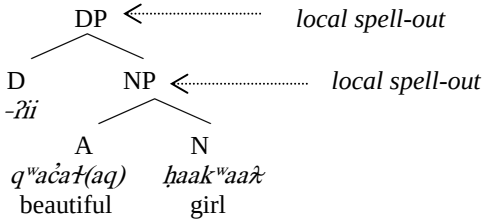
(72)



As derivational sisters, the adjective and noun are linearized with respect to each other at spell-out. A directionality convention establishes the modifier-initial pattern of Nuu-chah-nulth, setting the stage for a spell-out ordering of <*qʷaċaɬ(aq), ḥaakʷaaƛ*>.

In the next step of the syntactic derivation for (69b), the determiner is introduced by Merge. The determiner thus takes the NP as its derivational sister.

(73)



At spell-out, the determiner will need to be linearized with respect to its derivational sister. In particular, because the determiner is an affix, it must find a host from within its derivational sister. The earlier round of local spell-out established an ordering of <*qʷaċaɬ(aq), ḥaakʷaaƛ*>. By the string adjacency effect, the host for the determiner *-ʔii* is selected as the leftmost element of the NP: *qʷaċaɬ(aq)* "(very) beautiful". Thus, an ordering of <*qʷaċaɬ(aq)-ʔi, ḥaakʷaaƛ*> results at spell-out.

The "affix-hopping" behaviour of the enclitic determiner can therefore be seen to be an interaction between the string adjacency effect and the syntactic composition of the derivational sister of the determiner. If the derivational sister is simplex, as in (69a), then the locality restriction on affixation is trivial: the determiner must be spelled-out with the single element in its derivational sister. If the derivational sister of the determiner is complex, as in (69b), then the locality restriction determines that the single leftmost element in the derivational sister is selected as a host. Note that the determiner has not actually "hopped": in both types of cases, the determiner consistently selects as a host the leftmost element in the string which is linearly adjacent to it at spell-out.

3.4.2 CP Domain

Functional morphemes outside of the DP are also subject to encliticization (see Klokeid 1978 for discussion of the Southern Wakashan language Ditidaht). Davidson (2002) identifies a range of inflectional morphemes which occur in a strictly ordered clitic sequence (simplified from Davidson 2002: 321).

(74) *Organization of the CP clitic sequence in Nuu-chah-nulth*

=TR=TEMP=PAS=POSS=TENSE=AGR/MOOD=PL=AGAIN=HAB

Parallel to cases of DP-level cliticization, the members of this sequence occur standardly in "second position" relative to a host morpheme at the left edge of the clause. This "second position" effect is exemplified in (75) with the positioning of the past tense morpheme *–mit* (PST) and the third person indicative subject agreement *-ʔiiš* (3.IND). In (75a), these morphemes suffix to the verb *kamatq-uk* "run (DUR)". In (75b), however, their position "shifts" to the preverbal modifier *ƛ̓aʔix* "fast".

(75) a.

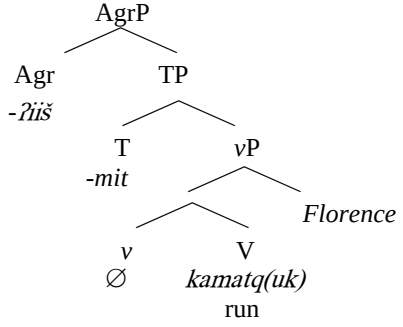
kamatquk^{w}itʔiš	Florence	
kamatq-uk-mit-ʔiiš	Florence	
run-DUR-PST-3.IND	Florence	
Florence was running.		

b.

ƛ̓aʔixitʔiš	kamatquk	Florence
ƛ̓aʔix-mit-ʔiiš	kamatq-uk	Florence
fast-PST-3.IND	run-DUR	Florence
Florence was running fast.		

This suffixation pattern follows from the local spell-out hypothesis. We can consider the simpler case in (75a) first. Successive applications of Merge build the tree shown in (76), in which the tense and subject agreement morphemes occupy functional projections (Tense Phrase and Agreement Phrase) above the lexical projections of the verb *kamatq(uk)* "run". Note that the subject, *Florence*, is represented as a right-linearized specifier.

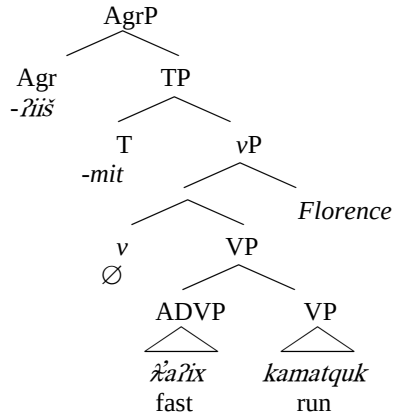
(76)



Each application of Merge is subject to local spell-out for the derivational sisters conjoined by Merge. Early rounds of local spell-out determine that the subject *Florence* is linearized to the right because of a right-branching specifier convention. When the past tense morpheme is added to the tree by Merge (T, *v*P), this has the result that *–mit* (PST) must be linearized with respect to its derivational sister <*kamatq(uk), Florence*> at spell-out. Because *–mit* (PST) is an affix, it must find a host from within its derivational sister. The string adjacency effect determines that *kamatq(uk)* is selected as this morpheme's host, inducing a linearization of <*kamatq(uk)-mit, Florence*>. The next morpheme to be linearized in accordance with the string adjacency effect is the subject agreement morpheme *–ʔiiš* (3.IND). As a suffix, it is tagged on at spell-out to the end of the leftmost element in its derivational sister. This yields the ordering <*kamatq(uk)mit-ʔiiš, Florence*>.

The tree in (77) is a representation of the derivation when the verbal predicate is modified by an adverbial, as in (75b). Here, the adverbial *ƛ̓aʔix* "fast" combines with *kamatq(uk)* "run" to form a complex verbal predicate.

(77)



Once again, successive applications of Merge determine that spell-out relationships are formed incrementally between derivational sisters. Starting with the lower portions of the tree, a directionality convention requires that the modifier *ƛ̓aʔix* "fast" linearly precede *kamatq(uk)* "run" at spell-out. Similarly, the right-branching specifier convention entails that the subject *Florence* will be spelled-out the right of the rest of the *v*P. When it comes time for the past tense morpheme *–mit* (PST) to find a host at spell-out, the item selected as its host is the leftmost element in its derivational sister. Because the modifier linearly precedes the verb, it is the modifier which is determined to be the host for *–mit* (PST). This yields a linearization of <*ƛ̓aʔix-mit, kamatq(uk) Florence*>. A final act of linearization suffixes the subject agreement morpheme *–ʔiiš* (3.IND) to the tail end of the initial complex, resulting in an ordering of <*ƛ̓aʔixmit-ʔiiš, kamatq(uk) Florence*>.

3.5 Conclusion

This chapter has touched upon areas of Nuu-chah-nulth grammar which bear on the present analysis of affixal predicates. I have presented evidence for the configurationality of Nuu-chah-nulth syntax, and have represented this clausal structure within a right-linearized specifier system. By this analysis, Nuu-chah-nulth predicate-initial word order originates with a "basic" VOS system. I have identified two domains of cliticization in the language, linked to DP-level and clause-level inflection. Inflectional clitics in the language find their positions via the same spell-out principles responsible for the linearization of affixal predicates.

The empirical coverage for the remainder of this book corresponds to the "polysynthetic" realm canonically situated at the left edge of a Nuu-chah-nulth clause. It is in this morphologically complex sequence that affixal predicates may commonly be found united with their hosts.

(78) a. ʕičp̓aɬʔinɬʔanitniš k̓ʷaqmis Mary
ʕič-**p̓aɬ**-**ʾinɬ**-ʾat-mit-niiš k̓ʷaq-mis Mary
rotten-**taste**-**serve**-PAS-PST-1PL.IND s.h.eggs-NOM Mary
We were served rotten-tasting spawned herring eggs by Mary.

b. huuḥtakšiiḥmaḥsaʔiš Lucy quuquuʔaca
huḥtak-šiƛ-**ʾiiḥ**[+L]-**maḥsa**-ʔiiš Lucy quuʔac-[+R]-(y)a
know-PERF-**try.to**-**want.to**-3.IND Lucy person-speak-CONT
Lucy wants to learn how to speak Nuu-chah-nulth.

In the following chapters, I will present additional evidence for the syntactic structures underlying these morphologically complex sequences. In Chapter 4, the argument structure of affixal predicates which take nominal complements will be discussed. In Chapter 5, the argument structure of affixal predicates which take verbal complements will be discussed. Residual to my analysis are the factor(s) governing the word order variations found outside of the clause-initial polysynthetic complex.

4. Nominal Complements of Affixal Predicates

...where every word is at home,
taking its place to support the others...
~T.S. Eliot *Four Quartets no. 4*

4.0 Introduction

The predicates in Nuu-chah-nulth which permit incorporation are a lexically specified set of affixal predicates. As discussed in earlier chapters, "incorporating" predicates in Nuu-chah-nulth are invariably bound. In this, Nuu-chah-nulth differs from incorporation languages such as Mohawk which do not have a lexically defined subclass of incorporating predicates. In Mohawk, a single predicate can show an alternation between an incorporating and a non-incorporating option (Baker 1988). In (1a), the inflected predicate *ye-nuhwe'-s* "like" incorporates its object *–nuhs* "house", while in (1b) it does not.

(1) *Mohawk* (examples from Postal 1962, as cited in Baker 1988: 81–82, ex. 14a, b)

a. Yao-wir-a'a ye-nuhs-nuhwe'-s
PRE-baby-SUF 3FS/3N-house-like-ASP
The baby house-likes.

b. Yao-wir-a'a ye-nuhwe'-s ne ka-nuhs-a'
PRE-baby-SUF 3FS/3N-like-ASP DET PRE-house-SUF
The baby likes the house.

For predicates in Nuu-chah-nulth, however, such an alternation is banned outright. Independent (non-affixal) predicates such as *maakuk* "buy" never permit incorporation. The example in (2a) illustrates the impossibility of incorporating the nominal *maḥt̓a-* "house" into the independent predicate *maakuk* "buy". The nominal must always occur separately from the independent predicate, as in (2b).

(2) a. * maḥt̓amaakukʷitʔiš čakup
maḥt̓a-maakuk-mit-ʔiiš čakup
house-buy-PST-3.IND man
A man bought a house.

b. maakukʷitʔiš čakup maḥt̓ii
maakuk-mit-ʔiiš čakup maḥt̓ii
buy-PST-3.IND man house
A man bought a house.

Incorporation is an option exclusively reserved for affixal predicates in Nuu-chah-nulth, such as *ʔu-ʔaap* "buy". In (3a), *ʔu-ʔaap* "buy" incorporates a nominal host, *maḥtʼa-* "house". As shown in (3b), it is impossible for an affixal predicate such as *ʔu-ʔaap* "buy" to occur without a host.

(3) a.
maḥtʼaʔamitʔiš čakup
maḥtʼa-**'aap**-mit-ʔiiš čakup
house-**buy**-PST-3.IND man
A man bought a house.

b. *
ʔaamitʔiš čakup maḥtʼii
'aap-mit-ʔiiš čakup maḥtʼii
buy-PST-3.IND man house
A man bought a house.

I argued in Chapter 1 that affixal and independent predicates in Nuu-chah-nulth are distinguished via specification of an [affix] requirement in the lexical entry of an affixal predicate. That is, affixal predicates constitute a lexically designated subclass of predicates.

We turn now to the *syntactic* characteristics of affixal predicates. What is the syntactic make-up of this lexically defined subclass? In this chapter, the syntactic structure of affixal predicates which take nominal complements is investigated. (Affixal predicates which take verbal complements, such as *–qaatḥ* "claim", are discussed in Chapter 5.)

(4) *Classes of predicates in Nuu-chah-nulth*

A. Affixal predicates
(i) Nominal complements
(ii) Verbal complements
B. Independent predicates
(i) Nominal complements
(ii) Verbal complements

The aim of this chapter is to develop an inventory of the argument structures which are available to affixal predicates which take nominal complements. Following Hale and Keyser (1993, 2002), I pursue a syntactic approach to argument structure in which positions for arguments are projected syntactically in accordance with the lexical properties of the head. Argument structure is what limits the number of arguments which exist for a given predicate. For example, a ditransitive verb such as *ʔu-yii* "give" has a lexically licensed position for a benefactive argument, although a transitive predicate such as *ʔu-ʔaap* "buy" does not.

(5) taanaqayimitʔiš čakup ʔumʔiiqsak
taanaq-**ayii**-mit-ʔiiš čakup ʔumʔiiqsu-ʔak
money-**give**-PST-3.IND man mother-POSS
A man gave money to his mother.

(6) a. * maḥṭaʔamitʔiš čakup ʔumʔiiqsak
maḥṭa-**'aap**-mit-ʔiiš čakup ʔumʔiiqsu-ʔak
house-**buy**-PST-3.IND man mother-POSS
A man bought a house for his mother.

b. maḥṭaʔapčipʔiš čakup ʔumʔiiqsak
maḥṭa-**'aap**-čip-ʔiiš čakup ʔumʔiiqsu-ʔak
house-**buy**-BEN-3.IND man mother-POSS
A man bought a house for his mother.

In (5), *ʔumʔiiqsak* "his mother" acts as the recipient of the predicate *ʔu-yii* "give". The example in (6a) shows that such an argument is not directly licensed by the predicate *ʔu-ʔaap* "buy". Instead, in order for a benefactive argument to appear with *ʔu-ʔaap*, the predicate must be supplemented by the addition of the benefactive suffix *-čip* (BEN), as in (6b).

This chapter will demonstrate that the syntactic configuration of arguments of an affixal predicate plays a deterministic role in the pattern of incorporation in Nuu-chah-nulth. Specifically, the syntax conditions local spell-out operations by determining which elements will act as the derivational sister to the affixal predicate. As first discussed in Chapter 3, a host for an affixal predicate is chosen from the complement of an affixal predicate. In contrast, an element from the affixal predicate's specifier will be ineligible as a host because it is not a derivational sister of the affixal predicate. The syntactic limitations which are imposed on Nuu-chah-nulth incorporation follow directly from the PF incorporation hypothesis in which incorporation occurs post-syntactically. According to the hypothesis, the linearization operation responsible for resolving the affixation requirement of an affixal predicate applies to the outputs of syntactic structure-building, at the point of spell-out to PF. Only an element which is generated in the syntax in a position where it may be spelled-out with the affixal predicate is compatible with incorporation. Complements occupy a privileged position in that their syntactic sisterhood to the affixal predicate guarantees that the affixal predicate will be oriented with respect to this phrase by local spell-out.

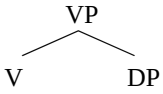
4.1 Predication Configurations

Before turning to my diagnostics for Nuu-chah-nulth argument structure, I present an overview of the predication configurations which will be discussed over the course of this chapter.

4.1.1 Basic Structures

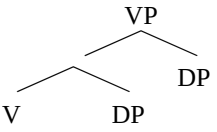
Argument structures of predicates are built by syntactic concatenation. The simplest possible argument structure for a predicate results from a single application of Merge. This one-place relation maps an argument to the complement position of the predicate. This is an *unaccusative* relation.

(7) *Unaccusative syntax*



A second application of Merge introduces another DP. This second argument is realized as a specifier of the predicate. This two-place relation may be referred to as an *extended unaccusative*.

(8) *Extended unaccusative syntax*



A central proposal of this chapter is that the argument structures available to affixal predicates reduce to these two basic configurations of arguments. Both basic types map an internal argument to complement position, although the types differ lexically in the possibility of projecting a specifier (Hale and Keyser 2002). An unaccusative predicate is a monadic relation which maps its single internal argument to its complement position. An extended unaccusative, in contrast, is an inherently dyadic relation which allows two internal arguments to occupy complement and specifier positions, respectively.

The affixal predicate *ʔu-n̓ii* "arrive" is an example of a Nuu-chah-nulth unaccusative predicate. In the following example, this monadic predicate takes a single argument, *paastinʔath* "American(s)".

(9)	ʔun̓iiʔiš	paastinʔatḥ	*unaccusative*
	ʔu-**n̓ii**-ʔiiš	paastinʔatḥ	
	∅-**arrive**-3.IND	American	
	Americans came.		

In contrast, a locative predicate such as *ʔu-kʷi* "in" is inherently "birelational" in the sense of Hale and Keyser (2002). The function mapped by the locative predicate is necessarily saturated by two arguments, a *locatum* (the element which is located) and a *location*. In the example below, *č̓aʔak* "water" corresponds to the locatum of *ʔu-kʷi* "in", while *č̓axʷac* "bucket" specifies the location of the water.

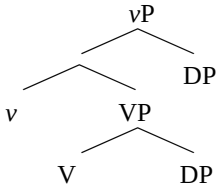
(10)	ʔukʷiʔiš	č̓aʔak	č̓axʷac	*extended unaccusative*
	ʔu-**či**-ʔiiš	č̓aʔak	č̓axʷac	
	∅-**in**-3.IND	water	bucket	
	The water is in the bucket.			

In the following sections, I discuss two factors which allow a six-way classification of predicates to be derived from these two basic unaccusative and extended unaccusative configurations. In §4.1.2, the topic of transitivization is introduced. This is followed in §4.1.3 by the proposal that inherently birelational predicates show flexibility in their theta-role mapping.

4.1.2 Transitivization

Transitive and ditransitive syntax is available to Nuu-chah-nulth affixal predicates; following Hale and Keyser (2002), I assume that these are derived structures. Embedded in the transitive and ditransitive configurations are the underlying syntax of unaccusatives and extended unaccusatives, respectively. A transitive predicate is created when a "light" verbal head, denoted as *v*, is merged with the basic unaccusative relation (Hale and Keyser 1993, 2002; Chomsky 1995). The verbal head *v* introduces an additional ("external") argument, yielding a derived dyadic verb.

(11) *Transitive syntax*



Transitivization is associated with an agentive or causative interpretation which is not present with the basic predication configuration of an unaccusative (Hale and Keyser 1993, 2002; Kratzer 1994).

By this analysis, transitive predicates such as *ʔu-ƛ̓aaḥ* "look for" achieve their dyadicity in a manner distinct from locatives such as *ʔu-kʷi* "in". In the example in (12), the transitive affixal predicate *ʔu-ƛ̓aaḥ* "look for" takes a first person argument as the subject, and a second argument, *čʼupčʼupšumɬukqs* "my sweater" as an object.

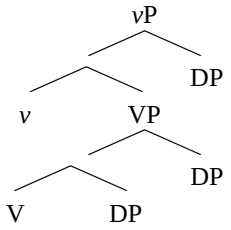
(12) ʔuƛ̓aaḥsiš čʼupčʼupšumɬukqs *transitive*
ʔu-**ƛ̓aaḥ**-siiš čʼupčʼupšumɬ-uk-qs
∅-**look.for**-1SG.IND sweater-POSS-1SG.PS
I'm looking for my sweater.

Unlike locative predicates, which are inherent two-place relations, transitives are composite predicates which are formed by implanting an unaccusative predicate configuration within the additional syntactic structure projected by the "light" verbal head *v*. By this view, only *čʼupčʼupšumɬukqs* "my sweater" in (12) is an internal

argument. The first person subject is an external argument, made available by transitivization.

A parallel transitivization process is hypothesized to occur with ditransitive predicates. While transitives build on basic unaccusative syntax, ditransitives are formed from a basic extended unaccusative relation. As indicated in the diagram in (13), the ditransitive is formed when the verbal head *v* is merged with an extended unaccusative. This, in turn, is merged with a DP projected as the specifier of the *v* projection.

(13) *Ditransitive syntax*



By this view, a ditransitive is conceptualized as a locative predicate which has an external argument added to the basic extended unaccusative relation (Freeze 1992; Hale and Keyser 2002). An example of a Nuu-chah-nulth ditransitive affixal predicate is *ʔu-yii* "give". In (14), *ʔu-yii* "give" takes three arguments: the second person subject, the recipient *ʔumʔi* "mother", and the theme *taana* "money".

(14)

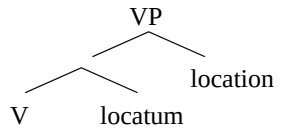
	ʔuyiiʔi	ʔumʔi	taana
	ʔu-**ayii**-'ii	ʔumʔi	taana
	∅-**give**-2SG.IMP>3OBJ	mother	money
	Give mom money!		

4.1.3 Flexibility in Theta-role Mapping

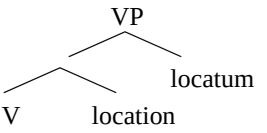
Transitivization represents one means by which the basic predication configurations are used to build a wider array of argument structures. Another source of diversity is flexibility in the mapping between theta-roles and underlying structure. In particular, I follow Hale and Keyser (2002) in hypothesizing that when a locative lexical item projects two internal arguments, the arguments of the extended unaccusative may be realized in one of two possible orientations. Following Hale and Keyser (2002), these two types may be termed "locatum" and "location" predicates. (The topic of locative predicates is discussed in detail in §4.4.) For the class of locatum predicates, a locatum argument (the located element) is merged with the predicate as the basic step of the derivation; this is followed by another application of Merge in which the location argument is added to the structure. For location predicates, the basic step is uniting the location argument with the predicate by Merge; this precedes a secondary step in which the locatum is introduced.

(15) *Flexibility of theta-role mapping*

(a) "locatum" predicate



(b) "location" predicate



The mechanisms of syntactic concatenation thus allow inherently dyadic predicates to show variability in their theta-role assignment to complement and specifier positions. By this means, extended unaccusative predicates come in two distinct "flavours", with inverse configurations of the internal arguments. In one, the locatum acts as the complement, and the location acts as the specifier; in the other, the order of Merge operations are reversed, and the relative positions are consequently the opposite.

The availability of inverse argument structures necessitates abandonment of a strict one-to-one mapping between syntactic structure and theta-role assignment (Baker 1988; Hale and Keyser 1993). According to Baker's Uniformity of theta assignment hypothesis, theta-roles have a unique structural realization.

(16) *Uniformity of theta assignment hypothesis* (Baker 1988: 46)

> Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

A variety of evidence in Nuu-chah-nulth points to the need for a more flexible mapping mechanism (see §4.4, §4.5). For example, subject agreement in locative predicates shows two distinct patterns: for one class of predicates (locatum predicates), subject agreement is linked to the location argument, as in (17a); for the other class (location predicates), subject agreement is determined by the locatum, as in (17b):

(17) a.

ʔukuxssiš	ƛ̓iʔičumɬ	
ʔu-**uxs**-siiš	ƛ̓iʔičumɬ	
∅-**on.head**-1SG.IND	straw.hat	
I'm wearing a straw hat.		
(*lit*: "I'm heading a straw hat")		(*locatum predicate*)

b.

ʔukʷisiš	c̓ucsac	
ʔu-**či**-siiš	c̓ucsac	
∅-**in**-1SG.IND	tub	
I'm in the tub.		(*location predicate*)

This pattern of subject agreement corresponds to a split between those locatives (locatum predicates) which suffix to a locatum argument, and those locatives (location predicates) which suffix to the location argument.

(18) a. haʔumc̓uʔiš qaʔuucʔi
haʔum-**c̓uu**-ʔiiš qaʔuuc-ʔii
food-**contain**-3.IND burden.basket-DET
There's food in the burden basket.
(*lit*: "The burden basket contains food") (*locatum predicate*)

b. qaʔuucčiʔiš ẏaṁa
qaʔuuc-**či**-ʔiiš ẏaṁa
burden.basket-**in**-3.IND salal.berries
The salal berries are in a burden basket. (*location predicate*)

I will argue in §4.4 that this contrast in incorporation behaviour follows naturally if locatum predicates such as *ʔu-c̓uu* "contain" map a locatum argument to complement position, while location predicates such as *ʔu-kʷi* "in" map a location to their complement. Such an analysis is incompatible with the rigid mapping mechanism of Baker's Uniformity of theta assignment hypothesis.

4.1.4 Predicate Inventory

In sum, there exists a six-way classification of affixal predicates which take nominal complements, which are built from the two basic predication configurations. Unaccusative and transitive predicate classes are composed from the basic unaccusative relation, while locatum, location, locatum-type ditransitive, and location-type ditransitive arise from the basic extended accusative relation.

(19) *Classification of affixal predicates which take nominal complements*

Basic configuration	*Transitivization*	*Orientation of arguments*	*Predicate type*
Unaccusative	Underived	n/a	Unaccusative e.g., *ʔu-n̓ii* "arrive"
	Transitivized		Transitive e.g., *ʔu-n̓aaḥ* "look for"
Extended unaccusative	Underived	Locatum-type	Locatum predicate e.g., *ʔu-c̓uu* "contain"
		Location-type	Location predicate e.g., *ʔu-kʷi* "in"
	Transitivized	Locatum-type	Locatum-type ditransitive e.g., *ʔu-yii* "give"
		Location-type	Location-type ditransitive e.g., *ʔu-ʔiip* "give to"

4.1.5 Unergatives are Necessarily Non-affixal

Absent from this inventory of affixal predicates are unergative predicates (Perlmutter 1978; Burzio 1981). That is, the Nuu-chah-nulth equivalents of intransitive verbs such as *cry*, *run*, or *dance* occur only as independent predicates in the language. As may be observed in the examples below, *ʕiiḥ-šiƛ* "cry-PERF", *kamatq-šiƛ* "run-PERF", and *huuɬ-* "dance" are not suffixed to any element.

(20) *Unergative predicates: exclusively non-affixal*

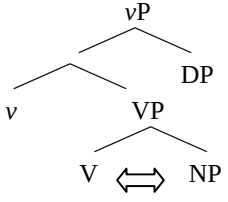
a. ʕiiḥšiʔaqƛk
ʕiiḥ-šiƛ-ʔaqƛ-k
cry-PERF-FUT-2SG.Q
Are you going to cry?

b. sayaʔiiʔiš kamatqšiƛ
saya-ʔii-ʔiiš kamatq-šiƛ
much-go-3.IND run-PERF
S/he ran far.

c. huuɬhuuɬamitk ʔatḥiimitʔi
huuɬ-a[+R]-mit-k ʔatḥii-mit-ʔii
dance-ITER-PST-2SG.Q night-PST-DET
Did you dance last night?

I relate this systematic absence of affixal unergative predicates to the requirement that affixal predicates must have an independent internal argument. Unergatives lack an independent internal argument. Following Hale and Keyser (1993, 2002), I adopt a *concealed transitive* analysis of unergatives.

(21) *Unergative syntax*



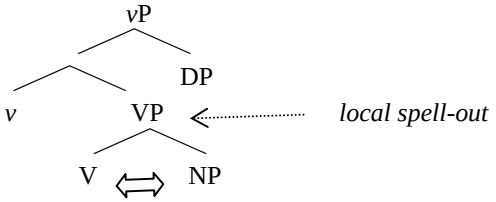
According to this *concealed transitive* analysis, unergatives are composite predicates which contain an inner VP layer embedded within a *v*P, as in (23). Unlike in transitives, however, the "phonological signature" (or "p-signature") of V is defective in unergatives. This defectiveness results in the internal argument undergoing *conflation* with the V. Hale and Keyser (2002: 63) describe this process in the following way:

(22) *Conflation consists in the process of copying the p-signature of the complement into the p-signature of the head, where the latter is "defective".*

Thus, the internal argument of an unergative is not independently realized under this analysis. This lack of independence presents a problem for affixation.

By hypothesis, an affixal predicate requires a host chosen from its derivational sister. Two elements are required for this arrangement: an affix, $-\alpha$, and a host, $\beta(-)$, resulting in $\beta-\alpha$. The problem with an unergative affix is that the local spell-out domain of the predicate would contain only one phonologically contentful element, that of the NP complement. In (23), for example, V lacks a phonological form independent of the N(P). Thus, no host-affix dependency may be established between the V and N(P) at local spell-out.

(23)



Since affixation is inherently a binary relationship, affixal predicates are not predicted to be possible as the V of an unergative.[1] Affixal predicates require an independent internal argument so that they may find a host within the local spell-out domain.

The remainder of this chapter is organized as follows. The first two sections deal with predicates formed from the basic unaccusative configuration: unaccusatives and transitives. I begin in §4.2 with a discussion of intransitive predicates in Nuu-chah-nulth, and argue for the existence of a class of unaccusative affixal predicates. In §4.3, I discuss transitive affixal predicates, and illustrate syntactic diagnostics for their structure, including subject agreement and possessor raising. Next, I turn to the structure of predicates formed from the extended unaccusative configuration: locatives and ditransitives. In §4.4, it is shown how syntactic diagnostics motivate a distinction between two classes of locative predicates with inverse argument structures, which I label location and locatum predicates. The behaviour of ditransitives is discussed in §4.5, where I analyse these predicates as (di)transitivized locative verbs, which, like locative predicates, may be divided into two classes based on their asymmetrical argument structures. In §4.6, outstanding issues are discussed. Finally, §4.7 gives a summary of the findings.

4.2 Unaccusatives

This section presents evidence for the existence of an unaccusative-unergative distinction in Nuu-chah-nulth, and proposes that there are no unergative affixal

[1] I take this to be a diachronically relevant fact: I assume that the restriction was at play when the class of affixal predicates developed. The origins of a distinct class of affixal predicates may possibly be traced as far back as Proto-Wakashan. Perhaps the expletive host *ʔu-* was not available as a host at the time that the class of affixal predicates developed.

predicates in Nuu-chah-nulth. By my analysis, intransitive affixal predicates in Nuu-chah-nulth are exclusively unaccusative.

4.2.1 Incorporation

Predicates in the unaccusative class include *ʔu-ƛ̓ii* "arrive", *ʔu-paɬ* "be present", *ʔu-ʕaaʔatu* "move down". As indicated in the following (a) examples, these unaccusative predicates allow suffixation to their argument. The examples in (b) show affixation to the expletive host *ʔu-*.

(24) a. paastinʔatḥƛ̓iʔiš
paastinʔatḥ-**ƛ̓ii**-ʔiiš
American-**arrive**-3.IND
Americans came.

b. ʔuƛ̓iiʔiš paastinʔatḥʔi
ʔu-**ƛ̓ii**-ʔiiš paastinʔatḥ-ʔii
∅-**arrive**-3.IND American-DET
The Americans came.

(25) a. tapaɬwaʔiš pišaqaqwaʔiš
ta-**paɬ**-waʔiš piš-aq[+S]-aq[+S]-waʔiš
sick-**present**-3.QUOT bad-AUG-AUG-3.QUOT
There's sickness around, (and) it is really bad.

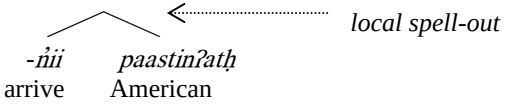
b. ʔupaɬwaʔiš tamis pišaqaqwaʔiš
ʔu-**paɬ**-waʔiš ta-mis piš-aq[+S]-aq[+S]-waʔiš
∅-**present**-3.QUOT sick-NOM bad-AUG-AUG-3.QUOT
There's sickness around, (and) it is really bad.

(26) a. t̓at̓uusʕaʔatumitʔiš
t̓at̓uus-**ʕaaʔatu**-mit-ʔiiš
star-**move.down**-PST-3.IND
A star fell.

b. ʔuʕaaʔatumitʔiš t̓at̓uus
ʔu-**ʕaaʔatu**-mit-ʔiiš t̓at̓uus
∅-**move.down**-PST-3.IND star
A star fell.

Incorporation of the argument of an unaccusative is predicted by the PF incorporation analysis. The internal argument is a derivational sister to the affixal predicate, and thus forms a local spell-out domain with the affixal predicate. When the affixal predicate reaches spell-out, it looks to this derivational sister for its host. For example, if the affixal predicate *ʔu-ƛ̓ii* "arrive" takes *paastinʔatḥ* "American(s)" as its argument, then the reflex of spell-out will be a linearization of *paastinʔatḥ-ƛ̓ii*, as in *paastinʔatḥƛ̓iʔiš* "Americans came" in (24a). The structural relationship underlying PF incorporation is given in (27).

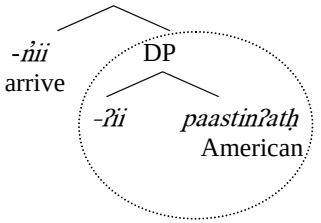
(27)



The affixal predicate suffixes to its derivational sister by local spell-out.

The alternative to suffixation to a derivational sister is suffixation to a host inserted at spell-out, the expletive morpheme *ʔu–*. In (24b), the presence of the determiner *–ʔii* signals saturation of the phrase, with the DP imposing a "border" between the affixal predicate and the members of its complement.

(28)



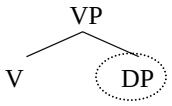
As noted in Chapters 2 and 3, DPs in Nuu-chah-nulth act as independent spell-out domains in that they form "islands" for affixation. Inflectional clitics, for example, are built up within a DP and do not cross it. In a context such as (28), the expletive *ʔu-* "rescues" the stranded affixal predicate by acting as its host. PF incorporation is not possible in this context.[2]

In the next section, I discuss evidence for an unergative-unaccusative distinction in Nuu-chah-nulth.

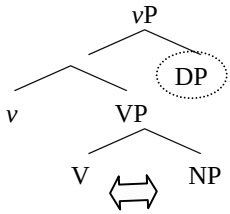
4.2.2 Intransitivity in Nuu-chah-nulth

According to the Unaccusativity Hypothesis (Perlmutter 1978; Burzio 1981), there are two subclasses of monadic predicates – unaccusatives and unergatives – which are associated with different underlying syntactic configurations. While the argument of an unaccusative verb such as "arrive" or "die" is an internal argument, the single (overt) argument of an unergative verb such as "cry" or "dance" is an external argument. In the framework which I have adopted, the difference between these two intransitive types may be represented according to an asymmetry as to which syntactic head introduces the argument. The argument of an unaccusative is generated as the complement of V, in the same position as the object of a transitive predicate. For unergatives, however, the argument is introduced by a *v* head, in the same position as the subject of a transitive predicate (Hale and Keyser 1994; Kratzer 1994; Chomsky 1995).

[2] A topic for further research is why the expletive *ʔu-* is employed in cases such as (26b), which lack a determiner. Incorporation is apparently optional in such cases. Textual analysis may shed light on whether use of *ʔu-* correlates with specific stylistic effects.

(29) 

unaccusative

(30) 

unergative

Recall that I adopt the analysis that unergatives are "concealed" transitives which have a conflated internal argument. Thus, only the top argument (circled) of the unergative is overtly realized as an independent argument.

In Nuu-chah-nulth, unaccusatives and (non-affixal) unergatives receive the same type of subject agreement. A predicate such *ʕiiḥ* "cry" takes the same subject agreement as does a predicate such as *hinin* "arrive". In (31), both are inflected for the third person indicative subject agreement *–ʔiiš* (3.IND).

(31) a. ʕiḥʕiiḥamitʔiš naʔiiqsakqs
ʕiiḥ-a[+R]-mit-ʔiiš naʔiiqsu-ʔak-qs
cry-IT-PST-3.IND aunt/uncle-POSS-1SG.PS
My auntie was crying.

b. hininʔaƛ̓ʔiš naʔiiqsakqs
hinin-ʔaƛ̓-ʔiiš naʔiiqsu-ʔak-qs
arrive-TEMP-3.IND aunt/uncle-POSS-1SG.PS
My auntie has arrived now.

Despite this superficial similarity of unergatives and unaccusatives in Nuu-chah-nulth, I will advance two separate pieces of evidence for a distinction between unaccusative and unergative intransitives in the language. First, I propose that there is distributional evidence for unaccusativity, based on the class membership of affixal predicates (§4.2.3). Second, I propose that "long" possessor raising constitutes a reliable syntactic diagnostic for unaccusativity in Nuu-chah-nulth (§4.2.4).

4.2.3 Absence of Unergative Affixal Predicates

A systematic gap in the composition of the Nuu-chah-nulth lexicon supports a contrast in this language between the two monadic classes of unergatives and unaccusatives. While one-place predicates with the semantics of typical unaccusative verbs (e.g., *die*, *arrive*) are found amongst both the affixal and non-affixal classes in Nuu-chah-nulth, to the best of my knowledge, one-place predicates with the semantics of typical unergative predicates (e.g., *work*, *cry*, *dance*) exist only as non-affixal predicates.

The generalization that unergative predicates are absent from the affixal predicate inventory is supported by the suffix lists in Sapir and Swadesh (1939), and by the grammars of Rose (1981) and Davidson (2002). For example, consider Rose's (1981) description of the two classes of "verbal affixes" in Kyuquot, a northern dialect of Nuu-chah-nulth. Rose labels the two verbal classes "governing" or "restrictive". Amongst the "governing" category of verbal affixes that take an "NP object base" (rather than a sentential one), we find predicates with transitive and ditransitive syntax, according to the present classification. Unaccusatives are found amongst Rose's class of "restrictive verbal affixes". Importantly, there is no other category of "verbal affix" in Rose's list which plausibly resembles unergatives. The subclasses of "verbal affixes" discussed in Rose (1981) are illustrated in the following table with their correspondences to the present classification system.

(32) *Types of "Verbal affixes"*

Classification	*Ahousaht examples*	*Kyuquot cognates*	*Label in Rose (1981)*
Unaccusative	*ʔu-ƛ̓ii* "arrive" *ʔuu-ʔatu* "sink, go down" *ʔu-suuƛ* "die, get destroyed" *ʔu-yiiʔiƛ* "come into house"	*-ƛ̓i* "come home, arrive" *-ʔata* "sink, go down" *-suwi(ƛ) (~suu(ƛ))* "die, get destroyed" *-iiʔi(ƛ)* "come into house"	Restrictive verbal affix
Transitive	*ʔuu-taq* "fix, work on" *ʔu-kʷiiɬ* "make" *ʔu-ʔiic* "consume" *ʔu-c̓iiɬḥ* "use as fuel"	*-taq* [+L] "work on.." *-(č)iiɬ* "make.." *-ʼiic* "eat.." *-ciɬḥ* "use.. as fuel"	Governing verbal affix -NP object base
Ditransitive	*ʔu-ʔiip* "give" *ʔu-yii* "give" *ʔuu-kš* "ask for"	*-ʔiip* "give.." *-aayi* "give.." *-(k)š* [+L] "ask for.."	Governing verbal affix -NP object base
Auxiliary	*-sinḥi* [+L] "try to continue" *-maʕiiqƛ* "need to" (bodily functions)	*-sinḥ* [+L] "try to (be).." *-maʕaqƛ* "want to (be).."	Governing verbal affix -sentential base

Note that a "governing verbal affix" such as *ʔuu-taq* "work on" is strictly transitive, with a meaning similar to "fix", rather than with a usage parallel to English intransitive *work*.

(33) a.

ʔuutaqitsiš	muunaa
ʔuu-**taq**-mit-siiš	muunaa
∅-**work.on**-PST-1SG.IND	engine

I was working on an engine.

b. * ʔuutaqitsiš
ʔuu-**taq**-mit-siiš
∅-**work.on**-PST-1SG.IND
I was working.
(*consultant's comment*: "you have to tell what you were fixing or working on")

In a similar vein, the affixal predicate *ʔu-ʔiic* "consume" has only a transitive usage. In the example below, the object *sapnii* "bread" is mandatorily expressed.

(34) a. ʔuʔiiċamitsiš Ken sapnii
ʔu-**'iic**-'ap-mit-siiš Ken sapnii
∅-**consume**-TR-PST-1SG.IND Ken bread
I made Ken eat bread.

b. * ʔuʔiiċamitsiš Ken
ʔu-**'iic**-'ap-mit-siiš Ken
∅-**consume**-TR-PST-1SG.IND Ken
I made Ken eat.

This contrasts with the behaviour of the independent predicate *haʔuk* "eat", which, like English *eat*, allows for both an intransitive and transitive usage. In (35a), the object *sapnii* "bread" is expressed; in (35b), it is not.

(35) a. haʔuk̓ʷamitsiš Ken sapnii
haʔuk-'ap-mit-siiš Ken sapnii
eat-TR-PST-1SG.IND Ken bread
I made Ken eat bread.

b. haʔuk̓ʷamitsiš Ken
haʔuk-'ap-mit-siiš Ken
eat-TR-PST-1SG.IND Ken
I made Ken eat.

In the next section, we see further evidence that intransitive affixal predicates in Nuu-chah-nulth pattern as unaccusatives and not as unergatives.

4.2.4 "Long" Possessor Raising as a Diagnostic for Unaccusativity

As first described in Chapter 2, Nuu-chah-nulth has a process of possessor raising in which the possessive marker *–uk/-(ʔ)ak* (POSS) suffixes to a main predicate, instead of (or in addition to) suffixing to the possessum (Davidson 2002; Ravinski 2005). In (36a), the possessum *kʷaaʔuuc* "grandchild" is suffixed by *–uk* (POSS). In the possessor raised (36b), *–uk* (POSS) suffixes to the predicate *taʔiɬ* "sick".

(36)	a.	taʔiɬʔiš	kʷaaʔuucukqs	
		taʔiɬ-ʔiiš	kʷaaʔuuc-uk-qs	
		sick-3.IND	grandchild-POSS-1SG.PS	
		My grandchild is sick.		*(unraised)*
	b.	taʔiɬuksiš	kʷaaʔuuc	
		taʔiɬ-uk-siiš	kʷaaʔuuc	
		sick-POSS-1SG.IND	grandchild	
		My grandchild is sick.		*(possessor raising)*

In possessor raising, the possessor ends up determining subject agreement for the clause: in (36b), the subject agreement is *–siiš* (1SG.IND) because it matches the first person possessor of *kʷaaʔuuc* "grandchild". Standardly, possessor raising targets the surface subject of the main predicate in Nuu-chah-nulth, including the derived subjects of passives and unaccusatives (Ravinski 2005). For main predicates, possessor raising is insensitive to the difference between the arguments of unergatives and unaccusatives. As shown in (37), possessor raising is permitted with the argument of an "unergative" intransitive such as *ʕiiḥ* "cry", or the argument of an "unaccusative" intransitive such as *hinin* "arrive".

(37)	a.	ʕiḥʕiiḥakitsiš	naʔiiqsu	
		ʕiiḥ-a[+R]-ʔak-mit-siiš	naʔiiqsu	
		cry-ITER-POSS-PST-1SG.IND	aunt/uncle	
		My auntie was crying.		
	b.	hininʔakitsiš	naʔiiq	......
		hinin-ʔak-mit-siiš	naʔiiq	......
		arrive-POSS-PST-1SG.IND	aunt/uncle	
		My auntie came.....		

However, when possessor raising applies in contexts of affixal auxiliaries such as *–qaatḥ* "claim" or *–maḥsa* "want to", a distinction emerges between unaccusatives and other types of predicates. When an unaccusative predicate combines with an affixal auxiliary, two possible interpretations are available in contexts of possessor raising. The example in (38) shows these two interpretations for the predicate *taʔiɬ* "sick", which is suffixed by the affixal auxiliary *–qaatḥ* "claim".[3] (In Nuu-chah-nulth, *taʔiɬ* "sick" patterns with the class of unaccusative verbs.) In the first interpretation in (38), the one who doing the claiming is the same one who is sick ("my grandchild"). A second interpretation is also available in which the claimer and the one who is sick are disjoint: the "claimer" is a first person argument, and the one who is sick is "my grandchild". (For the second type of interpretation, the person

[3] The interpretations are disambiguated by context. For example, in a sentence such as *taʔiɬqatḥukʷitsiš kʷaaʔuuc č̓in̓uqƛ ƛiisƛiisaʕas* "My grandchild claimed she was sick because she didn't want to go to school", the meaning is clearly the first interpretation. For *taʔiɬqatḥukʷitsiš kʷaaʔuuc č̓in̓uqƛ̓ap naʔuuk n̓uw̓iiqsak* "I claimed my grandchild was sick because I didn't want her to go with her father", the second interpretation arises.

and number features of the "claimer" necessarily matches the person and number of the possessor of the one who is sick.)

(38) taʔiɬqatḥukʷitsiš kʷaaʔuuc
taʔiɬ-**qaatḥ**-uk-mit-siiš kʷaaʔuuc
sick-**claim**-POSS-PST-1SG.IND grandchild
= (i) My grandchild claimed to be sick. ("*short*" *possessor raising*)
= (ii) I claimed my grandchild was sick. ("*long*" *possessor raising*)

I refer to the first interpretation as a case of "short" possessor raising, and the second as an instance of "long" possessor raising, for reasons which will soon become apparent.

For unergative predicates, only a "short" possessor raising interpretation is available; "long" possessor raising is impossible. This is indicated in (40) with the unergative predicate *ʕaaq-šiƛ* "shout (PERF)". The "claimer" and the "shouter" must be the same person in this possessor raising context.

(39) ʕaaqšiƛqatḥukʷitsiš naniiqsu
ʕaaq-šiƛ-**qaatḥ**-uk-mit-siiš naniiqsu
shout-PERF-**claim**-POSS-PST-1SG.IND grandparent
= (i) My grandparent claimed to shout. ("*short*" *possessor raising*)
≠ (ii) I claimed my grandparent shouted. ("*long*" *possessor raising*)

Thus, the availability of a "long" possessor raising interpretation distinguishes between the class of unaccusatives and the class of unergatives: unaccusatives such as *taʔiɬ* "sick" are compatible with "long" possessor raising, while unergatives such as *ʕaaq-šiƛ* "shout (PERF)" are not.

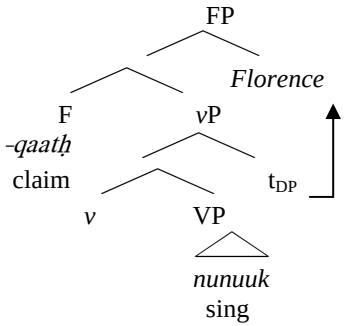
A sketch of my analysis of the two types of possessor raising follows. As I will argue in Chapter 5, affixal auxiliaries such as *–qaatḥ* "claim" in (40) are raising verbs which do not project a subject of their own, but which license raising of an embedded argument.[4]

(40) nunuukqatḥʔiš Florence
nunuuk-**qaatḥ**-ʔiiš Florence
sing-**claim**-3.IND Florence
Florence is pretending to sing.

The diagram in (41) represents how *Florence* takes on the role of "shared" subject of the auxiliary *–qaatḥ* "claim" and the main predicate *nunuuk* "sing". As shown, *Florence* originates as the subject of the main predicate, and raises to specifier position of the auxiliary.

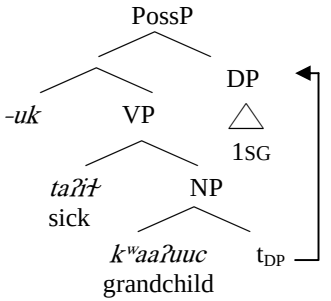
[4] In Chapter 5, this raising analysis is motivated by the fact that affixal auxiliaries show a "same subject" effect, in which they require transitivization whenever a different subject is used with the main verb. The English gloss for the affixal auxiliary *–qaatḥ* "claim" comes from its typical translation in these transitive contexts.

(41) *Affixal auxiliaries as raising verbs*



Following Ravinski (2005), I assume that the possessive morpheme *–uk* (POSS) licenses a position for raised possessors. This analysis is illustrated in (42) for the non-auxiliary case of possessor raising *taʔiɬuksiš kʷaaʔuuc* "My grandchild is sick", from (36b). Here, the first person possessor of *kʷaaʔuuc* "grandchild" raises to specifier position of PossP.

(42) *"Simple" possessor raising*



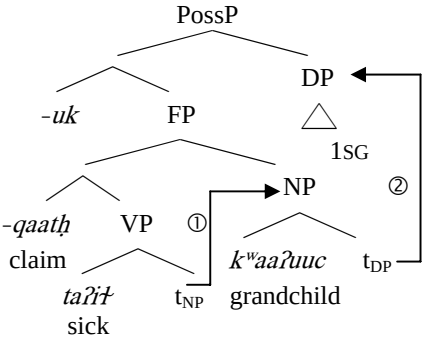
In "short" and "long" possessor raising with auxiliaries, the syntax of the auxiliary interacts with the syntax of possessor raising.

(43) taʔiɬqatḥukʷitsiš kʷaaʔuuc
taʔiɬ-**qaatḥ**-uk-mit-siiš kʷaaʔuuc
sick-**claim**-POSS-PST-1SG.IND grandchild
= (i) My grandchild claimed to be sick. ("*short* possessor raising)
= (ii) I claimed my grandchild was sick. ("*long* possessor raising)

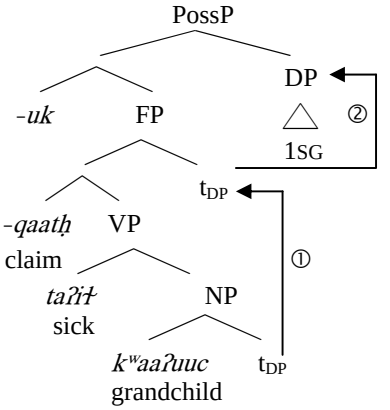
In the case of "short" possessor raising with auxiliaries, I propose that the entire possessed nominal ("my grandchild") raises to a "subject" position of the auxiliary, in specifier position of FP. This is followed by possessor-extraction, which raises the possessor to specifier of PossP. In "long" possessor raising, in contrast, the possessor is raised twice, on its own. A first move raises the possessor to "subject" position of the auxiliary, while the second move takes the possessor to specifier of PossP. The difference between the "short" and "long" possessor raising is illustrated below.

(44) *Possessor raising with unaccusative main predicate*

a. *"short" possessor raising*



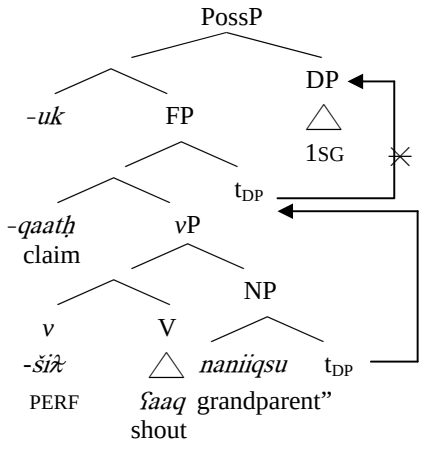
b. *"long" possessor raising*



Thus, in the "short" case of (44a), "my grandchild" acts as the (derived) subject of *–qaatḥ* "claim", while in the "long" case of (44b), *–qaatḥ* "claim" has a first person subject (equivalent to the first person possessor). In both cases, the first person possessor occupies specifier position of PossP, and ultimately ends up determining the first person subject agreement of the clause, *–siiš* (1SG.IND).

As noted in the previous discussion, only unaccusative predicates such as *taʔiɬ* "sick" permit "long" possessor raising. As illustrated in (45), the argument of an unergative such as *ʕaaq-šiɬ* "shout (PERF)" is not compatible with "long" possessor raising.

(45) *Illicit "long" possessor raising with unergative main predicate*



The cause for this restriction is in need of further investigation. Whatever the grammatical motivations for this contrast, it serves as a reliable diagnostic for unaccusatives. The unaccusativity restriction is an empirically robust distinction, and holds for Nuu-chah-nulth speakers across a range of predicates.

Intransitive predicates such as *mamuuk* "work", *hitaʔap* "win", and *yaac* "walk" all disallow a "long" possessor raising interpretation. The possible interpretations are shown below with the affixal auxiliary *–maḥsa* "want to".

(46) mamuukmaḥsaksiš naʔiiq
mamuuk-**maḥsa**-ʔak-siiš naʔiiq
work-**want**-POSS-1SG.IND aunt/uncle
= (i) My aunt/uncle wants to work. ("*short*" *possessor raising*)
≠ (ii) I want my aunt/uncle to work. ("*long*" *possessor raising*)

(47) hitaʔapmaḥsaksiš naniiq
hitaʔap-**maḥsa**-ʔak-siiš naniiq
win-**want**-POSS-1SG.IND grandparent
= (i) My grandparent wants to win. ("*short*" *possessor raising*)
≠ (ii) I want my grandparent to win. ("*long*" *possessor raising*)

(48) yaacšiƛmaḥsaksiš naʔiiqsu
yaac-šiƛ-**maḥsa**-ʔak-siiš naʔiiqsu
walk-PERF-**want**-POSS-1SG.IND aunt/uncle
= (i) My aunt/uncle wants to go for a walk. ("*short*" *possessor raising*)
≠ (ii) I want my aunt/uncle to go for a walk. ("*long*" *possessor raising*)

These unergative intransitives pattern together with transitive predicates such as *ʔu-kʷiiɬ* "make" *his-šiƛ* "hit (PERF)", and *ʔu-ʔaap* "buy", which also disallow "long" possessor raising. In (49), only a "short" possessor raising interpretation is permitted with the transitive predicate *ʔu-kʷiiɬ* "make". Likewise, in (50), a "long" possessor raising interpretation is shown to be impossible for the transitive predicate *his-šiƛ* "hit (PERF)". Finally, the example in (51) shows this restriction against "long" possessor raising for the transitive predicate *ʔu-ʔaap* "buy".

(49) saapniqiɬmaḥsaksiš naniiqsu
saapniq-**čiiɬ**-**maḥsa**-ʔak-siiš naniiqsu
bread-**make**-**want**-POSS-1SG.IND grandparent
= (i) My grandparent wants to make bread. ("*short*" *possessor raising*)
≠ (ii) I want my grandparent to make bread. ("*long*" *possessor raising*)

(50) hisšiƛqatḥukʷitsiš ẏ̓ukʷiiqsu Ray
his-šiƛ-**qaatḥ**-uk-mit-siš ẏ̓ukʷiiqsu Ray
hit-PERF-**claim**-POSS-PST-1SG.IND y.sibling Ray
= (i) My younger sibling claimed s/he hit Ray. ("*short*" *possessor raising*)
≠ (ii) I claimed my younger sibling hit Ray ("*long*" *possessor raising*)

(51) huupuǩʷasʔapqatḥukʷitsiš ẏukʷiiqsu
huupuǩʷas-**ʔaap**-**qaatḥ**-uk-mit-siiš ẏukʷiiqsu
car-**buy**-**claim**-POSS-PST-1SG.IND y.sibling
= (i) My younger sibling claimed s/he bought a car. (“*short*” *poss. raising*)
≠ (ii) I claimed my younger sibling bought a car. (“*long*” *possessor raising*)

Conversely, unaccusative predicates consistently allow the “long” possessor raising interpretation. In the appropriate context, either a “short” possessor raising or a “long” possessor raising interpretation is allowed for the sentences below with the unaccusative predicate *šaḥẏut* “healthy”. The sentence in (52a) shows both readings in the context of the auxiliary *–maḥsa* “want”, while (52b) illustrates parallel readings with the auxiliary *–qaatḥ* “claim”.

(52) a. šaḥẏutmaḥsaksiš naniiqsu
šaḥẏut-**maḥsa**-ʔak-siiš naniiqsu
healthy-**want**-POSS-1SG.IND grandparent
= (i) My grandparent wants to be well. (“*short*” *possessor raising*)
= (ii) I want my grandparent to be well. (“*long*” *possessor raising*)

b. šaḥẏutqatḥukʷitsiš naniiqsu
šaḥẏut-**qaatḥ**-uk-mit-siiš naniiqsu
healthy-**claim**-POSS-PST-1SG.IND grandparent
= (i) My grandparent claimed to be well. (“*short*” *possessor raising*)
= (ii) I claimed my grandparent was well. (“*long*” *possessor raising*)

For some, but not all, of consultants, the “long” possessor raising interpretation is highly salient for unaccusative examples such as (52). However, for all consultants there are some contexts in which only a “long” possessor raising interpretation arises. When an unaccusative main predicate takes an inanimate argument, a “short” possessor raising interpretation is ruled out – perhaps due to the pragmatic restriction that the inanimate cannot control a desiderative auxiliary such as *–maḥsa* “want”. This is illustrated with the unaccusative main predicate *tuq-šiƛ* “melt (PERF)”, which in the following sentence takes the inanimate argument *pata* “butter”.

(53) tuqšiƛmaḥsaksiš pata
tuq-šiƛ-**maḥsa**-ʔak-siiš pata
melt-PERF-**want**-POSS-1SG.IND butter
≠ (i) ! My butter wants to melt. (“*short*” *possessor raising*)
= (ii) I want my butter to melt. (“*long*” *possessor raising*)

In this example, the only pragmatically available reading is a “long” possessor raising interpretation in which the controller of the auxiliary predicate *–maḥsa* “want” is the same as the first person possessor of the main predicate’s argument, *pata* “butter”. A “short” possessor raising interpretation is impossible, since this entails an absurd reading in which the controller of the main and auxiliary predicates is the possessive nominal itself (“my butter”). Additional examples of “long” possessor raising with unaccusatives are shown in (54). Predicates which are compatible with “long” possessor raising include *puux-šiƛ* “rise (PERF)”, *niiʔatu* “sink”, *patḥ-aa* “shine (CONT)”, and *caḥ-aa* “leak (CONT)”.

(54) a. puuxšiƛmaḥsaksiš sapnii
puux-šiƛ-**maḥsa**-ʔak-siiš sapnii
rise-PERF-**want**-POSS-1SG.IND bread
I want my bread to rise.

b. niiʔatuqatḥukʷitʔick muut
niiʔatu-**qaatḥ**-uk-mit-ʔiick muut
sink-**claim**-POSS-PST-2SG.IND boat
You claimed your boat sank.

c. patḥaamaḥsaksiš tiiɬa
patḥ-aa-**maḥsa**-ak-siiš tiiɬa
shine-CONT-**want**-POSS-1SG.IND fishing.spoon
I want my fishing spoon to shine.

d. caḥaaqatḥukʷitʔick muut ʔataʔick ʔuyiiq
caḥ-aa-**qaatḥ**-uk-mit-ʔiick muut ʔata-ʔiick ʔu-yiiq
leak-CONT-**claim**-POSS-PST-2SG.IND boat but-2SG.IND ∅-travel.in
You claimed your boat is leaking, and yet you're travelling in it.

In sum, "long" possessor raising can be used as a diagnostic to separate unaccusative predicates from transitive and unergative classes, since only unaccusative main predicates ever allow "long" possessor raising. The results of this diagnostic are summarized in (55).

(55) "*Long*" *possessor raising as a diagnostic for unaccusativity*

Main predicate	"long" possessor raising
A. Transitive	
ʔu-kʷiiɬ "make"	×
hisšiƛ "hit"	×
ʔu-ʔaap "buy"	×
B. Unergative	
mamuuk "work"	×
hitaʔap "win"	×
ʕaaqšiƛ "shout"	×
yaacšiƛ "walk"	×
C. Unaccusative	
šaḥy̓ut "healthy"	✓
tuqšiƛ "melt"	✓
puuxšiƛ "rise"	✓
niiʔatu "sink"	✓
patḥaa "shining"	✓
caḥaa "leaking"	✓
ʔu-suuƛ "die"	✓
ʔu-n̓ii "arrive"	✓

If we apply the "long" possessor raising diagnostic to intransitive affixal predicates, we see that this test confirms that these affixal predicates behave similarly to non-affixal predicates such as *šaḥy̓ut* "healthy" and *tuq-šiƛ* "melt (PERF)" in that they allow a "long" possessor raising interpretation. In other words, these intransitive affixal predicates pattern as unaccusatives. In the sentences below, the intransitive affixal predicate *ʔu-suuƛ* "die" appears in complex predicates with the affixal auxiliary *–qaatḥ* "claim". Both "short" and "long" possessor raising is permitted, dependent on the discourse context.

(56) a. "*short*" *possessor raising*

ʔusuuƛqatḥukʔick	nani	ʔatquu	tiič
ʔu-**suuƛ**-**qaatḥ**-uk-ʔiick	nani	ʔat-quu	tiič
∅-**die**-**claim**-POSS-2SG.IND	grandparent	but-3.COND	alive

Your grandparent claimed she died, but she is alive.

b. "*long*" *possessor raising*

ʔusuuƛqatḥukʔick	nani	ʔataʔiš	tiič
ʔu-**suuƛ**-**qaatḥ**-uk-ʔiick	nani	ʔata-ʔiiš	tiič
∅-**die**-**claim**-POSS-2SG.IND	grandparent	but-3.IND	alive

You claim your grandparent died, but she is alive.

"Long" possessor raising is possible with other intransitive affixal predicates, such as *ʔu-ṅii* "arrive".

(57) "*long*" *possessor raising*

ʔuṅiiqatḥukʔick	naniiqsu	ʔatquu	wiḵiit
ʔu-**ṅii**-**qaatḥ**-uk-ʔiick	naniiqsu	ʔat-quu	wiḵiit
∅-**arrive**-**claim**-POSS-2.IND	grandparent	but-3.COND	NEG-present

You pretend your grandparent came, although she isn't here.

In conclusion, the "long" possessor raising diagnostic supports a classification in which affixal predicates like *ʔu-suuƛ* "die" and *ʔu-ṅii* "arrive" are unaccusative.

4.3 Transitives

This section considers the behaviour of transitive affixal predicates. According to the proposal in §4.1.2, these predicates project up to *v*P, via abstract transitivization of a basic unaccusative configuration. Representative examples of transitive affixal predicates are shown below, which illustrate suffixation of the predicate to a nominal host. The predicates *ʔu-ʔinɬ* "serve", *ʔuʔu-ʔiiḥ* "gather", and *ʔu-kʷiiɬ* "make" are each proposed to be transitive.

(58) a.

čamayinɬitsiš	
čamas-**’inɬ**-mit-siiš	
sweets-**serve**-PST-1SG.IND	
I served sweets.	

b.

t̓ut̓uc̓iiḥʔiš	nani
t̓uc̓up-**’iiḥ**[+R]-ʔiiš	nani
sea.urchin-**gather**-3.IND	grandparent
Grandparent is gathering sea urchin.	

c.

saapniqiiɬʔiš	ʔumʔi
saapniq-**čiiɬ**-ʔiiš	ʔumʔi
bread-**make**-3.IND	mom
Mom is making bread.	

In the absence of incorporation, these predicates suffix to the the expletive pronoun *ʔu-*.

(59) a.

ʔuʔinɬitsiš	čamas
ʔu-**’inɬ**-mit-siiš	čamas
∅-**serve**-PST-1SG.IND	sweets
I served sweets.	

b.

ʔuʔuʔiiḥʔiš	nani	t̓uc̓up
ʔu-**’iiḥ**[+R]-ʔiiš	nani	t̓uc̓up
∅-**gather**-3.IND	grandparent	sea.urchin
Your grandparent is gathering sea urchin.		

c.

ʔukʷiiɬʔiš	ʔumʔi	sapnii
ʔu-**čiiɬ**-ʔiiš	ʔumʔi	sapnii
∅-**make**-3.IND	mom	bread
Mom is making bread.		

I present evidence in §4.3.1 that only complements may act as the source of incorporation for transitive affixal predicates. Two tests are used to independently affirm the existence of a distinction between syntactic positions of the arguments of a transitive predicate: subject agreement (§4.3.2) registers an argument in subject position; possessor raising (§4.3.3) is possible only out of a subject, and not out of an object. Thus, in active contexts, incorporation is exclusively reserved for an argument which is incompatible with subject agreement or possessor raising.

4.3.1 Incorporation

There is an incorporation asymmetry in Nuu-chah-nulth between the two arguments of a transitive affixal predicate. Recent work has shown that Nuu-chah-nulth affixal predicates incorporate their object, and not their subject (Woo 2000; Davis and Sawai 2001; Stonham 2004). In Chapter 2, I termed this restriction on affixation the “complement” effect. The asymmetry is illustrated in the examples below, which show that the two arguments of a transitive predicate do not have equal ability to serve as the host for the affixal predicate. While *ʔu-ʔaap* “buy” can suffix to the nominal *maḥt̓a-* “house”, it cannot suffix to the nominal *čapx̣-* “man”.

(60) a. maḥt̓aʔamitʔiš čakup
maḥt̓a-**'aap**-mit-ʔiiš čakup
house-**buy**-PST-3.IND man
A man bought a house.

b. * čapχ̣ʔaamitʔiš maḥt̓ii
čapχ̣-**'aap**-mit-ʔiiš maḥt̓ii
man-**buy**-PST-3.IND house
A man bought a house.

This incorporation asymmetry is robust. For example, in *wh*-questions (Davis and Sawai 2001) and relative clauses formed with an affixal predicate, incorporation of the *wh*- or relative-pronoun into the affixal predicate is obligatory for object-questions and object-relativizations, but is impermissible for subject-oriented ones. As Davis and Sawai (2001) describe, incorporation is mandatory for *wh*-pronouns that occur as the object of an affixal predicate. It is shown in (61) that the *wh*-object *ʔaqi-* "what" must incorporate into the affixal predicate *ʔu-ʔiic* "consume". In (61a), *ʔaqi-* "what" grammatically hosts the affixal predicate, while in the ungrammatical (61b) incorporation fails to occur as *ʔu-*support is employed instead.

(61) a. ʔaqiicitḥ John
ʔaqi-**'iic**-mit-ḥ John
what-**consume**- PST-3.Q John
What did John eat? (Davis and Sawai 2001:127; ex.11)

b. * ʔaaqičiɬḥ ʔuʔiic John
ʔaqi-čiɬ[+L]-ḥ ʔu-**'iic** John
what-AUX-3.Q ∅-**consume** John
What did John eat? (Davis and Sawai 2001:127; ex.16)

In contrast, incorporation into the affixal prediate is ruled out for *wh*-subjects. The example in (62a) shows that it is ungrammatical for the *wh*-subject *ʔačaq-* "who" to incorporate into the affixal predicate *ʔu-ʔiic* "consume". As shown in (62b), a *wh*-subject must occur independently of the affixal predicate.

(62) a. * ʔačaʕiiciṭḥ suuḥaa
ʔačaq-**'iic**-mit-ḥ suuḥaa
who-**consume**-PST-3.Q salmon
Who ate the salmon? (Davis and Sawai 2001: 129; ex. 19)

b. ʔačaqiṭḥ ʔuʔiic ḥiiɬas suuḥaaʔi
ʔačaq-mit-ḥ ʔu-**'iic** ḥiiɬas suuḥaa-ʔi
who-PST-3.Q ∅-**consume** DEIC salmon-DET
Who ate this salmon? (cf. Davis and Sawai 2001: 130, ex. 22a)

The same subject/object asymmetry is found with relative clauses, as illustrated below with the affixal predicate *ʔuu-ʔinḥi* "wait for". The relative pronoun *yaq*

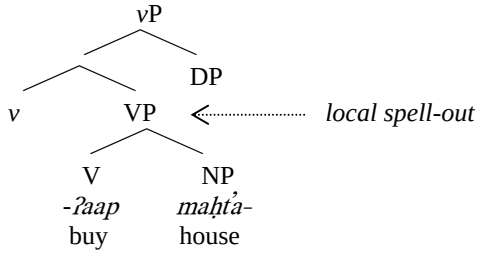
"who" incorporates in an object relativization (63a), but not in a subject relativization (63b).

(63) a. ḥačumsiqsaksiš ḥaa čakupʔi yaaʕinḥiʔitq Mary
ḥačumsiqsu-ʔak-siiš ḥaa čakup-ʔii yaq-**ʔinḥi**[+L]-ʔiitq Mary
brother-POSS-1SG.IND DEIC man-DET REL-**wait.for**-3.RL Mary
That man who Mary is waiting for is my brother.

b. ḥačumsiqsaksiš ḥaa čakupʔi yaqʔitq ʔuuʔinḥi Mary
ḥačumsiqsu-ʔak-siiš ḥaa čakup-ʔii yaq-ʔiitq ʔu-**ʔinḥi**[+L] Mary
brother-POSS-1SG.IND DEIC man-DET REL-3.RL ∅-**wait.for** Mary
That man who is waiting for Mary is my brother.

Under a PF incorporation analysis, the distinct patterns of subjects and objects are anticipated. An object of a transitive predicate, but not its subject, is generated in complement position. As the derivational sister of an affixal predicate, an object nominal undergoes local spell-out with the affixal predicate. This derives the "complement" effect.

(64)



At spell-out, a linearization of *maḥtȧ-ʔaap* "house-buy" is induced.

In the next section, we turn to our first of two syntactic diagnostics which corroborate the analysis that it is the syntactic complement of a transitive affixal predicate which serves as the source of incorporation.

4.3.2 Subject Agreement

Agreement in Nuu-chah-nulth corresponds to the subject of a transitive predicate, not to an object. The table below lists the Ahousaht agreement paradigm for the indicative mood, one of several mood inflections in the language (see Chapter 3; Nakayama 1997, 2001).

(65) *Indicative subject agreement*

	Singular	*Plural*
1	-siiš	-niiš
2	-ʔiick	-ʔiicuuš
3	-ʔiiš	

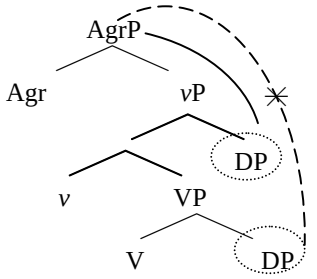
Subject agreement registers the subjects of affixal and non-affixal predicates alike. For example, in (66a), the first person singular marker *–siiš* references the (*pro*) subject of the affixal predicate *ʔuu-ƛ̓ii* "cook"; in (66b) the same marker applies to the non-affixal predicate *kitɬ-šiƛ* "phone (PERF)".

(66) a. ʔuuƛ̓iisiš č̓isqmis
ʔu-**ƛ̓ii**[+L]-siiš č̓isqmis
∅-**cook**-1SG.IND meat
I am cooking meat.

b. kitɬšiʔaqƛsiš suẃa ʔatɬii wikquus haanaʔaɬas
kitɬ-šiƛ-ʔaqƛ-siiš suẃa ʔatɬii wik-quus haanaʔaq-'as
ring-PERF-FUT-1SG.IND you tonight NEG-1SG.CON lahal-ASP
I'll phone you tonight if I don't go to the lahal game.

I assume that subject agreement in Nuu-chah-nulth is licensed by the highest argument of a predicate (Ravinski 2005). Higher arguments are chosen over lower arguments due to the Minimal Link Condition (Chomsky 1995), in which short-distance relationships are preferred over long-distance ones. This is represented in (67), in which the external argument of a transitive is the closer to the agreement projection than the internal argument of the transitive. Subject agreement can be assumed to be licensed through an AGREE relation between a head (e.g., Agr) and the most local DP (Chomsky 1995).

(67)



Given the analysis that complements of an affixal predicate act as "incorporated" hosts, and given that complements of transitives are not the closest nominal to Agr, we expect that an incorporated nominal should not determine the subject agreement of a transitive predicate. This indeed holds. In (68) below, the nominal *č̓isqmis* "meat" incorporates into *ʔuu-ƛ̓ii* "cook", while it is the first person argument which determines subject agreement.

(68) č̓iisqmisƛ̓isiš
č̓isqmis-**ƛ̓ii**[+L]-siiš
meat-**cook**-1SG.IND
I am cooking meat.

In the next section, we see further evidence that complements of the transitive affixal predicate are the source of incorporation.

4.3.3 Possessor Raising

An additional diagnostic for the syntactic structure of transitive affixal predicates is supplied by the possessor raising construction. Recall from Chapter 3 that possessor raising only ever targets subjects in Nuu-chah-nulth (Davidson 2002; Ravinski 2005). This is illustrated in the sentence below with the predicate *hin-kʷaʔiiḥ* "chase".

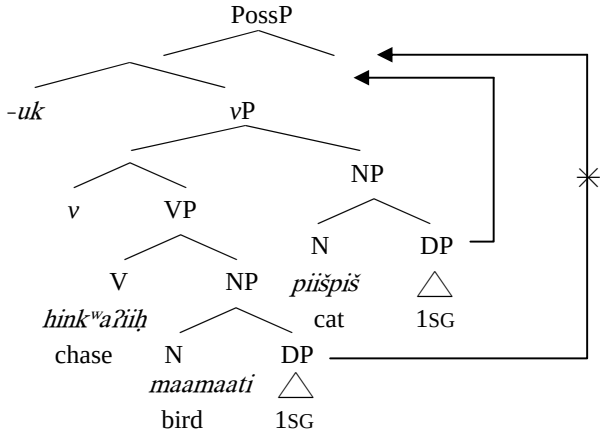
(69)

hinkʷaʔiiḥuksiš	piišpiš	maamaati
hin-kʷaʔiiḥ-uk-siiš	piišpiš	maamaati
LOC-after-POSS-3.IND	cat	bird

= (i) My cat was after a bird.
≠ (ii) A cat was after my bird.

In this example of possessor raising, the possessive morpheme *–uk* suffixes to the predicate, rather than to the possessum, and the possessor argument controls subject agreement (Davidson 2002; Ravinski 2005). What is noteworthy for our purposes is that the subject *piišpiš* "cat" is eligible to receive an interpretation as the possessum, but the object *maamaati* "bird" is not. Thus, we infer that only the subject is able to act as the source of possessor raising. The subject restriction on possessor raising is illustrated in (70).

(70) *Subject restriction on possessor raising*



Ravinski (2005) attributes this subject restriction on possessor raising to the Minimal Link Condition (Chomsky 1995). According to this condition, shorter moves are preferred over longer ones. As the highest of the two arguments, the subject has the shortest move to Spec, DP. Thus, possessor raising from objects is predicted to be ruled out.

Focusing now on affixal predicates, we find that the subject restriction on possessor raising distinguishes between the two arguments of these transitives. The

sentence below is an instance of possessor raising with the transitive affixal predicate *ʔu-yuʔaaɬ* "find". As in the previous example, *–uk* (POSS) is suffixed to the predicate and it is the first person possessor which determines subject agreement.

(71) ʔuyuʔaaɬuksiš hupkumɬ ʕiniiƛ
ʔu-**uʔaaɬ**-uk-siiš hupk-umɬ ʕiniiƛ
∅-**find**-POSS-1SG.IND ball-RD dog
= (i) My dog found the ball.
≠ (ii) The dog found my ball.

In this sentence, the only argument which may be interpreted as the possessum is *ʕiniiƛ* "dog"; *hupkumɬ* "ball" is not interpretable as the possessum. This diagnoses *ʕiniiƛ* "dog" as the subject of the predicate *ʔu-yuʔaaɬ*, since only subjects in Nuu-chah-nulth may act as the source of possessor raising.

Note that this restriction on interpretation holds regardless of the relative word orders of subject and object. (Recall from Chapter 3 that surface word order of arguments in Nuu-chah-nulth is often flexible.) In (72), the arguments are in reverse word order relative to (71).

(72) ʔuyuʔaaɬuksiš ʕiniiƛ hupkumɬ
ʔu-**uʔaaɬ**-uk-siiš ʕiniiƛ hupk-umɬ
∅-**find**-POSS-1SG.IND dog ball-RD
= (i) My dog found the ball.
≠ (ii) The dog found my ball.

Here again, the only argument which is interpreted as the possessum is *ʕiniiƛ* "dog".

Also note that the restriction on interpretation in cases of possessor raising holds in spite of the fact that in cases with no possessor raising, either the subject or the object of the affixal predicate is eligible as a possessum. The examples below are instances of unraised possessives with the same predicate, *ʔu-yuʔaaɬ* "find".

(73) a. ʔuyuʔaaɬʔiš ʕiniiƛukqs hupkumɬ
ʔu-**uʔaaɬ**-ʔiiš ʕiniiƛ-uk-qs hupk-umɬ
∅-**find**-3.IND dog-POSS-1SG.PS ball-RD
My dog found the ball. *(unraised)*

b. ʔuyuʔaaɬʔiš ʕiniiƛ hupkumɬukqs
ʔu-**uʔaaɬ**-ʔiiš ʕiniiƛ hupk-umɬ-uk-qs
∅-**find**-3.IND dog ball-RD-POSS-1SG.PS
The dog found my ball. *(unraised)*

In (73a), the subject *ʕiniiƛ* is a possessum, and in (73b) it is the object *hupkumɬ* which is a possessum. The possessive marker *–uk* is suffixed to the possessum in each case.

The results of this possessor raising diagnostic can be used as support of the analysis that complements of a transitive affixal predicate are the source of

incorporation. What we anticipate for a transitive affixal predicate is that the argument which tests as a non-subject by the possessor raising diagnostic should be the same argument which permits incorporation. This predicted behaviour is shown to occur in (74).

(74) a.
ʔuyuʔaaɬuksiš	ʕiniiƛ	hamuut
ʔu-**uʔaaɬ**-uk-siiš	ʕiniiƛ	hamuut
∅-**find**-POSS-1SG.IND	dog	bone

My dog found a bone.

b.
hamuutuʔaaɬuksiš	ʕiniiƛ
hamuut-**uʔaaɬ**-uk-siiš	ʕiniiƛ
bone-**find**-POSS-1SG.IND	dog

My dog found a bone.

Both examples illustrate possessor raising. In (74a), *–uʔaaɬ* "find" suffixes to the expletive *ʔu–*, while in (74b), incorporation of the nominal *hamuut* "bone" occurs. In both cases, the argument *hamuut* "bone" tests as a non-subject since it fails to receive a possessum interpretation under possessor raising. Since complements of a transitive predicate are not subjects, this behaviour is predicted. Thus, the results of the possessor raising diagnostic coincide with the proposed complement effect on incorporation.

4.4 Extended Unaccusatives

This section examines the properties of locative affixal predicates in Nuu-chah-nulth, which I analyse as having the syntax of extended unaccusatives. As first discussed in §4.1.3, these predicates project two internal arguments, realized in complement and specifier position, respectively.

Locative suffixes are abundant in the Wakashan languages (Sapir and Swadesh 1939; Boas 1947; Anderson 1985). In Nuu-chah-nulth, locative affixal predicates account for a substantial percentage of the affixal predicate inventory. For the Kyuquot dialect of Nuu-chah-nulth, Rose (1981: 293) estimates that there are 127 locative suffixes out of a set of 406 non-inflectional affixes in the language, amounting to approximately 31% of the total set. Locative affixal predicates denote a range of spatial relationships in Nuu-chah-nulth, including reference to physical locations (e.g., *ʔu-ʔis* "on the beach", *ʔuu-tsit* "on the surface of a liquid") and body parts (e.g., *ʔuu-wik* "on the head", *ʔuʔu-qḥta* "on the foot/feet"), as well as more abstract relationships (e.g., *ʔu-kʷi* "in", *ʔu-kčaas* "beside") (Davidson 2002). Representative examples are given below.

(75) a.
ʔuʔisʔiš	ʔaya	ẁuksʔi	ḥaaɬ	čaʔakʔi
ʔu-**ʕis**-ʔiiš	ʔaya	ẁuksʔi	ḥaaɬ	čaʔak-ʔii
∅-**on.beach**-3.IND	many	rocks	DEIC	island-DET

There's lots of rocks on the beach of that island.
(*lit*: "That island beaches/contains a lot of rocks")

b. ʔuutsitʔiš čišχmis niisy̓akʔi
ʔuu-**tsit**-ʔiiš čišχ-mis niisy̓ak-ʔii
∅-**in.water**-3.IND dirt-NOM pot-DET
There's dirt (in the water) in the pot.
(*lit*: "The pot waters/contains dirt")

c. ʔuuwikʔiš čiisiicumʔi
ʔu-**wik**[+L]-ʔiiš čiisiicum-ʔii
∅-**on.head**-3.IND headband-DET
S/he's wearing a headband.
(*lit*: "She's heading a headband")

d. ʔuʔuqḥtinuʔi šuwisukʔitk
ʔu-**qḥta**[+R]-inuƛ-'ii šuwis-uk-ʔiitk
∅-**on.feet**-PERF-2SG.IMP>3.OBJ shoes-POSS-2SG.PS
Put your shoes on!
(*lit*: "Feet your shoes!")

e. ʔukʷiʔiš qaʔuuc y̓aṁa
ʔu-**či**-ʔiiš qaʔuuc y̓aṁa
∅-**in**-3.IND burden.basket salal.berries
The salal berries are in the basket.

f. ʔukčaasuksiš maḥt̓ii saantiquẃas
ʔu-**čaas**-uk-siiš maḥt̓ii saanti-quẃas
∅-**beside**-POSS-1SG.IND house Sunday-building
My house is beside a church.

Since the first study of Southern Wakashan languages in the early 20th century, researchers have observed that locative suffixes show contrasts in the type of relationship that holds between the suffix and its host (Sapir and Swadesh 1939; Swadesh 1939). Davidson (2002: 180–181) aptly notes that the locative suffixes *–čuu* "contain" and *-či* "in" show opposite patterns with respect to the nominal they suffix to. In the examples below, the locative suffix *ʔu-čuu* "contain" cannot suffix to the nominal *qaʔuuc* "burden basket" (76b), while the *ʔu-kʷi* "in" does have the ability to do so (77b).

(76) a. haʔumčuʔiš qaʔuucʔi
haʔum-**čuu**-ʔiiš qaʔuuc-ʔii
food-**contain**-3.IND burden.basket-DET
There's food in the burden basket.
(*lit*: "The burden basket contains food")
(cf. Davidson 2002: 181, ex. 277)

b. * qaʔuučuʔiš haʔum
qaʔuuc-**čuu**-ʔiiš haʔum
burden.basket-**contain**-3.IND food
There's food in a burden basket.

(77) a. * ẏaṁačiʔiš qaʔuuc
ẏaṁa-**čiʔ**-ʔiiš qaʔuuc
salal.berries-**in**-3.IND burden.basket
There's salal berries in a burden basket.

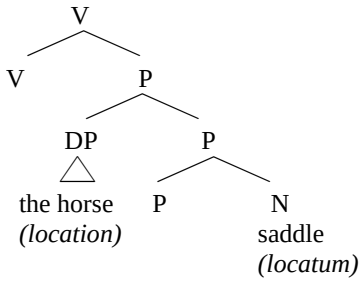
b. qaʔuučiʔiš ẏaṁaʔi
qaʔuuc-**čiʔ**-ʔiiš ẏaṁa-ʔii
burden.basket-**in**-3.IND salal.berries-DET
The salal berries are in a burden basket.
(cf. Davidson 2002: 181, ex. 276)

The claim that I develop in this section is that the suffixation patterns of locative suffixes in Nuu-chah-nulth fall out from conditioning effects of their argument structure. Under my analysis, the predicate *ʔu-c̓uu* "contain" is classified as a *locatum predicate*, while *ʔu-kʷi* "in" is classified as *location predicate*. This terminology is borrowed from treatments of English denominal "location" and "locatum" verbs (Clark and Clark 1979; Hale and Keyser 2002). As Clark and Clark (1979) describe, English locatum verbs (such as *clothe* or *saddle*) are derivationally related to nominals which specify an object which is located (the "locatum"). In (78a), the locatum verb *saddle* references the object (the saddle) which is placed onto the horse. On the other hand, location verbs in English (such as *shelve* or *bottle*) are derived from nouns that specify the location of the object, and not the located object itself. In (78b), the location verb *shelve* references the position (the shelf) where the books end up.

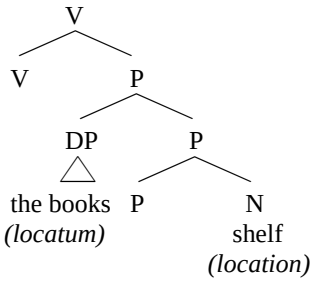
(78) a. She saddled the horse. (locatum verb; Hale and Keyser 2002: 19, ex. 35b)
b. I shelved the books. (location verb; Hale and Keyser 2002: 19, ex. 35a)

Hale and Keyser (2002) present an analysis of English locatum and location verbs in which the two locative predicate types show inverse argument structures. Locatum predicates have a locatum argument in complement position of a covert preposition, and a location argument in specifier position of the preposition. Location predicates, in contrast, have a location argument in their complement, and locatum in their specifier.

(79) a. *Locatum predicate*



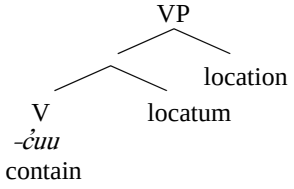
b. *Location predicate*

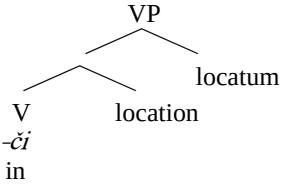


In Hale and Keyser's (2002) analysis, the predicative function of these denominals is represented by a synthetic structure composed of stacked prepositional and verbal predicates headed by covert elements. The nominal head in each configuration ("saddle", "shelf") comes to be realized as a verb via a process of conflation which ties together the nominal with the verbal head.

Following Hale and Keyser's (2002) analysis of English locative denominals, I propose that the two locative classes in Nuu-chah-nulth differ in that locatum predicates such as *ʔu-c̓uu* "contain" take a locatum argument as their complement, while location predicates such as *ʔu-kʷi* "in" take a location argument as their complement. Assuming that the second argument of these dyadic verbs is introduced in a right-branching specifier position in Nuu-chah-nulth, this yields the following syntactic representation:

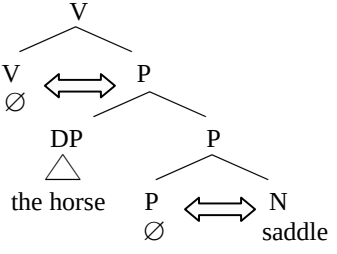
(80) a. *Locatum predicate* b. *Location predicate*





This analysis of Nuu-chah-nulth locatives differs from Hale and Keyser's (2002) treatment of English denominal locatives with respect to the process of conflation. As noted earlier in the chapter, conflation copies the "p-signature" of a complement onto a defective head. Conflation accounts for the "denominal" characteristics of the English locatives. In Hale and Keyser's analysis of English locatives, the lexical head is introduced as a nominal complement of a phonologically "defective" (i.e., covert) preposition. This prepositional phrase is embedded as the complement of a covert verb. By conflation (represented by an arrow), the phonological "signature" of the nominal comes to be associated with a phonologically defective (∅) prepositional head, and in turn, a defective verbal head (∅). The "V" thus takes on the phonological characteristics of the N, *saddle*.

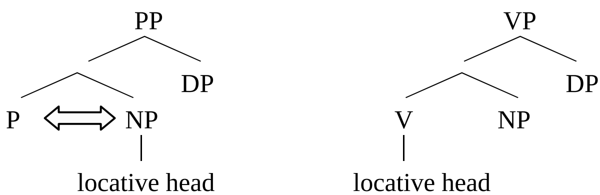
(81) *Denominal-forming conflation*



In this way, the process of conflation derives the verbal behaviour of the nominal head.

In Nuu-chah-nulth, a different set of empirical facts holds. Unlike the English denominal predicates (“shelve”, “clothe”) which show an overt correspondence to nominals (“shelf”, “cloth(es)”), there is no evidence for a nominal alternation with Nuu-chah-nulth locatives. In other words, Nuu-chah-nulth locative predicates are not related to any free-standing nominals. Accordingly, I represent the lexical material of the Nuu-chah-nulth locative predicates as the predicate heads themselves, rather than as nominal heads embedded in additional structure. That is, I propose that no abstract conflation occurs in Nuu-chah-nulth to derive the predicative function of locatives. In the analysis I have presented, the locative predicates *ʔu-c̓uu* “contain” and *ʔu-kʷi* “in” directly occupy a verbal head position, V. There is no mediating prepositional component to the predication. Thus, I adopt a direct predication analysis over a prepositional conflation analysis.

(82) a. *Prepositional conflation* b. *Direct predication*

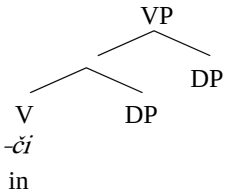


A further difference between Nuu-chah-nulth locatives and English locative denominals is that Nuu-chah-nulth locatives lack agentive force. In the Hale and Keyser analysis, the agentivity of English denominals is represented in the synthetic predicate structure by a tacit verbal element equivalent to “put”. No such covert verbal head is warranted in the Nuu-chah-nulth cases, which lack agentivity. In the *v*P shell framework which I have adopted, the absence of agentive force of Nuu-chah-nulth locatives may be denoted by the absence of a *v*P projection. This allows for a contrast between stative locatives in Nuu-chah-nulth, and agentive locatives formed by overt causativization. The following example expresses a complex predicate equivalent to English “put”, derived by causativization of the location predicate *ʔu-kʷi* “in”.

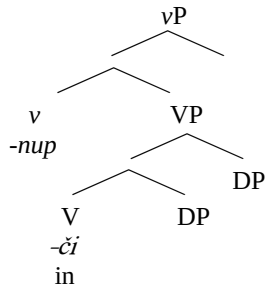
(83)	ʔukʷinupʔaqƛsiš	ƛ̓aḥiqsʔi
	ʔu-**čì**-nup-ʔaqƛ-siiš	ƛ̓aḥiqs-ʔii
	∅-**in**-CAUS-FUT-1SG.IND	box-DET
	I’ll put it in the box.	

I assume that agentive locatives such as that in (83) have a *v*P projection, but stative locatives do not. This is illustrated in the following diagrams.

(84) a. *Stative locative*



b. *Agentive locative*



We now to turn to evidence which supports the syntactic structures of locatives proposed in (80). The diagnostics which I first introduced for transitives in §4.3 (subject agreement and possessor raising) will be shown to support an analysis in which locative predicates in Nuu-chah-nulth belong to two distinct classes which have inverse argument structures. In §4.4.1, I consider locatum predicates, and in §4.4.2, I turn to location predicates.

4.4.1 Locatum Predicates

This section presents diagnotics for the syntactic structure of locatum predicates such as *ʔu-c̓uu* "contain" or *ʔu-ḥaḥuɬ* "on front".

(85) a. ʔuc̓uuʔiš č̓aʔak
ʔu-**c̓uu**-ʔiiš č̓aʔak
∅-**contain**-3.IND water
There's water in this.
(*lit*: "This contains water")

b. č̓aʔakc̓uʔiš
č̓aʔak-**c̓uu**-ʔiiš
water-**contain**-3.IND
There's water in this.
(*lit*: "This contains water")

(86) a. ʔuḥaḥuɬʔiš ʕimtiiʔakʔi ḥaa ɬuucmaʔi
ʔu-**ḥaḥuɬ**-ʔiiš ʕimtii-ʔak-ʔi ḥaa ɬuucma-ʔii
∅-**on.front**-3.IND name-POSS-3.PS DEIC woman-DET
That woman's got her name written on her front.
(*lit*: "That woman is fronting her name")

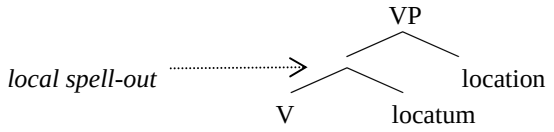
b. ʕimtiiḥaḥuɬʔiš ḥaa ɬuucmaʔi
ʕimtii-**ḥaḥuɬ**-ʔiiš ḥaa ɬuucma-ʔii
name-**on.front**-3.IND DEIC woman-DET
That woman's got a name written on her front.
(*lit*: "That woman is fronting her name")

I analyse these predicates as taking a locatum argument as a complement, and a location as a specifier.

4.4.1.1 Incorporation

According to the PF incorporation hypothesis, affixal predicates in Nuu-chah-nulth incorporate a host chosen from their derivational sister. Assuming the structure in (87), we predict that a locatum predicate such as *ʔu-c̓uu* "contain" should be oriented at spell-out with respect to its locatum argument, and not to its location argument. It is the locatum argument of a locatum predicate which is a derivational sister of the affixal predicate.

(87)



This prediction holds, as indicated in the sentences in (88), repeated from (76). In (88a), the affixal predicate *ʔu-c̓uu* "contain" suffixes to the locatum argument, *haʔum* "food". As shown in (88b), it is ungrammatical for this predicate to suffix to the location argument, *qaʔuuc* "burden basket".

(88) a.

haʔumc̓uʔiš	qaʔuucʔi
haʔum-**c̓uu**-ʔiiš	qaʔuuc-ʔii
food-**contain**-3.IND	burden.basket-DET

There's food in the burden basket.
(*lit*: "The burden basket contains food")

b. *

qaʔuucc̓uʔiš	haʔum
qaʔuuc-**c̓uu**-ʔiiš	haʔum
burden.basket-**contain**-3.IND	food

There's food in a burden basket.

Other locatum predicates show the same restriction. This is demonstrated in the following examples with *ʔu-kuxs* "on the head", and *ʔuu-tsit* "on the surface of a liquid". In (89), the affixal predicate suffixes to the locatum argument *ƛ̓iʔičumɬ* "straw hat", but not the location argument *ɬuč-* "woman". In (90), the affixal predicate suffixes to *c̓išx-* "dirt", the locatum, and not to *niisy̓ak* "pot", the location.

(89) a.

ƛ̓iʔičumɬuxsʔiš	ɬuucma
ƛ̓iʔičumɬ-**uxs**-ʔiiš	ɬuucma
straw.hat-**on.head**-3.IND	woman

A woman is wearing a straw hat.
(*lit*: "A woman is heading a straw hat")

b. *

ɬučuxsʔiš	ƛ̓iʔičumɬ
ɬuč-**uxs**-ʔiiš	ƛ̓iʔičumɬ
woman-**on.head**-3.IND	straw.hat

A woman is wearing a straw hat.

(90) a. ċiišχsitʔiš ʔuḥ niisy̓akʔi ḥuqsaapči
ċišχ-**sit**[+L]-ʔiiš ʔuḥ niisy̓ak-ʔii ḥuq-saap-čii
dirt-**on.surface.of.liquid**-3.IND DEIC pot-DET spill-CAUS-2SG.GO
There's dirt in the pot. Go dump it out!
(*lit*: "The pot surfaces/contains dirt. Go dump it out!")

b. * niisy̓aksitʔiš ċišχmis
niisy̓ak-**sit**-ʔiiš ċišχmis
pot-**in.water**-3.IND dirt
There's dirt in a pot.

The incorporation asymmetry derives from the properties of pairwise spell-out to PF. An affixal predicate finds a host from its derivational sister. As the derivational sister of a locatum predicate, the locatum argument acts as a host for the affix. Location arguments are ineligible as a host because they are not derivational sisters to the affixal predicate.

The incorporation asymmetry between the arguments of a locatum predicate extends predictably to the formation of *wh*-questions and relative clauses. For locatum verbs such as *ʔu-uqƛ̓* "inside" or *ʔu-ċuu* "in a container", a *wh*-word which corresponds to the locatum argument incorporates into the affixal predicate. In (91a), the locatum *ʔaqi-* "what" incorporates into the affixal predicate *ʔu-uqƛ̓* "inside". In (91b), the same locatum incorporates into the affixal predicate *ʔu-ċuu* "in a container".

(91) a. ʔaqiqƛ̓ḥ č̓aʼmaqƛ̓y̓akʔi
ʔaqi-**aqƛ̓**-ḥ č̓aʼmaqƛ̓y̓ak-ʔii
what-**inside**-3.Q oven-DET
What's in the oven?

b. ʔaqiċuḥ ʔaḥkuu
ʔaqi-**ċuu**-ḥ ʔaḥkuu
what-**contain**-3.Q DEIC
What's in this?
(*lit*: "What does this contain?")

Incorporation of a *wh*-location is disallowed by a locatum verb. As shown in (92a), it is impossible for the location *waayaq* "which" to incoporate into the affixal predicate *ʔu-ċuu* "in a container". Instead, the location must remain unsuffixed to the locatum predicate, as in (92b).

(92) a. * waayaqċuḥ haʔumʔakqs
waayaq-**ċuu**-ḥ haʔum-ʔak-qs
which-**in.container**-3.Q food-POSS-1SG.PS
Which one is my food in?

b. waayaqḥ ʔučuu haʔumʔakqs
waayaq-ḥ ʔu-**čuu** haʔum-ʔak-qs
which-3.Q ∅-**in.container** food-POSS-1SG.PS
Which one is my food in?
(*lit*: "Which contains my food?")

A parallel pattern is found with relative clauses formed with locatum predicates. A relative pronoun (*yaq*) which corresponds to the locatum argument incorporates into the affixal predicate *ʔu-kuxs* "on the head" in (93a). As shown in (93b), a relative pronoun corresponding to the location argument does not incorporate into the locatum predicate.

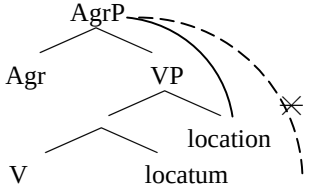
(93) a. ƛuɬčuuʔakʔiš ƛ̓iʔičumɬ yaquxsʔitq ḥaa ɬuucmaʔi
ƛuɬ-čuu-ʔak-ʔiiš ƛ̓iʔičumɬ yaq-**uxs**-ʔiitq ḥaa ɬuucma-ʔii
good-RES-POSS-3.IND straw.hat REL-**on.head**-3.RL DEIC woman-DET
The staw hat that lady is wearing is very nice. *(locatum-relative)*

b. y̓ukʷiiqsaksiš ɬuucmaʔi yaqʔiitq nuutinɬ
y̓ukʷiiqsu-ʔak-siiš ɬuucma-ʔii yaq-ʔiitq nuut-**winɬ**
y.sibling-POSS-1SG.IND woman-DET REL-3.RL necklace-**on.neck**
The woman who is wearing a necklace is my younger sibling.
(*location-relative*)

4.4.1.2 Subject Agreement

The subject agreement for a locatum predicate corroborates an analysis in which the location argument occurs higher than the locatum. As the highest argument, the location is predicted to trigger the subject agreement in AgrP.

(94)



This prediction holds: for locatum predicates, the person agreement corresponds to the location argument, not the locatum argument. A first person location argument is registered by the first person indicative inflection *–siiš*, as illustrated below.

(95) a. ʔucuc̓umsiš sačḵaḥs
ʔu-**cuc̓um**-siiš sačḵaḥs
∅-**on.side.of.head**-1SG.IND comb
I've got a comb on the side of my head.

b. ʔuuwinɬsiš nuutinum ʔuʔiiḥas puumaɬʔiḥa
ʔuu-**winɬ**-siiš nuutinum ʔu-ʔiiḥa-s puumaɬ-ʔiḥa
∅-**on.neck**-1SG.IND necklace ∅-due.to-1SG.ABS itchy-feeling
Because I'm wearing a necklace I'm itchy.

c. ƛ̓iʔičumɬuxssiš
ƛ̓iʔičumɬ-**uxs**-siiš
straw.hat-**on.head**-1SG.IND
I'm wearing a straw hat.

Here, the locatum argument is not registered by subject agreement.

4.4.1.3 Possessor Raising

In contexts with no possessor raising, either argument of a locatum predicate may be marked with possessive morphology or receive an interpretation in which the possessive-marked nominal is a possessum. In (96a), the location argument *čʼupčʼupšumɬ* "sweater" is possessive-marked as a possessum, while in (96b) it is the locatum *ʔimtii* "name" which acts as a possessum. (There is no restriction here as to whether the possessor *Lucy* must precede or follow the possessum: following Ravinski (2005), I assume this is a case of "scrambling".)

(96) a. ʔuʔaɬʔiš ʕimtii Lucy čʼupčʼupšumɬukʔi
ʔu-**ʔaɬ**-ʔiiš ʕimtii Lucy čʼupčʼupšumɬ-uk-ʔi
∅-**on.flat.surface**-3.IND name Lucy sweater-POSS-3.PS
There is a name is on Lucy's sweater. *(possessum= location)*

b. ʔuʔaɬʔiš ʕimtiiʔakʔi Lucy čʼupčʼupšumɬ
ʔu-**ʔaɬ**-ʔiiš ʕimtii-ʔak-ʔi Lucy čʼupčʼupšumɬ
∅-**on.flat.surface**-3.IND name-POSS-3.PS Lucy sweater
Lucy's name is on a sweater. *(possessum= locatum)*

In possessor raising contexts, however, there is an asymmetry between the two arguments of the locatum predicate. Only the location argument of a locatum predicate may act as the source of possessor raising. This is reflected in the possessor raising sentences below, in which a possessive marker suffixes to the locatum predicate *ʔu-ʔaɬ* "on a flat surface". Here, the location *čʼupčʼupšumɬ* "sweater" is obligatorily interpreted as the possessum. The sentence in (97a) shows the pattern with the locatum predicate suffixed to *ʔu-*, and (97b) shows the same restriction on interpretation when the affixal predicate has suffixed to the locatum argument.

(97) a. ʔuʔaɬukʔiš ʕimtii Lucy čʼupčʼupšumɬ
ʔu-**ʔaɬ**-uk-ʔiiš ʕimtii Lucy čʼupčʼupšumɬ
∅-**on.flat.surface**-POSS-3.IND name Lucy sweater
= (i) There is a name on Lucy's sweater. *(possessum = location)*
≠ (ii) Lucy's name is on a sweater. *(possessum ≠ locatum)*

b.	ʕimtiqaɬukʔiš	Lucy	čˀupčˀupšumɬ
	ʕimtii-**ʔaɬ**-uk-ʔiiš	Lucy	čˀupčˀupšumɬ
	name-**on.flat.surface**-POSS-3.IND	Lucy	sweater
	= (i) There is a name on Lucy's sweater.	*(possessum = location)*	
	≠ (ii) Lucy's name is on a sweater.	*(possessum ≠ locatum)*	

In (97), an interpretation of *"Lucy's name is on a sweater"* is unavailable. Thus, the locatum (*ʕimtii* "name") proves to be ineligible as the source of possessor raising.

It is predicted by the analysis that only a location argument of a locatum predicate should act as a source of possessor raising. Possessor raising in Nuu-chah-nulth is possible only out of subjects, and never objects. As the higher argument of a locatum predicate, the location takes on the role of a subject, and with this, the ability to serve as the source of possessor raising.

In the next section, we turn to the discussion of location predicates, which I argue have an orientation of arguments which is the inverse of that of locatum predicates.

4.4.2 Location Predicates

This section presents diagnotics for the syntactic structure of location predicates such as *ʔu-kʷi* "in" or *ʔu-kčaas* "beside". Examples of each of these affixal predicates are given below.

(98) a.

ʔukʷiʔiš	čˀaʔak	čˀaxʷac
ʔu-**či**-ʔiiš	čˀaʔak	čˀaxʷac
∅-**in**-3.IND	water	bucket

The water is in the bucket.

b.

čˀaxʷacčiʔiš	čˀaʔak
čˀaxʷac-**či**-ʔiiš	čˀaʔak
bucket-**in**-3.IND	water

The water is in the bucket.

(99) a.

ʔukčaasʔiš	Kay	čakup
ʔu-**čaas**-ʔiiš	Kay	čakup
∅-**beside**-3.IND	Kay	man

Kay's sitting beside a man.

b.

čapχčaasʔiš	Kay
čapχ-**čaas**-ʔiiš	Kay
man-**beside**-3.IND	Kay

Kay's sitting beside a man.

I analyse these predicates as taking a location argument as a complement, and a locatum as a specifier.

4.4.2.1 Incorporation

Only the location argument of a location predicate may incorporate; locata may not. This is illustrated in (100) for the predicate *ʔu-kʷi* "in". In (100a), the predicate suffixes to the location *čʼaxʷac* "bucket". It is not possible for the locatum, *čʼaʔak* "water", to serve as a host for the affixal location predicate, as indicated in (100b).

(100) a. čʼaxʷacčiʔiš čʼaʔak
čʼaxʷac-**<u>či</u>**-ʔiiš čʼaʔak
bucket-**<u>in</u>**-3.IND water
The water is in the bucket.

b. * čʼaʔakčiʔiš čʼaxʷac
čʼaʔak-**<u>či</u>**-ʔiiš čʼaxʷac
water-**<u>in</u>**-3.IND bucket
The water is in the bucket.

This incorporation asymmetry is readily observed in *wh*-questions, in which an incorporated *wh*-word references only a location, and not the locatum. In the following example, *ʔaqi* "what" incorporates in the location predicate *ʔu-kʷi* "in". The *wh*-word corresponds only to the location argument, while the argument *qaʔuuc* "basket" refers to the locatum.

(101) ʔaqičiḥ qaʔuuc
ʔaqi-**<u>či</u>**-ḥ qaʔuuc
what-**<u>in</u>**-3.Q burden.basket
= (i) What's the burden basket in? *(wh = location)*
≠ (ii) What's in the burden basket? *(wh ≠ locatum)*

When the locatum argument of a location predicate is *wh*-questioned, the locatum is not incorporated. Compare the locatum-question in (102a) to the location-question in (102b): only in the latter case is the *wh*-word *waayaq* "which" incorporated into the location predicate *ʔu-kʷi* "in".

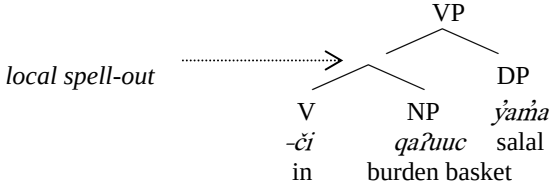
(102) a. waayaqḥ qaʔuučči
waayaq-ḥ qaʔuuc-**<u>či</u>**
which-3.Q burden.basket-**<u>in</u>**
Which one is in the burden basket? *(wh = locatum)*

b. waayaqčiḥ haʔumʔakqs
waayaq-**<u>či</u>**-ḥ haʔum-ʔak-qs
which-**<u>in</u>**-3.Q food-POSS-1SG.PS
Which one has my food in it? *(wh = location)*

Given the proposed analysis of the syntactic orientation of arguments of a location predicate, this incorporation asymmetry follows. A location argument is predicted to

act as the host for an affixal location predicate because this argument is the derivational sister of the predicate. This is illustrated in the diagram in (103), which represents the argument structure of the sentence *qaʔuučičiʔiš ɣaṁaʔi* "The salal berries are in a burden basket" (from 77b). The location argument *qaʔuuc* "burden basket" acts as host for the affixal predicate at local spell-out.

(103)



Spell-out induces a linearization of *qaʔuuc-či* "in a burden basket".

4.4.2.2 Subject Agreement

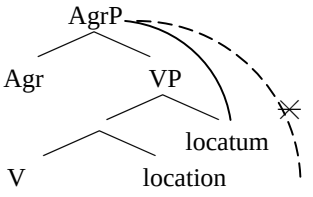
For location predicates, subject agreement matches the locatum argument. This is illustrated in the question–answer pair in (104), in which the respondent specifies his/her location with the location predicate *ʔu-kʷi* "in". The predicate is inflected with the first person subject agreement *–siiš* (1SG.IND), corresponding to the locatum argument of the predicate.

(104) a. waasik
waasi-k
where-2SG.Q
Where are you?

b. ʔukʷisiš ċucsac
ʔu-**či**-siiš ċucsac
∅-**in**-1SG.IND tub
I'm in the tub.

This pattern of subject agreement follows if the locatum is the highest argument of the location predicate. In the diagram below, the locatum argument establishes a "minimal link" to Agr.

(105)



4.4.2.3 Possessor Raising

For location predicates, locata act as the source of possessor raising. In the examples below, the possessum corresponds to the locatum, and not to the location. In (106), the locatum *haʔum* “food” is treated as the possessum; in (107), the locatum *maḥt̓ii* “house” is the possessum.

(106) waayaqčakḥs   haʔum
waayaq-**či**-ʔak-ḥs   haʔum
which-**in**-POSS-1SG.Q   food
= (i) Which one has my food in it?   *(possessum = locatum)*
≠ (ii) Which of mine has food in it?   *(possessum ≠ location)*

(107) saantiquw̓asčasuksiš   maḥt̓ii
saantiquw̓as-**čas**-uk-siiš   maḥt̓ii
church-**beside**-POSS-1SG.IND   house
= (i) My house is beside a church.   *(possessum = locatum)*
≠ (ii) The house is beside my church.   *(possessum ≠ location)*

This restriction on possessor raising holds in spite of the fact that either a locatum or a location may act as a possessum in contexts with no possessor raising. The example in (108a) is a case of possessor raising in which only the locatum *y̓am̓a* “salal berries” may be interpreted as the possessum. The example in (108b) is an unraised example showing *y̓am̓a* “salal berries” as a possessive-marked possessum. The example in (108c) shows that there is no restriction on the location *qaʔuuc* “burden basket” acting as possessum when no possessor raising occurs. In (108c), the location is marked with the possessive morpheme *–uk* (POSS), and no possessive marking appears on the predicate.

(108) a. qaʔuucčaksiš   y̓am̓a
qaʔuuc-**či**-ʔak-siiš   y̓am̓a
basket-**in**-POSS-1SG.IND   salal.berries
= (i) My salal berries are in a burden basket.   *(possessum = locatum)*
≠ (ii) The salal berries are in my burden basket.   *(possessum ≠ location)*

b. ʔukʷiʔiš   qaʔuuc   y̓am̓aʔakqs
ʔu-**či**-ʔiiš   qaʔuuc   y̓am̓a-ʔak-qs
∅-**in**-3.IND   burden.basket   salal-POSS-1SG.PS
My salal berries are in a burden basket.   *(possessum = locatum)*

c. ʔukʷiʔiš   qaʔuucukqs   y̓am̓a
ʔu-**či**-ʔiiš   qaʔuuc-uk-qs   y̓am̓a
∅-**in**-3.IND   burden.basket-POSS-1SG.PS   salal
The salal berries are in my burden basket.   *(possessum = location)*

Thus, it is only in possessor raising contexts that the location argument of a location predicate is barred from acting as a possessum. This pattern supports an analysis in

which the locatum argument is the subject of a location predicate, and not the object. Recall that possessor-extraction is possible only out of subjects in Nuu-chah-nulth.

In the next section, we turn to ditransitive affixal predicates, which I analyse as transitivized extended unaccusatives.

4.5 Ditransitives

There is evidence for two distinct classes of ditransitive affixal predicates in Nuu-chah-nulth. The first class, exemplified by *ʔu-yii* "give", suffixes to a theme argument. In (109a), the affixal predicate *ʔu-yii* "give" incorporates the theme *taanaq-* "money". The second type, exemplified by *ʔu-ʔiip* "give to", suffixes to a goal argument. This pattern is illustrated in (109b), in which the affixal predicate *ʔu-ʔiip* "give to" incorporates *sut-* (2SG).

(109) a.
taanaqayiʔi ʔumʔi
taanaq-**yii**-'ii ʔumʔi
money-**give**-2SG.IMP>3.OBJ mother
Give mom money!

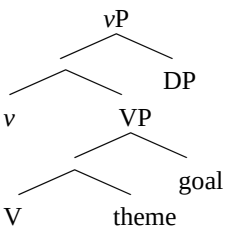
b.
sutʔiimitsiš taana
sut-**ʔiip**-mit-siiš taana
2SG-**give.to**-PST-1SG.IND money
I gave you money.

According to the analysis I proposed in §4.1.2, ditransitives are treated as extended unaccusatives which are abstractly transitivized when they are embedded within a *v*P "layer". I further propose that the two classes of ditransitives in Nuu-chah-nulth are distinguished according to the orientation of the arguments which belong to the extended unaccusative layer. Predicates such as *ʔu-yii* "give" belong to a class I label "locatum-type" ditransitives, while predicates such as *ʔu-ʔiip* "give to" belong to a "location-type" class. The incorporation patterns of each of these types of ditransitives are illustrated in the following sections.

4.5.1 Locatum-type Ditransitives

This section considers the characteristics of locatum-type ditransitives, which I analyse as having a configuration of arguments as in (110).

(110)



According to the analysis, these predicates take a theme in their complement position, while a goal argument occupies specifier position of the embedded extended unaccusative relation. Predicates belonging to this class are *ʔu-yii* "give", *ʔuu-kš* "ask for" and *ʔuu-pẃin* "to owe".

(111) a.
ʔuyiiʔi — ʔumʔi — taana
ʔu-**ayii**-'ii — ʔumʔi — taana
∅-**give**-2SG.IMP>3.OBJ — mother — money
Give mom money!

b.
taanaqayiʔi — ʔumʔi
taanaq-**ayii**-'ii — ʔumʔi
money-**give**-2SG.IMP>3.OBJ — mother
Give mom money!

(112) a.
ʔuukščii — ʔumʔi — čʼaʔak
ʔu-**kš**[+L]-čii — ʔumʔi — čʼaʔak
∅-**ask.for**-2SG.GO — mother — water
Go ask mother for water!

b.
čʼaaʔakščii — ʔumʔi
čʼaʔak-**kš**[+L]-čii — ʔumʔi
water-**ask.for**-2SG.GO — mother
Go ask mother for water!

(113) a.
ʔuupẃinʔick — siẏa — taana
ʔuu-**pẃin**[+L]-ʔiick — siẏa — taana
∅-**owe**-2SG.IND — 1SG.PRO — money
You owe me money.

b.
taanaqapẃinʔick — siẏa
taanaq-**pẃin**[+L]-ʔiick — siẏa
money-**owe**-2SG.IND — 1SG.PRO
You owe me money.

For locatum-type ditransitive, incorporation of a goal is not possible. Only a theme argument may act as a host for the affixal predicate. This is illustrated by the sentences in (114). In (114a), the theme *ƛačaaɬẏak* "book" is the host for the affixal predicate *ʔu-yii* "give". The recipient *čapx̣-* "man" may not serve as the host, as shown in (114b).

(114) a.
ƛačaaɬẏakayimitʔiš — Robin — čakupʔi
ƛačaaɬẏak-**ayii**-mit-ʔiiš — Robin — čakup-ʔii
book-**give**-PST-3.IND — Robin — man-DET
Robin gave a book to the man.

b. * čapχayimitʔiš Robin ɬačaaɬɣ̓ak
čapɣ̓χ-**ayii**-mit-ʔiiš Robin ɬačaaɬɣ̓ak
man-**give**-PST-3.IND Robin book
Robin gave a man a book.

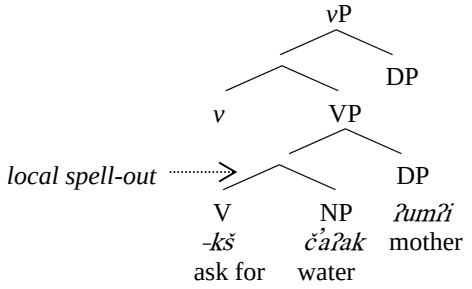
This incorporation restriction is reflected in the formation of relative clauses. A relative pronoun corresponding to a goal argument may not incorporate into a locatum-type ditransitive. As shown in (115a), for goal relativizations, the relative pronoun *yaq* "who, which" occurs independently of the affixal predicate *ʔu-yii* "give". The ungrammaticality of (115b) demonstrates that the relative pronoun cannot serve as the host for the affixal predicate *ʔu-yii* "give" in a goal relativization.

(115) a. ɣ̓ukʷiiqsaksiš ɬaa yaqʔiitq ʔuyii taana Robin
ɣ̓ukʷiiqsu-ʔak-siiš ɬaa yaq-ʔiitq ʔu-**yii** taana Robin
younger.sibling-POSS-1SG.IND DEIC REL-3.RL ∅-**give** money Robin
That is my younger sibling, who Robin gave money to.

b. * ɣ̓ukʷiiqsaksiš ɬaa yaqayiiʔitq Robin taana
ɣ̓ukʷiiqsu-ʔak-siiš ɬaa yaq-**yii**-ʔiitq Robin taana
younger.sibling-POSS-1SG.IND DEIC REL-**give**-3.RL Robin money
That is my younger sibling, who Robin gave money to.

The incorporation asymmetry for locatum-type ditransitives follows from the complement effect in PF incorporation. If a theme occupies complement position of a locatum-type ditransitive, then it is the derivational sister of the predicate, and is directed to act as the host for an affixal predicate at spell-out. Goal arguments, in contrast, do not have the privilege to form a local spell-out domain directly with the affixal predicate. This is illustrated for *čɬaaʔakščii ʔumʔi* "Go ask mother for water!", from (112b):

(116)

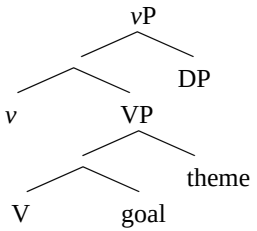


The reflex of this local spell-out is a linearization of *čɬaʔak-kš*.

4.5.2 Location-type Ditransitive

The second type of ditransitives has a configuration of internal arguments which is the inverse of that of locatum-type ditransitives.

(117)



By this analysis, the goal argument acts as the complement of the ditransitive, while the theme is in specifier position. The predicate *ʔu-ʔiip* "give to" is a location-type ditransitive.

(118) a.

ʔuʔiimitsiš	suẇa	taana
ʔu-**ʔiip**-mit-siiš	suẇa	taana
∅-**give.to**-PST-1SG.IND	you	money
I gave you money.		

b.

sutʔiimitsiš	taana
sut-**ʔiip**-mit-siiš	taana
you-**give.to**-PST-1SG.IND	money
I gave you money.	

Location-type ditransitives incorporate a goal argument. For example, the goals *si-* "me" and *sut-* "you" incorporate into *ʔu-ʔiip* "give to" in the following examples.

(119) a.

siʔiipi̇s	ʔayapẇinʔaƛ̓ats	taana
siẏa-**ʔiip**-'iis	ʔaya-pẇin-'aƛ̓-'at-s	taana
me-**give.to**-2SG.IMP>1SG	many-owe-TEMP-PAS-1SG.ABS	money
Give it to me! He owes me lots of money.		

b.

sutʔiimitʔiš	Robin	taana
sut-**ʔiip**-mit-ʔiiš	Robin	taana
you-**give**-PST-3.IND	Robin	money
Robin gave you money.		

In relative clauses formed with *ʔu-ʔiip* "give to", a relative pronoun (*yaq*) corresponding to the goal incorporates into the affixal predicate. This is illustrated below.

(120)

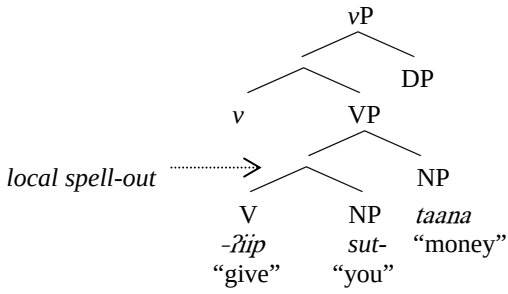
ẏukʷiiqsaksiš	ḥaa	yaʕiipʔitq	Robin	taana
ẏukʷiiqsu-ʔak-siiš	ḥaa	yaq-**ʔiip**-ʔiitq	Robin	taana
y.sibling-POSS-1SG.IND	DEIC	REL-**give**-3.RL	Robin	money
That is my younger sibling, who Robin gave money to.				

For this location-type ditransitive, incorporation of a theme is not possible. As shown in (121), it is ungrammatical for the theme *taanaq-* "money" to act as the host for the predicate *ʔu-ʔiip* "give to".

(121) * taanaʕiimitʔiš Robin suẇa
taanaq-**ʔiip**-mit-ʔiiš Robin suẇa
money-**give.to**-PST-3.IND Robin you
Robin gave you money.

The restriction that themes may not serve as the host for a location-type ditransitive follows from the analysis I have presented. PF incorporation is sensitive to the argument structure of the affixal predicate. I have analysed location-type ditransitives as having a goal as a complement. The theme, in contrast, appears as an internal argument in specifier position. At local spell-out, the affixal predicate is linearized with respect to the goal argument, its derivational sister. This spell-out domain excludes the theme, and thus the possibility of the affixal predicate taking the theme as its host. This is illustrated in (122) for the sentence *sutʔiimitsiš taana* "I gave you money". Here, the goal *sut-* "you" is the derivational sister of the affixal predicate *ʔu-ʔiip* "give to".

(122)



The reflex of spell-out for (130) is *sut-ʔiip*.

4.6 Serial Verb Affixation

This section discusses a usage of the affixal predicates discussed in this chapter which is in need of further research. A subset of affixal predicates show the ability to participate in a complex predicate strategy which I will refer to as "serial verb affixation". This predication construction is illustrated in (123), in which the unaccusative affixal predicate *ʔu-waḥsuɬ* "go out (of opening)" combines with the verbal host *sa* "crawl", forming the complex predicate *sa-waḥsuɬ* "crawl out of an opening".

(123) sawaḥsuɬʔiš histaqšiƛ ʕaʕiƛʔi
sa-**waḥsuɬ**-ʔiiš histaq-šiƛ ʕaʕiƛ-ʔii
crawl-**go.out**-3.IND from-PERF cave-DET
S/he crawled out from the cave.

These complex predicates disallow "decomposition": the affixal predicate may not be separated from the verbal host. The example in (124a) shows serial verb

affixation involving the affixal predicate *ʔu-ʕaaʔatu* "move down". In (124b), it is shown to be ungrammatical for *ʔu-* to be used as the host for *-ʕaaʔatu* "move down" when it is combined with the predicate *mat-* "fly".

(124) a. matʕaaʔatumitʔiš maamaati
mat-**ʕaaʔatu**-mit-ʔiiš maamaati
fly-**move.down**-PST-3.IND bird
A bird flew down. (cf. Davidson 2002: 198, ex. 292c)

b. * ʔuʕaaʔatumitʔiš mataa maamaati
ʔu-**ʕaaʔatu**-mit-ʔiiš mat-aa maamaati
∅-**move.down**-PST-3.IND fly-CONT bird
A bird flew down.

This lack of decompositionality stands in contrast to cases in which the affixal predicate takes a nominal complement. As shown in the "noun incorporation" examples in (125), the predicate *-ʕaaʔatu* "move down" can be separated from the nominal host *ƛ̓aƛ̓uus* "star" if the expletive host *ʔu-* appears.

(125) a. ƛ̓aƛ̓uusʕaʔatumitʔiš
ƛ̓aƛ̓uus-**ʕaaʔatu**-mit-ʔiiš
star-**move.down**-PST-3.IND
A star fell.

b. ʔuʕaaʔatumitʔiš ƛ̓aƛ̓uus
ʔu-**ʕaaʔatu**-mit-ʔiiš ƛ̓aƛ̓uus
∅-**move.down**-PST-3.IND star
A star fell.

Unaccusative verbs of motion frequently occur in this serial verb construction, as do locatum predicates. The examples in (126) show affixation of *–iiʔiƛ* "go inside house" and *-ʕaaʔatu* "move down". The examples in (127) illustrate affixation of *–c̓it̓um* "on side of the head" and *–winɬ* "on the neck".

(126) *Serial verb affixation with unaccusatives*

a. kamatqiiʔiƛʔiš Tom
kamatq-**iiʔiƛ**-ʔiiš Tom
run-**go.inside.house**-3.IND Tom
Tom ran inside.

b. c̓iʕaaʔatumitʔiš matuk
c̓i-**ʕaaʔatu**-mit-ʔiiš matuk
fall-**move.down**-PST-3.IND plane
A plane crashed.

(127) *Serial verb affixation with locatum predicates*

a.	ƛ̓ikciƛ̓umƛsiš	Ken
	ƛ̓ik-**ciƛ̓um**-uƛ-siiš	Ken
	punch-**side.of.head**-PERF-1SG.IND	Ken
	I punched Ken on the side of the head.	
b.	taaqʷinɬʔanitsiš	Ken
	taaq-**winɬ**-ʔat-mit-siiš	Ken
	squeeze-**on.neck**-PAS-PST-1SG.IND	Ken
	I was being choked by Ken.	

The morpheme *–yaq-* often intervenes between an initial predicate and the locative affixes *–ʻiɬ* "in the house", *-ʼas* "on ground", *-ʻis* "on beach". In such contexts, the initial predicate may be marked for aspect. This pattern is illustrated in (128) with the locative affix *–ʻiɬ* "in the house". The example in (128a) shows serial verb affixation without the use of the morpheme *–yaq-*. In (128b), the morpheme *–yaq-* appears and the initial predicate is marked with continuative aspect.

(128)

a.	haptiɬʔiš	Ken
	hapt-**ʻiɬ**-ʔiiš	Ken
	hide-**in.house**-3.IND	Ken
	Ken is hiding in the house.	
b.	haptaayaqiɬʔiš	Ken
	hapt-aa-yaq-**ʻiɬ**-ʔiiš	Ken
	hide-CONT-?-**in.house**-3.IND	Ken
	Ken's been hiding in the house.	

The syntactic constraints on this process of serial verb affixation require additional research. The question should be tackled from two angles, to determine any restrictions on which predicate may act as the initial element in a serial verb, and which affixal predicates may act as the second element. Preliminary research into the latter suggests that the ability of affixal predicates to act as the second element may be tied to the absence of an external argument. Indeed, the distinctive ability of unaccusative and locative affixal predicates to appear as second elements in these serial verbs sets these classes apart under traditional descriptions as "restrictive" suffixes (Sapir and Swadesh 1939; Rose 1981; Davidson 2002), a topic discussed in Chapter 6. Further investigation is needed into the syntactic roles which arguments in these constructions play.

Anderson (1985) discusses similar complex predicates in the Northern Wakashan language Kwakw'ala, which are formed using cognates of Nuu-chah-nulth locatives. Anderson argues that in such complex predicates, the Kwakw'ala locative suffixes describe the position of subjects for an initial intransitive predicate, and the position of objects for an initial transitive predicate. For the Kwakw'ala complex predicate *kʷəʼl-iɬ* "lie down in the house", for example, Anderson (1985: 31) argues that the locative suffix *–iɬ* "(on the floor) in the house" describes the

position of the subject of the intransitive predicate *kʷə'l* "lie down". The restrictions on examples with the cognate affixal predicate *–'iɬ* "(on the floor) in the house" in Nuu-chah-nulth are unclear at present, however. In the examples in (129), *–'iɬ* "(on the floor) in the house" references the position of the subject of the initial predicate.[5] In (129a), it is the subject of *ʕaaqʕaaqa* "shout (ITER)" which is described by *–'iɬ* "(on the floor) in the house". In (129b), *–'iɬ* "(on the floor) in the house" references the position of the subject of *huχqaa* "stare (CONT)".

(129) a. ʕaaqʕaaqayaqiɬʔiš ƛ̓aƛ̓aak
ʕaaq-a[+R]-yaq-**'iɬ**-ʔiiš ƛ̓aƛ̓a-ʔak
shout-ITER-?-**in.house**-3.IND child-POSS
She is shouting at her child in the house.
= (i) mother is inside, shouting at her child outside through an open window.
≠ (ii) mother is outside, shouting at her child inside.

b. huχqaayaqiɬʔiš nuw̓iiqsak
huχq-aa-yaq-**'iɬ**-ʔiiš nuw̓iiqsu-ʔak
stare-CONT-?-**in.house**-3.IND father-POSS
She's staring at her father inside.
= (i) she is inside and her dad is outside.
≠ (ii) she is outside and her dad is inside.

In superficially similar examples, however, a different effect is found. In the examples in (130), *–'iɬ* "(on the floor) in the house" does not reference the position of the subject of the initial predicate. In (130a), the position of the child who is spitting is irrelevant, so long as the spit ends up on the floor. A similar effect is shown in (130b), in which *–'iɬ* "(on the floor) in the house" references the aim of the bullets, and not the position of the shooter.

(130) a. taaxtaaxayaqiɬukʔick ƛ̓aƛ̓aʔis
taax-a-yaq-**'iɬ**-uk-ʔiick ƛ̓aƛ̓a-ʔis
spit-ITER-?-**in.house**-POSS-2SG.IND child-DIM
Your child keeps spitting on the floor.
= (i) child is on the floor inside
= (ii) child is elsewhere

b. χ̓iχ̓umyiɬitwaʔiš Ken hiqaačip ʔumʔiiqsak maḥt̓ii
χ̓iχ̓um-**'iɬ**-mit-waʔiš Ken hiqaa-čip ʔumʔiiqsu-ʔak maḥt̓ii
shoot-**in.house**-PST-3.QUOT Ken wreck-BEN mother-POSS house
Ken was shooting onto the floor. He wrecked his mother's house.
= (i) Ken is inside.
= (ii) Ken is elsewhere.

[5] The morpheme *–yaq-* is obligatory in these examples. This matter requires future research.

The restrictions on interpretation may ultimately be clarified by further research on the argument structure of the initial independent predicates involved (e.g., *ʕaaqʕaaqa* "shout (ITER)" and *taaxtaaxa* "spit (ITER)").

4.7 Conclusion

In this chapter, the argument structure of affixal predicates was shown to be linked to a restricted set of attested incorporation patterns. I attributed this restricted pattern to a conditioning effect of the syntax at local spell-out, whereby only an argument introduced as a derivational sister to the affixal predicate is able to be spelled-out as the host for the affix. This induces the "complement" effect of PF incorporation in Nuu-chah-nulth. This effect was demonstrated to hold across a variety of affixal predicates, which have a range of argument structures – from unaccusative to transitive, extended unaccusative to ditransitive. For all these predicates, only derivational sisters to the affix may act as hosts.

The local spell-out hypothesis predicts the absence of unergative affixal predicates in the language. According to the analysis, affixal morphemes require linearization with respect to a host at the point of spell-out. Unergative predicates, which lack a pairing of a phonologically contentful verb and a complement, fail to meet the binary requirement for affixation. For affixation, two distinct elements are required at spell-out: a host, and an affix.

5. Verbal Complements of Affixal Predicates

Through the unknown, unremembered gate...
Is that which was the beginning...
~ T.S. Eliot *Four Quartets no. 4*

5.0 Introduction

In Chapter 4, an analysis was presented of the argument structure of affixal predicates which take nominal complements. The suffixation pattern of these affixal predicates often results in "noun incorporation" – although the process is not limited to targeting a single syntactic category. Rather, the choice of host is sensitive to string adjacency to the affixal predicate within its local spell-out domain.

We now turn to the suffixation pattern of affixal predicates which take verbal complements, with particular consideration given to how the syntactic structure of these predicates interacts with restrictions on PF incorporation. As we will see in this chapter, when an affixal predicate which takes a verbal complement suffixes to a host, the outcome may resemble "verb incorporation". In (1), for example, the affixal predicate -*ataḥ* "try to" incorporates the verb *suk*- "reach" as its host.

(1) susuk^{w}ataḥʔiš kiƛuuk
suk-**ataḥ**[+R]-ʔiiš kiƛuuk
reach-**try**-3.IND glass
S/he's trying to grab a glass.

As in cases with "noun incorporating" affixal predicates, however, the process of "verb incorporation" does not strictly select for syntactic category: non-verbal elements may also serve as the host for these affixal predicate, as first discussed in Chapter 2. By the string adjacency effect, an affixal predicate which takes a verbal complement consistently incorporates whichever element is leftmost in the string adjacent to it at spell-out. When the complement of *–maḥsa* "want to" contains just the verb *waɬ-šiƛ* "want to (PERF)", it is this verb which serves as the host for the affix, as in (2a). If a pre-verbal modifier, such as *wiẏax* "slowly" is present in the complement, however, this modifier takes on the role of host, as in (2b). In contexts with pre-verbal modifiers, incorporation of the verb is ruled out, as shown in (2c). Here, the affixal predicate consistently suffixes to the leftmost element of the complement, regardless of its syntactic structure.

(2) a. waɬšiƛmaḥsasiš
waɬ-šiƛ-**maḥsa**-siš
go.home-PERF-**want.to**-1SG.IND
I want to go home.

b. witɣaxmaḥsasiš waaɬšiƛ
witɣax-**maḥsa**-siiš waɬ-[+L]-šiƛ
slow-**want.to**-1SG.IND go.home-CONT-PERF
I want to go home slowly.

c. * waaɬšiƛmaḥsasiš witɣax
waɬ-šiƛ[+L]-**maḥsa**-siiš witɣax
go.home-CONT-PERF-**want.to**-1SG.IND slow
I want to go home slowly.

The aim of this chapter is to investigate the syntactic structures which underlie the suffixation pattern of affixal predicates which take verbal complements. By "verbal" complement, I refer to the syntactic frames projected by verbal heads, including any modifiers and functional projections associated with these verbs.

The remainder of this chapter is organized in the following way. First, I argue in §5.1 that the class of "verb incorporating" affixal predicates must be subdivided into categories of main predicates and auxiliary predicates, which show contrastive thematic properties. In §5.2, I present an analysis in which PF incorporation is consistently barred across full clausal (CP) complements of affixal predicates. I relate this prohibition to an opacity effect induced by a saturated domain. In §5.3, I discuss a variety of morphological evidence that the complement in incorporation configurations fails to project up to a CP, and is smaller than a Tense Phrase (TP). Syntactic evidence for a lack of clause-boundedness effects in these constructions is given in §5.4. The chapter concludes with §5.5.

5.1 Two Classes of "Verb Incorporating" Affixal Predicates

This section presents evidence that affixal predicates which allow "verb incorporation" are not a homogenous group, and must be divided into categories of main and auxiliary predicates. These classes show distinct behaviours with respect to complementation alternations and a same-subject requirement.

5.1.1 Affixal Main Predicates

"Verb-incorporating" affixal predicates vary in their ability to select a fully inflected complement. The class of verbs which I will term *affixal main predicates* alternate between an incorporation strategy, and a strategy in which the affixal predicate takes a full complement which is inflected for subject/mood agreement. In the latter case, the affixal predicate suffixes to the expletive morpheme *ʔu-*, rather than to the embedded verb.The (a) examples below illustrate the incorporation strategy, while the (b) examples show *ʔu–*support in the case of an inflected complement.

(3) a. tuuxtuux^{w}aʕiƛitsiš t̓aatn̓aʔis
tux^{w}-a[+R]-**ʕiƛ**-mit-siiš t̓aatn̓a-ʔis
jump-ITER-**find**-PST-1SG.IND children-DIM
I came upon the children jumping. *(incorporation)*

b. ʔuʕiɬitsiš ʔin tuuxtuuxʷaḥuk t̓aatn̓aʔis
ʔu-**ʕiɬ**-mit-siiš ʔin tuxʷ-a[+R]-ḥuuk t̓aatn̓a-ʔis
∅-**find**-PST-1SG.IND COMP jump-ITER-3.DEP children-DIM
I came upon the children jumping. *(ʔu-support)*

(4) a. qaqaḥatuɬitsiš naniiq
qaḥ-**atuɬ**[+R]-mit-siiš naniiq
die-**dream.of**-PST-1SG.IND grandparent
I dreamt that grandparent passed away. *(incorporation)*

b. ʔuʔuutuɬitsiš ʔin qaḥšiɬḥuk naniiq
ʔu-**atuɬ**[+R]-mit-siiš ʔin qaḥ-šiɬ-ḥuuk naniiq
∅-**dream.of**-PST-1SG.IND COMP die-PERF-3.DEP grandparent
I dreamt that grandparent passed away. *(ʔu-support)*

(5) a. c̓ukʷiɬcukʔiš qaawicʔi
c̓u-kʷiɬ-**cuk**-ʔiiš qaawic-ʔii
wash-PERF-**need**-3.IND potato-DET
The potatoes need washing. *(incorporation)*

b. ʔucukʔiš c̓ukʷiʔatquu qaawic-ʔi
ʔu-**cuk**-ʔiiš c̓u-kʷiɬ-ʔat-quu qaawic-ʔii
∅-**need**-3.IND wash-PERF-PAS-3.COND potato-DET
It is best to wash the potatoes. *(ʔu-support)*
(*lit*: "It is necessary that the potatoes be washed")

The inflected complement of matrix affixal predicates such as *ʔu-ʕiɬ* "find" in (3) and *ʔuʔu-utuɬ* "dream of" in (4) is headed by the complementizer *ʔin* (COMP) and is marked with dependent mood morphology. For the affixal predicate *ʔu-cuk* "need" in (5), there is a conditional complement which is inflected with conditional morphology *–quu* (3.COND).

5.1.2 Affixal Auxiliary Predicates

The class of verbs which I label *affixal auxiliary predicates* are incompatible with an inflected complement, and rigidly select only the incorporation strategy. The examples in (a) below illustrate the incorporation strategy, while the (b–c) examples show the impermissibility of the auxiliary taking a fully inflected complement and being "rescued" by *ʔu*-support. Auxiliary predicates may never select an inflected complement, whether it is a dependent clause (6b–8b) or a conditional clause (6c–8c).

(6) a. waɬaakmaḥsasiš mituuni
waɬaak-**maḥsa**-siiš mituuni
go.to-**want.to**-1SG.IND Victoria
I want to go to Victoria. *(incorporation)*

b. * ʔumaḥsasiš ʔin waɬaaksa mituuni
ʔu-**maḥsa**-siiš ʔin waɬaak-sa mituuni
∅-**want.to**-1SG.IND COMP go.to-1SG.DEP Victoria
I want to go to Victoria. *(ʔu-support)*

c. * ʔumaḥsasiš waɬaakquus mituuni
ʔu-**maḥsa**-siš waɬaak-quus mituuni
∅-**want.to**-1SG.IND go.to-1SG.COND Victoria
I want to go to Victoria. *(ʔu-support)*

(7) a. waaʔičsinḥiʔiš John
waʔič-**sinḥi**[+L]-ʔiiš John
sleep-**try.to.stay**-3.IND John
John is trying to stay sleeping. *(incorporation)*

b. * ʔusinḥiʔiš John ʔin waʔičḥuk
ʔu-**sinḥi**[+L]-ʔiiš John ʔin waʔič-ḥuuk
∅-**try.to.stay**-3.IND John COMP sleep-3.DEP
John is trying to stay sleeping. *(ʔu-support)*

c. * ʔusinḥiʔiš John waʔičquu
ʔu-**sinḥi**[+L]-ʔiiš John waʔič-quu
∅-**try.to.stay**-3.IND John sleep-3.COND
John is trying to stay sleeping. *(ʔu-support)*

(8) a. ʔucačiɬẃiťasitsiš mituuni
ʔu-ca-čiɬ-**ẃiťas**-mit-siiš mituuni
∅-go.to-PERF-**gonna**-PST-1SG.IND Victoria
I was gonna go to Victoria. *(incorporation)*

b. * ʔuẃiťasmitsiš ʔin ʔucačiɬsa mituuni
ʔu-ẃiťas-mit-siiš ʔin ʔu-ca-čiɬ-sa mituuni
∅-**gonna**-PST-1SG.IND COMP ∅-go.to-PERF-1SG.DEP Victoria
I was gonna go to Victoria. *(ʔu-support)*

c. * ʔuẃiťasmitsiš ʔucačiɬquus mituuni
ʔu-ẃiťas-mit-siiš ʔu-ca-čiɬ-quus mituuni
∅-**gonna**-PST-1SG.IND ∅-go.to-PERF-1SG.COND Victoria
I was gonna go to Victoria. *(ʔu-support)*

Unlike main predicates, these auxiliary verbs have a same-subject restriction which requires that the notional subjects of the two predicates in the construction match. This is illustrated in the following examples with the affixal auxiliary predicate *–qaatḥ* "claim", which incorporates the predicate *ʔu-uc* "own".[1]

(9) *Same-subject requirement*

a. ʔuucqatḥʔiš Florence šuwis
ʔu-ic-**qaatḥ**-ʔiiš Florence šuwis
∅-own-**claim**-3.IND Florence shoes
Florence is pretending she owns the shoes.

[1] The *ʔu–* in these examples occurs as a host to the affixal predicate *ʔu-uc* "own".

b. * ʔuucqatḥitsiš Florence šuwis
ʔu-ic-**qaatḥ**-mit-siiš Florence šuwis
∅-own-**claim**-PST-1SG.IND Florence shoes
I pretended Florence owns the shoes.

Here, the same-subject requirement determines that the "claimer" and the "owner" must corefer. In (9a) a "match" occurs, while the ungrammatical (9b) illustrates a "mismatch".

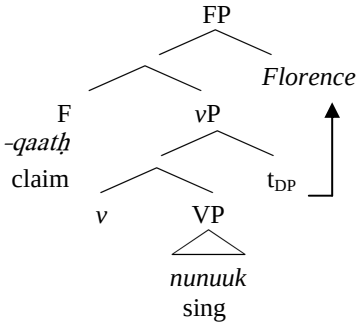
5.1.3 Affixal Auxiliaries are Non-thematic

I propose that the difference between main and auxiliary predicates in Nuu-chah-nulth is linked to their thematic properties. Specifically, their behaviours fall out from an analysis in which auxiliaries are functional elements, while main verbs are lexical (Cinque 2001; Wurmbrand 2004). Under this view, auxiliaries such as *–qaatḥ* "claim" are non-thematic raising verbs which do not project a subject of their own.[2]

(10) nunuukqatḥʔiš Florence
nunuuk-**qaatḥ**-ʔiiš Florence
sing-**claim**-3.IND Florence
Florence is pretending to sing.

The "same subject" effect of these auxiliaries arises when the subject of the main verb raises to specifier position of the auxiliary. In effect, the subject is "shared" between the auxiliary and the main verb. The diagram in (11) shows that the subject of the main predicate, *Florence*, raises to the specifier of the auxiliary.

(11) *Auxiliaries as raising verbs*



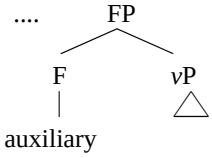
[2] A direct English translation of Nuu-chah-nulth *–qaatḥ* "claim" is problematic. The morpheme is irrealis, and is often translated as "seem" or "pretend"; Sapir and Swadesh (1939: 329) gloss it as "pretendedly". For consistency, I have elected to translate it as "claim" because that is a typical translation when the predicate is transitivized. Affixal auxiliaries require transitivization for different subjects (see §5.1.3.2).

In what follows, I will introduce evidence in favour of this analysis of auxiliaries as non-thematic verbs. In §5.1.3.1, I show that auxiliaries have rigid complementation. This is followed in §5.1.3.2 with an illustration of how transitivization allows an auxiliary to license an "external" argument. In §5.1.3.2, I discuss the lack of citation forms for these functional affixes.

5.1.3.1 Rigid vs. Alternating Complementation

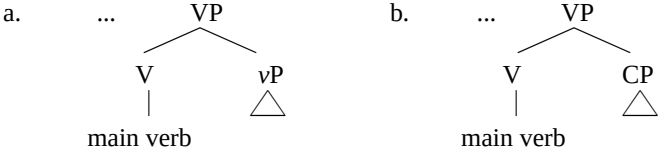
As functional morphemes, auxiliaries are predicted to show rigid complementation, in which they select only an infinitival complement (Cinque 2001). In (12), the infinitival complement of the auxiliary is represented as a *v*P. This *v*P lacks higher functional projections for tense (TP), agreement (AgrP), and complementizers (CP).

(12) *Auxiliary predicate: strict selection of infinitival complement*



Main predicates, in contrast, are lexical verbs which permit lexically specified alternations in complementation. For Nuu-chah-nulth, I propose that these main predicates may take either an infinitival or clausal complement. In (13a), the main verb selects an infinitival (*v*P) complement, while in (13b), it selects a "full" CP complement.

(13) *Main predicate: alternations in complement selection*



5.1.3.2 Ability to License a "Mismatched" Subject

A distinction between the lexical and functional characteristics of affixal predicates has implications for these predicates' argument-taking abilities. As functional elements, auxiliary predicates are anticipated to be non-thematic (Cinque 2001; Wurmbrand 2004). This meshes with the observation that the valency-increasing morpheme *–'ap* (TR) is employed in Nuu-chah-nulth in contexts in which the same-subject requirement of auxiliaries is overridden (see also Rose 1981).[3] In the

[3] Rose (1981: 306) notes that *–'ap* is used with Kyuquot desideratives "to indicate that the subject (the desirer) is not coreferential to the complement subject". Evidence from Ahousaht

following (a) examples, *– ʾap* (TR) is used to permit a "different subject" reading. The examples in (b) show the illicit outcome without use of *– ʾap* (TR).

(14) a. ʔuucqatḥʔapsiš Florence šuwis
ʔu-ic-**qaatḥ**-ʾap-siiš Florence šuwis
∅-own-**claim**-TR-3.IND Florence shoes
I'm pretending Florence owns the shoes.

b. * ʔuucqatḥsiš Florence šuwis
ʔu-ic-**qaatḥ**-siiš Florence šuwis
∅-own-**claim**-1SG.IND Florence shoes
I'm pretending Florence owns the shoes.

(15) a. ṁiƛšiƛmaḥsapsiš
ṁiƛ-šiƛ-**maḥsa**-ʾap-siiš
rain-PERF-**want.to**-TR-1SG.IND
I want it to rain.

b. * ṁiƛšiƛmaḥsasiš
ṁiƛ-šiƛ-**maḥsa**-siiš
rain-PERF-**want.to**-1SG.IND
I want it to rain.

(16) a. ƛuuɬsinḥapʔiš John šuwisukʔi
ƛuɬ-**sinḥi**-ʾap-ʔiiš John šuwis-uk-ʔi
good-**try.to.stay**-TR-3.IND John shoes-POSS-3.PS
John is trying to keep his shoes nice.

b. * ƛuuɬsinḥiʔiš John šuwisukʔi
ƛuɬ-**sinḥi**-ʔiiš John šuwis-uk-ʔi
good-**try.to.stay**-3.IND John shoes-POSS-3.PS
John is trying to keep his shoes nice.

Note that this behaviour contrasts with that of main predicates, which do not employ *– ʾap* (TR) in cases of subject mismatches. In (17a), the "dreamer" and the "one who dies" are disjoint, without use of *– ʾap* (TR). The example in (17b) shows that *– ʾap* (TR) is impossible in this environment.

(17) a. qaqaḥatuɬitsiš suẇa
qaḥ-**atuɬ**[+R]-mit-siiš suẇa
die-**dream.of**-PST-1SG.IND 2SG
I dreamt that you died!

---

indicates that *– ʾap* has a broad usage in which is it employed with the full range of auxiliary predicates, not simply desideratives.

b. * qaqaḥatuɬʔamitsiš suẃa
qaḥ-**atuɬ**[+R]-'ap-mit-siiš suẃa
die-**dream.of**-TR-PST-1SG.IND 2SG
I dreamt that you died!

Although *–'ap* is standardly labelled a "causative" (Sapir and Swadesh 1939), I contend that it has a more general transitivizing function than this term suggests (see also Rose 1981). With certain psych predicates (such as *yaaʔak* "feeling", or *ʔiiḥmis* "be treasured"), usage of this morpheme converts an intransitive to a transitive. The examples in (18) show an intransitive usage of *yaaʔak* "feeling" and *ʔiiḥmis* "be treasured", while the examples in (19) illustrate a transitive usage employing *–'ap*. In (18a), the predicate is translated as "sore" and it takes a single argument (*ƛišƛinʔatqs* "my foot/feet"); in the transitivized (19a), it is translated as "love" and takes two arguments. In (18b), the predicate is translated as "be treasured" and it takes a single propositional argument; in the transitivized case of (19b), the predicate is translated roughly as "won't part with" and it takes two arguments (*ʔuxʷaapi* "paddle" and *naniiq* "grandparent").

(18) *Intransitive*

a. yaaʔakʔiš ƛišƛinʔatqs
yaaʔak-ʔiiš ƛišƛin-ʔat-qs
feeling-3.IND lower.leg-IPOSS-1SG.PS
My feet are sore.

b. ʔiiḥmisʔiš kʷakuucnaḵat qʷaaqḥ ɬačyuu ʔuḥ Kay
ʔiiḥmis-ʔiiš kʷakuuc-naak-'at qʷaa-qḥ-∅ ɬačyuu ʔuḥ Kay
treasured-3.IND grandchildren-have-PAS how-AUX-3.ABS let.go DEIC Kay
Having grandchildren is something to be treasured, and yet Kay lets them go.

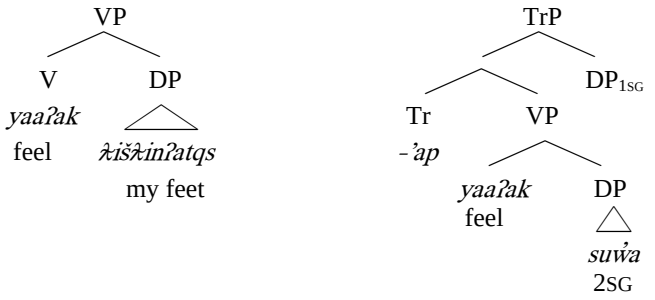
(19) *Transitivized*

a. yaaʔaḵapsiš suẃa
yaaʔak-'ap-siiš suẃa
feeling-TR-1SG.IND 2SG
I love you; I care for you.

b. ʔiiḥmisʔapʔiš ʔuxʷaapi naniiq
ʔiiḥmis-'ap-ʔiiš ʔuxʷaapi naniiq
treasured-TR-3.IND paddle grandparent
Grandparent won't part with a paddle (i.e., he's possessive of it).

The transitivizing function of *–'ap* (TR) is represented in the diagrams below. In (20a), the predicate *yaaʔak* "feel" is shown as an unaccusative, projecting a single, internal argument. In (20b), *–'ap* (TR) introduces an additional argument.

(20) a. *Intransitive* b. *Transitivized*



For affixal auxiliary predicates, I propose that the morpheme *–ʾap* (TR) serves a similar transitivizing function when it licenses a subject "mismatch". Recall that affixal auxiliary predicates show a same-subject restriction (as in 21a), and disallow mismatched subjects (as in 21b). The morpheme *–ʾap* must be used in cases in which the subjects do not match (as in 21c).

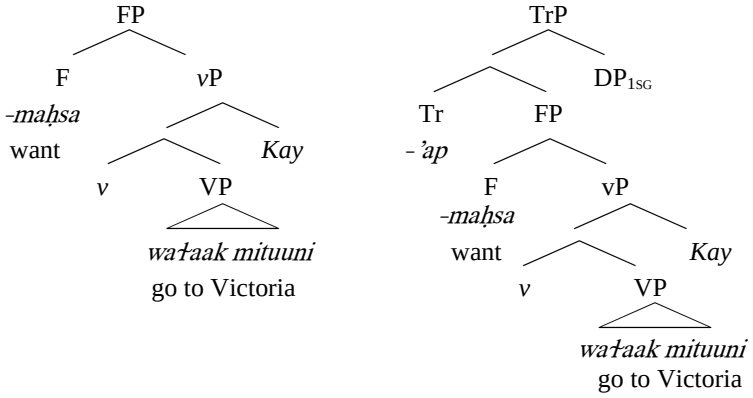
(21) a. wałaakmaḥsaʔiš Kay mituuni
wałaak-**maḥsa**-ʔiiš Kay mituuni
go.to-**want.to**-3.IND Kay Victoria
Kay wants to go to Victoria. *(same subject)*

b. * wałaakmaḥsasiš Kay mituuni
wałaak-**maḥsa**-siiš Kay mituuni
go.to-**want.to**-1SG.IND Kay Victoria
I want Kay to go to Victoria. *(different subjects)*

c. wałaakmaḥsapsiš Kay mituuni
wałaak-**maḥsa**-ʾap-siiš Kay mituuni
go.to-**want.to**-TR-1SG.IND Kay Victoria
I want Kay to go to Victoria. *(transitivization)*

As noted in the earlier discussion, I propose that affixal auxiliaries are raising verbs which do not introduce an external argument (see Cinque 2001). The auxiliary "shares" the thematic subject projected by the embedded verb. With the introduction of the transitivizer *–ʾap*, however, the auxiliary predicate inherits transitive syntax, and thus the same-subject restriction is overcome. In the same-subject case in (22a), the argument *Kay* is shared by the auxiliary *–maḥsa* "want to" and the main predicate *wałaak* "go to". In (22b), in contrast, the affixal predicate *–maḥsa* "want to" inherits a first person singular argument by virtue of the transitivizer. Therefore, (22b) allows a different subject than the one (*Kay*) used by the main predicate *wałaak* "go to".

(22) a. *Same-subject* b. *Transitivization*

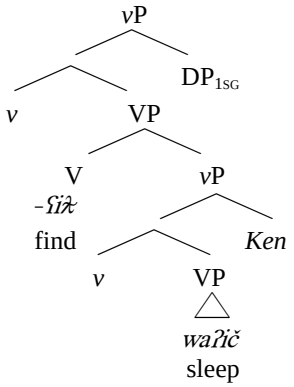


No derived transitivization occurs for affixal main predicates, because the status of these predicates as (thematic) lexical verbs allows them to introduce an external argument directly. Recall that there is no same-subject requirement for a main predicate such as *ʔu-ʕiƛ* "come upon".

(23) waʔičʕiƛitsiš Ken
waʔič-**ʕiƛ**-mit-siiš Ken
sleep-**come.upon**-PST-1SG.IND Ken
I found Ken sleeping.

In the following diagram, the affixal main predicate *ʔu-ʕiƛ* "come upon" is represented as a thematic verb with inherent transitivity. The transitivizer *–ʾap* (TR) does not appear in this construction.

(24)



The predicate *ʔu-ʕiƛ* "find" takes a first person singular argument which is distinct from the one contained in its complement (*Ken*).

5.1.3.3 Citation Forms

Additional support for a split between functional and lexical characteristics of affixal predicates may be adduced from native speakers' judgements about the citation forms of these verbs. Affixal auxiliary predicates, which I analyse as functional elements, are unrecognizable to Nuu-chah-nulth speakers without an incorporated verb, and therefore lack an independent citation form. Affixal main predicates, on the other hand, are pronounced in isolation as forms affixed to the expletive morpheme *ʔu–*. Thus, while speakers of Nuu-chah-nulth reject "words" such as **ʔu-ẃiƛ̓as* "gonna" or **ʔu-qaatḥ* "claim", they freely accept *ʔuʔu-utuɬ* "dream of" or *ʔu-ɬiƛ* "come upon".[4] I suggest that this difference in isolatability is linked to the lexical status of these affixal predicates.

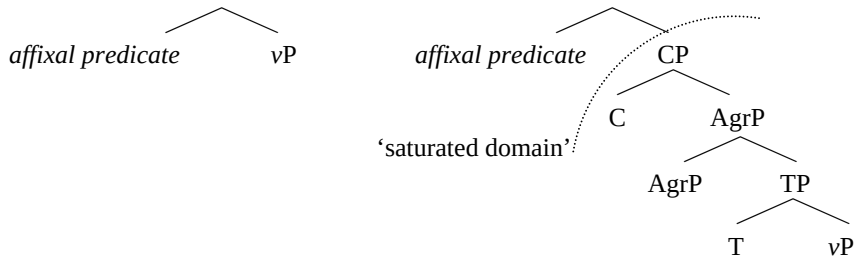
5.1.4 Summary

To recap, evidence has been presented for two distinct varieties of verb-incorporating affixal predicates. I have proposed that the behaviours of affixal main and auxiliary predicates are tied to the thematic properties which derive from their functional or lexical status. In the next section, I turn to an analysis of the suffixation patterns of main and affixal auxiliary predicates, which states that PF incorporation is only permitted in infinitival environments.

5.2 PF Incorporation Occurs Only in Infinitival Environments

For affixal predicates that take verbal complements, incorporation arises only in monoclausal configurations in which the complement of an affixal predicate is an infinitival smaller than a TP. PF incorporation is ruled out across biclausal structures in which the embedded clause is demarcated by CP (cf. Li 1990). As first discussed in Chapter 2, this may be attributed to an opacity effect, induced by the status of CPs as saturated domains which constitute self-contained units of the derivation.

(25) a. *Incorporation configuration* b. *Full CP complementation*



[4] A superficial exception is the affixal predicate *–maḥsa* "want to", which I analyse as a auxiliary. Speakers accept *ʔu-maḥsa* as a "word". However, in this case it appears that the auxiliary *–maḥsa* is homophonous with the non-auxiliary form *ʔu-maḥsa* "want", which takes a nominal complement, as in *ʔumaḥsasiš ḥaa c̓apacʔi* "I want that canoe". The form *ʔu-maḥsa* is not accepted in contexts of verbal complementation (ex. 5).

In contexts in which an affixal predicate selects a full complement, a stranded-affix "repair" strategy of suffixation to the expletive morpheme *ʔu–* is implemented, rather than suffixation via incorporation. As was discussed in Chapter 2, a host may not be chosen from within the CP, because the fully interpreted CP is closed off from the active workspace of the derivation.

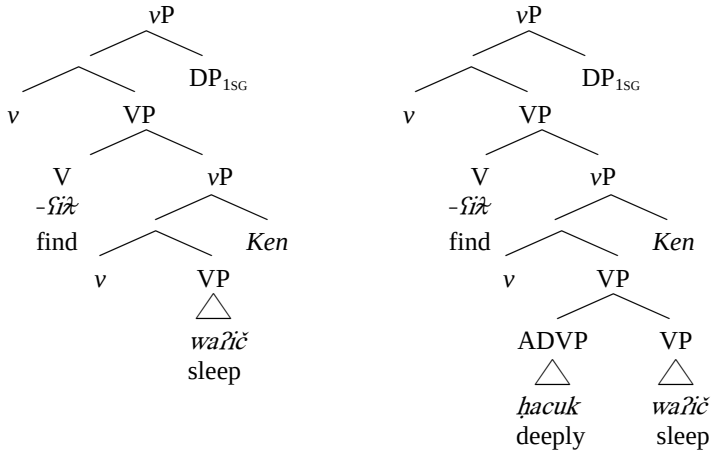
Let us sketch the analysis of the linearization strategy which occurs when the complement of an affixal main or auxiliary predicate is infinitival. When a main predicate such as *ʔu-ʕiƛ* "come upon" incorporates a host, the choice of host is determined by string adjacency to the affixal predicate at spell-out. In (26a), the affixal predicate suffixes to the verb *waʔič* "sleep", while in (26b), it suffixes to the modifier *ḥacuk* "(sleep) deeply", stranding the verb *waʔič* "sleep".

(26) a.
waʔičʕiƛitsiš		Ken
waʔič-**ʕiƛ**-mit-siiš		Ken
sleep-**come.upon**-PST-1SG.IND		Ken
I found Ken sleeping.		

b.
ḥacukʕiƛitsiš	waʔič	Ken
ḥacuk-**ʕiƛ**-mit-siiš	waʔič	Ken
deeply-**come.upon**-PST-1SG.IND	sleep	Ken
I came upon Ken in a deep sleep.		

The syntactic positions of the verb and the pre-verbal modifier are illustrated in (27). In (27a), *–ʕiƛ* "come upon" takes a *v*P complement with an unmodified verb, *waʔič* "sleep", as the embedded predicate. In (27b), this embedded predicate is modified by *ḥacuk* "(sleep) deeply".

(27) a. *Verb incorporation* b. *Adverbial incorporation*



In each case, the embedded subject, *Ken*, appears as a right-linearized specifier of the embedded *v*P. In (27a), the embedded *v*P is linearized as <*waʔič*, *Ken*>, while in (27b), the embedded *v*P is linearized as <*ḥacuk waʔič*, *Ken*>. According to the local

spell-out proposal, the linearization of the affixal predicate for (26a–27a) and (26b–27b) follows from the orderings of these embedded phrases. For (27a), it is the verb *waʔič* "sleep" which is string adjacent to the affixal predicate *–ʕiƛ* "come upon" when it attains spell-out. For (27b), in contrast, it is the modifier *ḥacuk* "(sleep) deeply" which has this privileged status of string adjacency to the affix. Thus, verb incorporation is induced for (27a), while adverbial incorporation is induced for (27b).

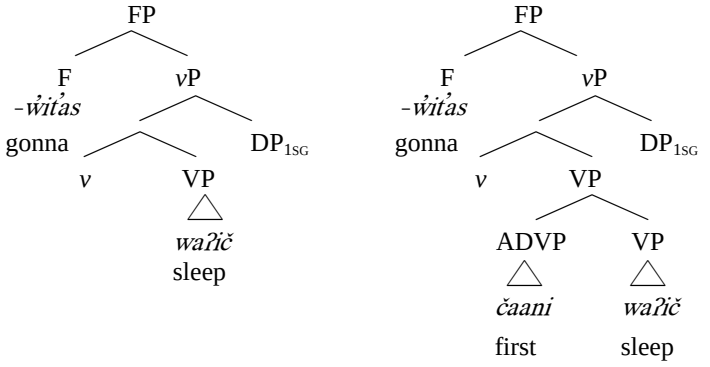
A parallel process of linearization is proposed to occur for affixal auxiliary predicates, such as *–ẃiƫas* "gonna". Just like affixal main predicates, these auxiliaries allow suffixation to either a verbal or adverbial host. The example in (28a) shows *–ẃiƫas* "gonna" incorporating the verb *waʔič* "sleep", while (28b) shows incorporation of the temporal adverbial *čaani* "first".[5]

(28) a. waʔičẃiƫassiš
waʔič-**ẃiƫas**-siiš
sleep-**gonna**-1SG.IND
I'm gonna sleep.

b. čaaniẃiƫassiš waʔič
čaani-**ẃiƫas**-siiš waʔič
first-**gonna**-1SG.IND sleep
I'm gonna sleep first (i.e., before doing something else)

The syntactic representations I assume for these examples are given in (29). The *v*P complements of the auxiliary *–ẃiƫas* "gonna" contain a null first person singular pronominal as subject. In (29a), the verb *waʔič* "sleep" is unmodified, while in (29b) the modifier *čaani* "first" occupies a pre-verbal adjunct position.[6]

(29) a. *Verb incorporation* b. *Adverbial incorporation*



[5] As noted in Chapter 2, the temporal adverbal *čaani* "first" is "flexibly positioned": outside of incorporation contexts, it allows either a pre-verbal or post-verbal positioning. Accordingly, verb incorporation is an alternative to the adverbial incorporation pattern of (28b).

[6] I adopt an analysis in which the temporal adverbial *čaani* "first" occupies the same preverbal adjunct position to the verb as a manner adverbial. This is not a necessary assumption, so long as each occur pre-verbally (see Chapter 2 for discussion). The syntactic position of adverbials in Nuu-chah-nulth is an understudied area in need of future research.

The pre-verbal position of the adverbial *čaani* has consequences for the linearization of the affixal auxiliary *–ẃiƫas* "gonna". In (29a), the derivational sister of the auxiliary is equivalent to <*waʔič*>, while for (29b), the derivational sister is the linearized object <*čaani, waʔič*>. At local spell-out of *–ẃiƫas* "gonna", *waʔič* "sleep" is selected as the host for (29a), while *čaani* "first" takes on the role of host in (29b) due to its string adjacency to the affix.

The proposed analysis states that while main and auxiliary predicates differ in their lexical properties, they share the ability to take an infinitival (*v*P) complement. It is in these infinitival environments that incorporation occurs. As will be shown in the following sections, a range of evidence exists for the analysis that the syntactic prerequisite for PF incorporation is an infinitival complement smaller than a TP. In the following sections, I consider three sets of arguments in favour of this analysis: the absence of embedded clausal morphology; "restructuring" effects which indicate a lack of clause-boundedness; and finally, evidence for affixal main and auxiliary predicates being raising verbs.

5.3 Absence of Clausal Morphology

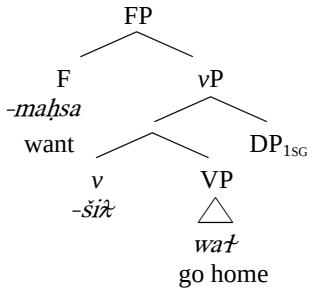
This section examines morphological evidence for the analysis that PF incorporation occurs in infinitival contexts. If the "clauselet" in incorporation contexts is smaller than a TP, then this complement is predicted to lack specifications for tense, person/ mood agreement and complementizers. If this reduced clause is equivalent to *v*P, then only aspectual morphology (occupying *v*) is predicted to be present. This section demonstrates that this prediction regarding the absence of higher-level clausal morphology holds. In incorporation contexts, the verbal host of an affixal auxiliary may only be inflected for aspect: independent specifications for tense, subject/mood agreement and complementation are systematically absent. For example, the verbal host *waɬ-šiƛ* "go home (PERF)" in (30) contains the perfective marking *–siƛ* (PERF), but no tense marker *-ʔaqƛ* (FUT), subject/mood agreement *–sa* (1SG.DEP) or complementizer *ʔin* (COMP).

(30) waɬšiƛ(*ʔaqƛ)(*sa)maḥsasiš (*ʔin)
waɬ-šiƛ-(*ʔaqƛ)-(*sa)-**maḥsa**-siiš (*ʔin)
go.home-PERF-(FUT)-(1SG.DEP)-**want.to**-1SG.IND (COMP)
I want to go home.

This follows from an analysis in which the complement of *–maḥsa* "want to" is a reduced clause equivalent to *v*P, with perfective aspect shown to occupy *v*.[7]

[7] It is not a crucial assumption for aspect to occupy *v*. I propose that the reduced clause is smaller than a TP, but it is possible that projections intermediate to TP and *v*P exist which could house aspectual morphology. The syntactic representation of aspectual morphology in Nuu-chah-nulth is in need of further research, as this will shed light onto how much smaller than TP the "clauselet" is. See §6.2.1.3 for related discussion of the status of the *v*P domain.

(31)



In the following subsections, I will present in detail the evidence for a lack of tense (§5.3.1), person/mood agreement (§5.3.2) and complementizers (§5.3.3) in the reduced clause.

5.3.1 No Tense

An incorporated verb is systematically free of tense morphology. Neither the past tense marker *–mit* (PST) nor the future tense marker *-ʔaqƛ* (FUT) can occur with an incorporated verb. This is true for verbs hosting either an auxiliary or main predicate. In (32), with the affixal auxiliary predicate *–qaatḥ* "claim", it is shown to be ungrammatical for the verbal host *nunuuk* "sing" to be inflected for the future tense *-ʔaqƛ* (FUT). In (33), with the main verb *ʔuu-ƛaǩuuḥ* "observe", it is illicit for the host *tuuxtuux^{w}a* "jump (ITER)" to be marked for past tense *–mit* (PST).

(32) *Incorporation with auxiliaries: absence of embedded tense*

a. nunuukqatḥʔiš Florence
nunuuk-**qaatḥ**-ʔiiš Florence
sing-**claim**-3.IND Florence
Florence is pretending to sing.

b. * nunuukʔaqƛqatḥʔiš Florence
nunuuk-ʔaqƛ-**qaatḥ**-ʔiiš Florence
sing-FUT-**claim**-3.IND Florence
Florence is pretending she's going to sing.

cf. nunuukqatḥʔaqƛʔiš Florence
nunuuk-**qaatḥ**-ʔaqƛ-ʔiiš Florence
sing-**claim**-FUT-3.IND Florence
Florence will pretend to sing.

(33) *Incorporation with main verbs: absence of embedded tense*

a. tuuxtuux^{w}aƛaǩuuḥitsiš suẇa
tuux^{w}-a[+R]-**ƛaǩuuḥ**[+L]-mit-siiš suẇa
jump-ITER-**observe**-PST-1SG.IND you
I observed you jumping.

b. * tuuxtuux^{w}amitn̓aƛ̓uuḥitsiš suẇa
tuux^{w}-a[+R]-mit-**n̓aƛ̓uuḥ**[+L]-mit-siiš suẇa
jump-ITER-PST-**observe**-PST-1SG.IND you
I observed you jumping.

This ban on embedded tense morphology stands in contrast to the availability of tense specification in full complements. In (34), the full complement *ʔin tuuxtuux^{w}amitsuk* "that you were jumping" contains the past tense marker *–mit* (PST).

(34) ʔuun̓aƛ̓uuḥitsiš ʔin tuuxtuux^{w}amitsuk
ʔu-**n̓aƛ̓uuḥ**[+L]-mit-siiš ʔin tuux^{w}-a[+R]-mit-suuk
∅-**observe**-PST-1SG.IND COMP jump-ITER-PST-2SG.DEP
I observed you jumping. (*lit*: "I observed that you were jumping")

The lack of independent embedded tense morphology in incorporation contexts is predicted by an analysis in which the embedded clause does not project a Tense Phrase.

5.3.2 No Person/Mood Agreement

The complex predicate formed by incorporation is marked with only a single set of portmanteau person/mood inflection: the incorporated verb is not independently inflected. In (35), it is shown for the auxiliary predicate *–maḥsa* "want to" that the host is not inflected for the person/mood agreement *–suuk* (2SG.DEP). In (36), this same restriction is demonstrated for the main verb *ʔu-ʔii-čiƛ* "hear, find out (PERF)".

(35) *Incorporation with auxiliaries: absence of embedded person/mood inflection*

a. ʔacšiƛmaḥsak
ʔac-šiƛ-**maḥsa**-k
go.fishing-PERF-**want.to**-2SG.Q
Do you want to go fishing?

b. * ʔacšiƛsuukmaḥsak
ʔac-šiƛ-suuk-**maḥsa**-k
go.fishing-PERF-2SG.DEP-**want.to**-2SG.Q
Do you want to go fishing?

(36) *Incorporation with main verbs: absence of embedded person/mood inflection*

a. taʔiɬʔiičiƛitsiš suẇa
taʔiɬ-**ʔii**-čiƛ-mit-siiš suẇa
sick-**hear**-PERF-PST-1SG.IND you
I heard you were sick.

b. * taʔiɬsuukʔiičiɁitsiš (suẃa)
taʔiɬ-suuk-**ʔii**-čiɁ-mit-siiš (suẃa)
sick-2SG.DEP-**hear**-PERF-PST-1SG.IND (you)
I heard you were sick.

An embedded verb is inflected within a full complement, however. In (37), the main verb *ʔu-ʔii-čiɁ* "hear, find out (PERF)" takes a full complement, *ʔin taʔiɬsuuk* "that you were sick", which contains the dependent person/mood agreement *–suuk* (2SG.DEP).

(37) ʔuʔiičiɁitsiš ʔin taʔiɬsuuk
ʔu-**ʔii**-čiɁ-mit-siiš ʔin taʔiɬ-suuk
∅-**hear**-PERF-PST-1SG.IND COMP sick-2SG.DEP
I heard that you were sick.

The lack of inflectional morphology on a verbal host falls out directly from an analysis in which the "clauselet" containing the embedded verb does not project up to an Agr Phrase.

5.3.3 No Complementizer

There is no complementizer *ʔin* in incorporation contexts. In (38), it is shown that the complementizer *ʔin* (COMP) is obligatorily absent in contexts with the auxiliary *–maḥsa* "want to". In (39), the complementizer is shown to be illicit when the affixal main predicate *ʔuu-n̓aḵ̓uuḥ* "observe" suffixes to the verbal host *m̓uuʔakʷa-čiɁ* "burn (PERF)".

(38) *Incorporation with auxiliaries: absence of complementizer*

a. saapniqiiɬmaḥsaḥ Kay
saapniq-čiiɬ-**maḥsa**-ḥ Kay
bread-make-**want.to**-3.Q Kay
Does Kay want to make bread?

b. * saapniqiiɬmaḥsaḥ ʔin Kay
saapniq-čiiɬ-**maḥsa**-ḥ ʔin Kay
bread-make-**want.to**-3.Q COMP Kay
Does Kay want to make bread?

(39) *Incorporation with main verbs: absence of complementizer*

a. m̓uʔakʷačiɁn̓aḵ̓uuḥitsiš ɬayiipt
m̓uʔakʷa-čiɁ-**n̓aḵ̓uuḥ**[+L]-mit-siiš ɬayiipt
burn-PERF-**observe**-PST-1SG.IND leaves
I was watching leaves burn.

b.	*	ḿuʔakʷačiɬn̓aƛ̓uuḥitsiš	ʔin	ɬayiipt
		ḿuʔakʷa-čiɬ-**n̓aƛ̓uuḥ**[+L]-mit-siiš	ʔin	ɬayiipt
		burn-PERF-**observe**-PST-1SG.IND	COMP	leaves
		I was watching leaves burn.		

In contrast, within a full complement, complementizers are present. In (40), the affixal main predicate *ʔuu-n̓aƛ̓uuḥ* "observe" is hosted by the expletive *ʔu.* Here, the complementizer appears with the full complement.

(40)	ʔuun̓aƛ̓uuḥitsiš	ʔin	ḿuʔakʷačiɬḥuk	ɬayiipt
	ʔu-**n̓aƛ̓uuḥ**[+L]-mit-siiš	ʔin	ḿuʔakʷa-čiɬ-ḥuuk	ɬayiipt
	∅-**observe**-PST-1SG.IND	COMP	burn-PERF-3.DEP	leaves
	I was watching leaves burn.			

The absence of a complementizer in incorporation contexts follows if there is no Complement Phrase demarcating the boundary between the affixal predicate and its complement. According to the saturated domain hypothesis introduced in Chapter 2, CPs are independent domains for affixation. Thus, incorporation of a host is only possible when a CP "border" does not intervene between the affixal predicate and its potential host.

5.4 Lack of Clause-boundedness Effects

A diagnostic property of infinitival constructions are transparency effects in which matrix and embedded constituents form a unitary domain for otherwise clause-bound processes (Cinque 2001). These "restructuring" phenomena (also known as "clause union" or "reanalysis") have been widely documented in languages, including Romance (e.g., Aissen and Perlmutter 1983; Rizzi 1982; Roberts 1997; Rooryck 2000; Cinque 2002) and Germanic (e.g., Evers 1975; Wurmbrand 2001). To illustrate an example, consider the optional process of clitic-climbing in Romance, which occurs in environments in which the matrix predicate belongs to a restricted class of "restructuring" auxiliaries. In (41), the "restructuring" verb is *voudrais* "would like".

(41) *Clitic-climbing* (Cinque 2002: 620, ex. 4b, 5b)

a.	Je	voudrais	***y***	aller.	
	I	would-like	there	go	
	I would like to go there.				
b.	J'***y***	voudrais		aller.	
	I-***there***	would-like		go	
	I would like to go there.				*(French)*

With clitic-climbing, the pronominal clitic associated thematically with an infinitival verb is promoted to a position within the matrix clause. In (41b), the pronominal *y* "there" abandons its position within the embedded clause (*y aller* "go there") and surfaces instead as part of the pronominal proclitic string attached to *voudrais* "would like". In this case of "restructuring", the infinitival does not constitute an independent cliticization domain distinct from the matrix verb.

In this section, I provide evidence that cases of incorporation in Nuu-chah-nulth display a similar lack of clause-boundedness. Thus, affixal main and auxiliary predicates are "restructuring" verbs. The two cases I consider here are "long" *wh*-questions and "long" possessor raising constructions which are formed with affixal predicates. Following Cinque (2001) and Wurmbrand (2001), I argue that these types of "restructuring" effects in Nuu-chah-nulth are indicative of the reduced clausal status of the embedded complement: no clause-boundedness effects are found with incorporation because no clause boundary (i.e., CP) is projected between the matrix predicate and its infinitival complement.

5.4.1 "Long" *wh*-movement

As first noted by Davis and Sawai (2001), *wh*-movement in Nuu-chah-nulth is strictly clause-bound. This is shown in the examples below, in which *wh*-extraction out of the complement of the non-affixal predicate *ƫ̓aaquk* "believe" is disallowed. The example in (42a) shows a grammatical case with no *wh*-extraction. In (42b, c), it is shown to be ungrammatical to question the subject of the embedded verb phrase *kuuẇiɬ č̓apac* "steal the canoe".

(42) a. ƫ̓aaqukʷiʔaƛʔiš John ʔin kuuẇiɬiƫuk Mary č̓apac
ƫ̓aaquk-čiƛ-'aƛ-ʔiiš John ʔin kuuẇiɬ-mit-ƫuuk Mary č̓apac
believe-PERF-TEMP-3.IND John COMP steal-PST-3.DEP Mary canoe
John believes that Mary stole the canoe. (cf. Davis and Sawai 2001: 133)

b. * ʔačaqƫ ƫ̓aaqukʷiʔaƛ John ʔin kuuẇiɬiƫuk č̓apac
ʔačaq-ƫ ƫ̓aaquk-čiƛ-'aƛ John ʔin kuuẇiɬ-mit-ƫuuk č̓apac
who-3.Q believe-PERF-TEMP John COMP steal- PST-3.DEP canoe
Who does John believe stole the canoe? (cf. Davis and Sawai 2001: 133)

c. * ʔačaqƫ ƫ̓aaqukʷiʔaƛ John (ʔin) kuuẇiɬiƫ č̓apac
ʔačaq-ƫ ƫ̓aaquk-čiƛ-'aƛ John (ʔin) kuuẇiɬ-mit-ƫ č̓apac
who-3.Q believe-PERF-TEMP John (COMP) steal- PST-3.Q canoe
Who does John believe stole the canoe?

A different pattern is displayed by affixal predicates, however. "Long" *wh*-movement is permitted out of the complement of an affixal auxiliary. In (43a), it is shown to be grammatical to question the subject of the verb phrase *kuuẇiɬ č̓apac* "steal the canoe", when the auxiliary *–qaatƫ* "claim" is used. In (43b), a similarly grammatical example is shown with the auxiliary *–maƫsa* "want to": here, the object of the predicate *maakuk* "buy" is questioned.

(43) a. ʔačaqqatƫʔapƫ John kuuẇiɬ č̓apac
ʔačaq-**qaatƫ**-'ap-ƫ John kuuẇiɬ č̓apac
who-**claim**-TR-3.Q John steal canoe
Who does John claim stole the canoe?

b. ʔaaqičiɬmaḥsak maakuk
ʔaqi-čiɬ[+L]-**maḥsa**-k maakuk
what-AUX-**want.to**-2SG.Q buy
What do you want to buy?

The contrast between ungrammatical interclausal *wh*-movement and grammatical "long" *wh*-movement across an infinitival can also be observed with affixal main predicates. *Wh*-movement is barred across a full clausal complement of an affixal main predicate, but "long" *wh*-movement is allowed when the complement is infinitival.

(44) a. *Full complement: no long-range wh-movement*

* ʔaačiṅakʼuuḥitḥ Florence ʔin tuuxtuuxʷamitḥuk
ʔačaq-čiɬ[+L]-**ṅakʼuuḥ**[+L]-mit-ḥ Florence ʔin tuuxʷ-a[+R]-mit-ḥuuk
who-AUX-**observe**-PST-3.Q Florence COMP jump-ITER-PST-3.DEP
Who was Florence watching jumping?

b. *Infinitival complement: "long" wh-movement*

ʔaačiṅakʼuuḥitḥ Florence tuuxtuuxʷa
ʔačaq-čiɬ[+L]-**ṅakʼuuḥ**[+L]-mit-ḥ Florence tuuxʷ-a[+R]
who-AUX-**observe**-PST-3.Q Florence jump-ITER
Who was Florence watching jumping?

This type of "long" *wh*-movement with affixal predicates avoids true long-range movement (crossing a CP), as indicated in the diagrams below.

(45) a. *Ungrammatical long-range wh-extraction*

tʼaaquk [CP ʔin [AgrP -ḥuuk [TP –mit [vP ʔačaq kuuw̓iɬ čʼapac]
believe COMP who steal canoe

b. *grammatical "long" wh-extraction across an infinitival complement*

-qaatḥ [vP ʔačaq kuuw̓iɬ čʼapac]
claim who steal canoe

Wh-movement in Nuu-chah-nulth does not cross a CP (Davis and Sawai 2001). However, in contexts in which an affixal predicate takes what I analyse to be an infinitival complement, movement out of the complement is unrestricted. This transparency effect is predicted if the infinitival complement of an affixal predicate lacks higher clausal projections such as CP.

5.4.2 "Long" Possessor Raising

This section argues that "long" possessor raising in Nuu-chah-nulth is indicative of the reduced clausal status of complements in incorporation contexts. As first described in §2.2.2.1, Nuu-chah-nulth exhibits a process of possessor raising in which the possessive morpheme *–uk/-ʔak* (POSS) appears on the predicate rather than the possessum (Davidson 2001; Ravinski 2005). In a possessor raising construction, the subject agreement of the clause matches the possessor. The example in (46a) shows no possessor raising: the possessive morpheme *–uk* (POSS) suffixes to the possessum *kʷaaʔuuc* "grandchild". In the possessor raising example (46b), the predicate *taʔiɬ* "sick" is suffixed by *–uk* (POSS), and the subject agreement is first person singular *–siiš* (1SG.IND), to match the features of the possessor.

(46) a.

taʔiɬʔiš	kʷaaʔuucukqs
taʔiɬ-ʔiiš	kʷaaʔuuc-uk-qs
sick-3.IND	grandchild-POSS-1SG.PS

My grandchild is sick. *(unraised)*

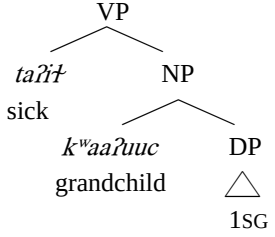
b.

taʔiɬuksiš	kʷaaʔuuc
taʔiɬ-uk-siiš	kʷaaʔuuc
sick-POSS-1SG.IND	grandchild

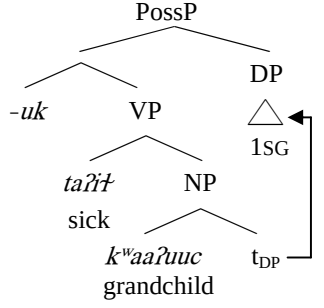
My grandchild is sick. *(possessor raising)*

As discussed in Chapter 4, this pattern can be accounted for under an analysis in which the possessive morpheme *–uk* (POSS) licenses a position for a raised possessor (Ravinski 2005). In the unraised example (46a–47a), the possessor remains within the possessive NP. In the raised example (46b–47b), the possessor raises to Spec, PossP where, as the highest DP, it takes on the role of subject, and determines subject agreement.

(47) a. *Unraised*



b. *Possessor raising*



There is evidence that possessor raising is only permitted within a clause. Possessor raising cannot cross a clause boundary marked by the complementizer *ʔiin* (COMP). The example in (48a) shows an unraised example for a sentence in which the matrix

predicate *t̓aqaak* "believe" takes a complement containing the embedded nominal *kʷaaʔuucukqs* "my grandchild". In (48b), intraclausal possessor raising occurs, in which the possessive morpheme *–uk* (POSS) is suffixed to the embedded verb *taʔiɬ* "sick". This case can be contrasted with the ungrammatical example in (48c), in which possessor raising crosses the CP boundary of the embedded clause, to suffix the possessive morpheme *–uk* (POSS) to the matrix predicate *t̓aqaak* "believe".

(48) a. t̓aqaaksiš ʔin taʔiɬḥuk kʷaaʔuucukqs
t̓aqaak-siiš ʔin taʔiɬ-ḥuuk kʷaaʔuuc-uk-qs
believe-1SG.IND COMP sick-3.DEP grandchild-POSS-1SG.PS
I believe my grandchild is sick. *(unraised)*

b. t̓aqaaksiš ʔin taʔiɬuksa kʷaaʔuuc
t̓aqaak-siiš ʔin taʔiɬ-uk-sa kʷaaʔuuc
believe-1SG.IND COMP sick-POSS-1SG.DEP grandchild
I believe my grandchild is sick. *(intraclausal possessor raising)*

c. * t̓aqaakuksiš ʔin taʔiɬ(uk)sa kʷaaʔuuc
t̓aqaak-uk-siiš ʔin taʔiɬ-(uk)-sa kʷaaʔuuc
believe-POSS-1SG.IND COMP sick-(POSS)-1SG.DEP grandchild
I believe my grandchild is sick. *(interclausal possessor raising)*

From the ungrammaticality of (48c), it is evident that possessor raising must be contained within a CP.

5.4.2.1 "Long" Possessor Raising with Affixal Auxiliaries

Despite this restriction on interclausal possessor raising, "long" possessor raising can be observed in environments in which an affixal predicate incorporates a host. As was initially described in Chapter 4, for affixal auxiliaries suffixed by *–uk* (POSS), either a "short" possessor raising or "long" possessor raising interpretation is generally possible with unaccusative hosts. In (49a), the affixal auxiliary *–qaatḥ* "claim" is hosted by the unaccusative predicate *šaḥy̓ut* "healthy". The possessive morpheme *–uk* (POSS) is suffixed to the predicate complex. In the "short" possessor raising interpretation, "my grandparent" is construed as the notional subject of both *–qaatḥ* "claim" and *šaḥy̓ut* "healthy." In the "long" possessor raising interpretation, "my grandparent" is construed as the subject of *šaḥy̓ut* "healthy", while the first person possessor of "grandparent" corresponds to the first person "subject" of *–qaatḥ* "claim". The example in (49b) indicates that when the argument of the unaccusative is inanimate (*sapnii* "bread"), only a "long" possessor raising interpretation is felicitious.

(49) a. šaḥy̓utqatḥukʷitsiš naniiqsu
šaḥy̓ut-**qaatḥ**-uk-mit-siiš naniiqsu
healthy-**claim**-POSS-PST-1SG.IND grandparent
= (i) My grandparent claimed to be well. (*'short' possessor raising*)
= (ii) I claimed my grandparent was well. (*'long' possessor raising*)

b. pux^{w}aaqatḥuk^{w}it?ick sapnii ʔataʔiš wikyuu
pux^{w}-aa-**qaatḥ**-uk-mit-ʔiick sapnii ʔata-ʔiiš wik-yuu
rise-CONT-**claim**-POSS-PST-2SG.IND bread still-3.IND NEG-RES
≠ (i) ! Your bread claimed it was rising, but it still hasn't.
(*'short' possessor raising*)
= (ii) You claimed your bread was rising, but it still hasn't.
(*'long' possessor raising*)

The syntactic prerequisite for "long" possessor raising is feature matching between the notional subject of the auxiliary and of the possessor. For example, the sentence in (50) is ungrammatical if the "claimer" and the possessor show a feature mismatch between a first person singular "claimer" and a second person singular "possessor".

(50) * šaḥy̓utqatḥuk^{w}itsiš naniiqs(akʔitk)
šaḥy̓ut-**qaatḥ**-uk-mit-siiš naniiqsu(-ʔak-ʔiitk)
healthy-**claim**-POSS-PST-1SG.IND grandparent(-POSS-2SG.PS)
I claimed your grandparent was well.

In contexts of feature mismatches, possessor raising is impossible: instead, *–'ap* (TR) is employed to license the "mismatch".[8]

(51) šaḥy̓utqatḥʔamitsiš naniiqsakʔitk
šaḥy̓ut-**qaatḥ**-'ap-mit-siiš naniiqsu-ʔak-ʔiitk
healthy-**claim**-TR-PST-1SG.IND grandparent-POSS-2SG.PS
I claimed your grandparent was well.

[8] This transitivization strategy is consistently available as an alternative to possessor raising with auxiliaries, whether or not possessor raising would be illicit in that context. In (i), transitivization expresses a meaning parallel to the "long" possessor raising in (ii).

(i) ʔuḥ̓iiqatḥʔapʔick naniiqsakʔitk ʔatquu wik̓iit
ʔu-**ḥ̓ii**-**qaatḥ**-'ap-ʔiick naniiqsu-ʔak-ʔiitk ʔat-quu wik-'iit
∅-**arrive**-**claim**-TR-2SG.IND grandparent-POSS-2SG.PS but-3.COND NEG-EXIS
You claimed your grandparent came, although she isn't here.

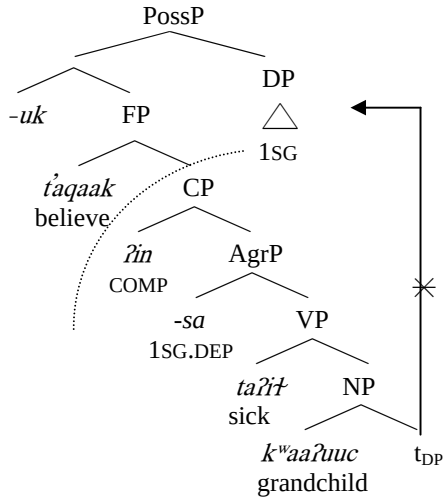
(ii) ʔuḥ̓iiqatḥukʔick naniiqsu ʔatquu wik̓iit
ʔu-**ḥ̓ii**-**qaatḥ**-uk-ʔiick naniiqsu ʔat-quu wik-'iit
∅-**arrive**-**claim**-POSS-2SG.IND grandparent but-3.COND NEG- EXIS
= (i) *"short" possessor raising*
Your grandparent claimed she came, although she isn't here.
= (ii) *"long" possessor raising*
You claimed your grandparent came, although she isn't here.

"Long" possessor raising is only possible when an auxiliary takes an unaccusative verb as its complement. When the embedded verb is transitive or unergative, use of *–'ap* (TR) is mandatory for disjoint readings of the subject of the auxiliary and of the embedded verb.

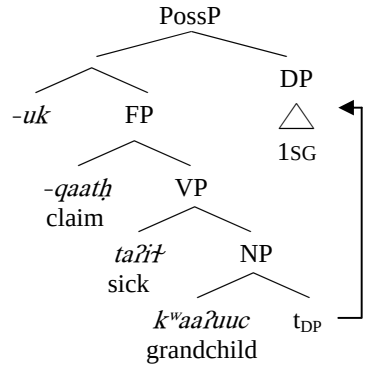
There is a contrast in Nuu-chah-nulth between illicit interclausal possessor raising and "long" possessor raising in contexts with affixal auxiliaries. This contrast is represented in (52). Raising of a DP possessor across a CP boundary is ruled out in Nuu-chah-nulth, as indicated in (52a). According to the analysis that the "clauselets" of affixal auxiliaries lack CPs, movement to a "raised" position is predicted to be possible. In (52b), "long" possessor raising does not cross a CP, because no CP is present.

(52) *Interclausal vs. "long" possessor raising*

a. *Ungrammatical interclausal movement*



b. *Grammatical "long" movement*



Thus, the possibility of "long" possessor raising in auxiliary environments can be viewed as evidence for the lack of clause-boundedness between the possessive argument of the embedded verb and the auxiliary.

5.4.2.2 No "Long" Possessor Raising with Affixal Main Predicates

Consider now the case of "long" possessor raising with affixal main predicates. All else being equal, we would anticipate that "long" possessor raising should be possible out of an infinitival complement of an affixal main predicate, as it is out of the complement of an auxiliary affixal predicate. However, what is instead found is that possessor raising can cross neither the full nor infinitival complement of an affixal main predicate. The examples below show this restriction for the main predicate *ʔu-ʔii-čiƛ* "hear, find out (PERF)". The examples in (53) show that interclausal possessor raising (crossing a full complement clause) is impossible, as it is in all contexts in the language. In (54), "long" possessor raising is shown to also be illicit. The example in (54a) shows a grammatical unraised example, while (54b) shows the ungrammatical outcome when the *–uk* (POSS) suffixes to the predicate complex.

(53) a. ʔuʔiičiƛitwaʔiš Lucy ʔin taʔiɬ kʷaaʔuucukʔi
ʔu-**ʔii**-čiƛ-mit-waʔiš Lucy ʔin taʔiɬ kʷaaʔuuc-uk-ʔi
∅-**hear**-PERF-PST-3.QUOT Lucy COMP sick grandchild-POSS-3.PS
Lucy heard that her grandchild is sick. *(unraised)*

b. * ʔuʔiičiƛitukwaʔiš Lucy ʔin taʔiɬ kʷaaʔuuc
ʔu-**ʔii**-čiƛ-mit-uk-waʔiš Lucy ʔin taʔiɬ kʷaaʔuuc
∅-**hear**-PERF-PST-POSS-3.QUOT Lucy COMP sick grandchild
Lucy heard that her grandchild is sick. *(interclausal PR)*

(54) a. taʔiɬʔiičiƛitʔiš Lucy kʷaaʔuucukʔi
taʔiɬ-**ʔii**-čiƛ-mit-ʔiiš Lucy kʷaaʔuuc-uk-ʔi
sick-**hear**-PERF-PST-3.IND Lucy grandchild-POSS-3.PS
Lucy heard that her grandchild is sick. *(unraised)*

b. * taʔiɬʔiičiƛitukʔiš Lucy kʷaaʔuu
taʔiɬ-**ʔii**-čiƛ-mit-uk-ʔiiš Lucy kʷaaʔuuc
sick-**hear**- PERF-PST-POSS-3.IND Lucy grandchild
Lucy heard that her grandchild is sick. (*'long' possessor raising)*

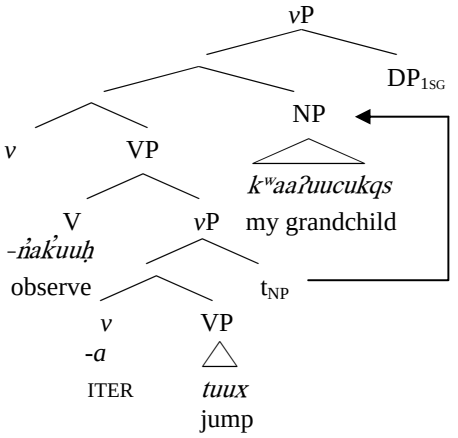
A priori, the impermissibility of "long" possessor raising out of an infinitival complement of an affixal main predicate is surprising given the transparency effects found with affixal auxiliary predicates. However, I propose that this behaviour is a direct consequence of the absence of a TP node in the complement of an affixal main predicate.

Based on the proposal that nominative case is assigned by T (Chomsky 1995), the absence of TP predicts that an embedded subject is not case-licensed within an infinitival clause (Wurmbrand 2001). According to this proposal, main verbs such as *ʔu-ʔii-čiƛ* (PERF) "hear, find out", *ʔu-ʕiƛ* "come upon" and *ʔuu-n̓aḵ̓uuḥ* "observe" are analysable as verbs which govern promotion of an infinitival subject to a matrix object position. Under this analysis, an argument generated within the infinitival is unlicensed for nominative case, and so must raise to the matrix clause to receive abstract accusative case via the matrix *v* (Chomsky 1995). For a sentence such as in (55), this entails that *kʷaaʔuucukqs* "my grandchild" is realized as an object of the matrix verb, although its genesis is in the subject position of the embedded "clauselet".

(55) tuuxtuuxʷan̓aḵ̓uuḥitsiš kʷaaʔuucukqs
tuuxʷ-a[+R]-**n̓aḵ̓uuḥ**-mit-siiš kʷaaʔuuc-uk-qs
jump-ITER-**observe**- PST-1SG.IND grandchild-POSS-1SG.PS
I observed my grandchild jumping.

This analysis is represented in (56). Here, the nominal phrase *kʷaaʔuucukqs* "my grandchild" moves from its base position as an argument of the embedded verb *tuuxtuuxʷa* "jump (ITER)" to the matrix *v*P projection of the affixal main predicate *ʔuu-n̓aḵ̓uuḥ* "observe".

(56) *Affixal main verb governing raising-to-object*



The analysis treats these Nuu-chah-nulth main verbs as parallel to "Exceptional Case Marking" (ECM) verbs such as English "believe", which license accusative case assignment for the argument of an embedded infinitival.

(57) a. I believe *him* to be sleeping. *(ECM)*
b. I believe that *he* is sleeping.

Once we assume the raising-to-object analysis for this main verb, the "long" possessor raising facts directly fall out. Recall that "long" possessor raising is not possible with affixal main predicates, as indicated by (58b).[9]

(58) a. tuuxtuuxʷan̓aḵ̓uuḥitsiš kʷaaʔuucukqs
tuuxʷ-a[+R]-**n̓aḵ̓uuḥ**-mit-siiš kʷaaʔuuc-uk-qs
jump-ITER-**observe**-PST-1SG.IND grandchild-POSS-1SG.PS
I observed my grandchild jumping. *(unraised)*

b. * tuuxʷtuuxʷan̓aḵ̓uuḥukʷitsiš kʷaaʔuuc
tuuxʷ-a[+R]-**n̓aḵ̓uuḥ**-uk-mit-siiš kʷaaʔuuc
jump-ITER-**observe**- POSS-PST-1SG.IND grandchild
I observed my grandchild jumping. *('long' possessor raising)*

Also recall from Chapters 3 and 4 that possessor raising is possible only out of subjects in Nuu-chah-nulth, not out of objects (Ravinski 2005). This is reflected in the interpretation of the possessor raised example of (59). Note that only the subject *piišpiš* "cat" is amenable to an interpretation as the possessum.

[9] This restriction holds whether the embedded predicate is unaccusative (as with *taʔiɬ* "sick" in 54b), or unergative (as with *tuuxʷ-* "jump" in 58b).

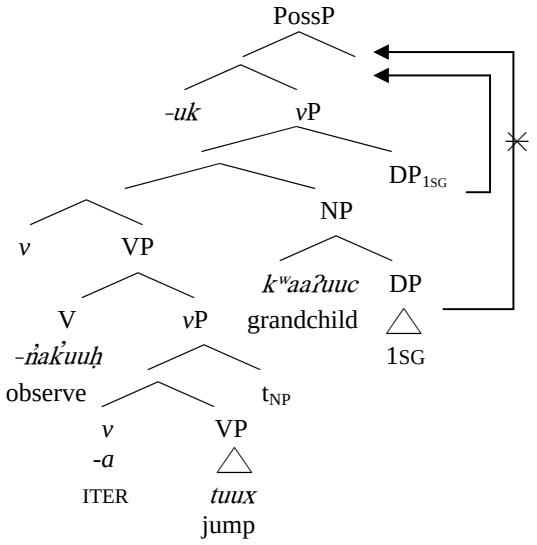
(59)

hink^{w}aʔiiḥuksiš	piišpiš	maamaati
hin-k^{w}aʔiiḥ-uk-siiš	piišpiš	maamaati
LOC-after-POSS-3.IND	cat	bird

= (i) My cat was after a bird.
≠ (ii) A cat was after my bird.

The unavailability of "long" possessor raising in the main verb environment is directly predicted by an analysis which states that the argument generated within the infinitival is behaving as an object, rather than a subject. Under a raising-to-object analysis, the promoted argument is predicted to be incompatible with possessor raising, since it fails to occupy a subject position. Possessor raising is inapplicable for objects in Nuu-chah-nulth. This analysis is represented in the diagram below. Here, only the subject of the matrix predicate is shown to allow possessor raising.

(60) *Raising-to-object verbs are incompatible with "long" possessor raising*



5.5 Conclusion

In summary, this chapter has argued that affixal predicates which take verbal complements fall into two general classes: affixal main predicates, and affixal auxiliary predicates. The two classes differ empirically in a variety of ways, including their ability to select a CP complement and to license a subject "mismatch". Moreover, only auxiliary affixal predicates permit "long" possessor raising. These behaviours were accounted for under an analysis in which main predicates are lexical verbs which govern raising-to-object, while auxiliary predicates are non-thematic functional verbs which govern raising-to-subject.

I presented evidence for the infinitival nature of the complement of an affixal predicate in incorporation environments. The "clauselet" behaves as a monoclausal configuration which lacks clausal demarcation between the affixal predicate and its complement. According to the analysis, the complement of an affixal predicate which governs incorporation is a phrase smaller than a TP. Thus, in these reduced clause contexts, no CP "border" is imposed between an affixal predicate and its host. Opacity effects fail to apply to these reduced clauses because they are unsaturated domains.

This study expands the cross-linguistic typology of "restructuring" effects. The manifestation of these effects differs considerably across languages, although they share the common property of a lack of clausal demarcation between matrix and embedded constituents (Wurmbrand 2001; Cinque 2001). For Romance languages, primary examples of "restructuring" effects are clitic-climbing, long NP movement, and auxiliary selection (see Rizzi 1982), while Germanic "restructuring" behaviours include long object movement, long-distance scrambling, and verb raising (see Wurmbrand 2001). This study demonstrates that in Nuu-chah-nulth, "restructuring" effects include incorporation, "long" *wh*-movement and "long" possessor raising. These "restructuring" effects were previously unrecognized in the Wakashan literature.

6. Implications

We shall not cease from exploration
and the end of all our exploring
will be to arrive where we started
and know the place for the first time.
~T.S. Eliot *Four Quartets no. 4*

6.0 Introduction

This concluding chapter first summarizes the effects of local spell-out in Nuu-chah-nulth, and then moves on to discussion of key theoretical and typological implications of the analysis. The chapter closes with concluding remarks.

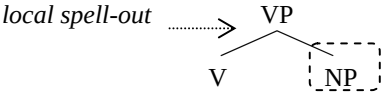
6.1 Summary

This book has proposed that the positioning of affixal predicates in Nuu-chah-nulth is a reflex of the need to linearize these bound morphemes. I have advanced an argument for the way in which syntactic objects are mapped to phonological linearization. According to the proposal, the linearization of syntactic constructs is established incrementally over the course of the derivation, in minimal domains equivalent to a single cycle of Merge. The local spell-out hypothesis determines that an affixal predicate finds a host from within its derivational sister. This derivational sister is a linearized object at spell-out, leading to the restriction that suffixation operates on the basis of string adjacency.

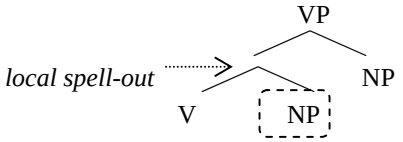
The consequence of local spell-out of affixal predicates in Nuu-chah-nulth is a phenomenon termed PF incorporation. Through PF incorporation, an affixal predicate suffixes to a host, in a process unselective for syntactic category, and insensitive to the syntactic structure of the derivational sister. The syntax and the linearization mechanism are not fully independent, however; syntax plays a conditioning role in the linearization process, through the composition of local spell-out domains. For affixal predicates which take nominal complements, I presented evidence that the argument structure of the affixal predicate constrains the choice of host for the affix. Whether an affixal predicate is unaccusative, extended unaccusative, transitive, or ditransitive, the position in which arguments are introduced has an influence on the pattern of incorporation. In each case, it is the argument which is introduced as the derivational sister to the affixal predicate which may serve as host. Higher arguments are ineligible as hosts.

(1) *Nominal complements of affixal predicates*

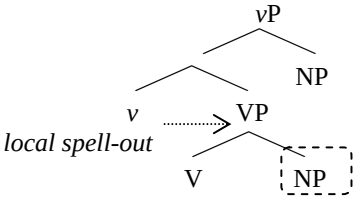
a. *Unaccusative*



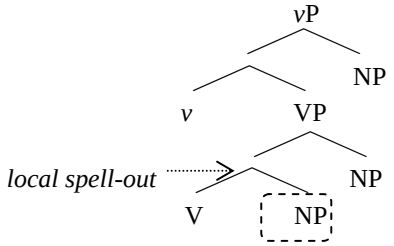
b. *Extended unaccusative*



c. *Transitive*



d. *Ditransitive*

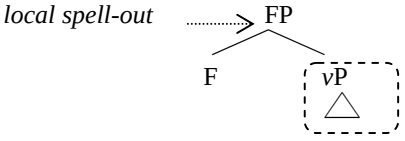


Moreover, the syntax was shown to condition spell-out of affixal predicates through the creation of "self-contained" derivational units. According to the saturated domain hypothesis, hosts for an affixal predicate are never selected from across a DP, because a DP is an independent phonological unit. Instead, in these contexts, the expletive *ʔu-* is inserted to host the affix.

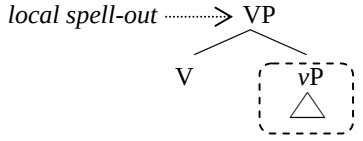
For affixal predicates which take verbal complements, a similar analysis for the conditioning effect of the syntax was given. I argued that the inventory of affixal predicates in Nuu-chah-nulth includes both main and auxiliary verbs, which permit incorporation of a host chosen from its complement. The incorporation pattern occurs with infinitival (*v*P) complements, and not with CP complements. By the saturated domain hypothesis, affixation is barred from crossing a CP.

(2) *Verbal complements of affixal predicates*

a. *Auxiliary predicate*



b. *Main predicate*



Under the analysis I have proposed, spell-out to PF effects the ordering of syntactic elements when linearization is induced. This model is incompatible with a characterization of the derivational capacity of PF which states that PF amounts to a "second syntax" or to a "hybrid" branch sharing both syntactic and phonological sensitivities (cf. Embick and Noyer 2001; Rivero 1999). The properties I have

attributed to syntactic and PF operations are distinct. The syntax, under my analysis, plays a structure-building role in which linearization is irrelevant: syntactic constructs are inherently unordered. In contrast, at spell-out to PF, the structures of the syntax are inconsequential, while relationships based on string adjacency take on import. Under the present proposal, seemingly "syntactic" restrictions at PF are by-products of the role which syntax plays in conditioning the input to PF. The Nuu-chah-nulth facts indicate two ways in which syntax has a conditioning effect: the structure-building component is responsible for the creation of local spell-out domains (derivational sisters), as well as the creation of computationally independent opaque constituents.

(3) *Conditioning effects of the syntax*
(i) Determining derivational sisterhood
(ii) Creation of saturated domains

The first effect is responsible for the "complement" restriction on Nuu-chah-nulth incorporation. The second effect determines that incorporation is impossible in Nuu-chah-nulth across a DP or CP. In Chapter 2, I proposed that the opacity effects associated with DP and CP in Nuu-chah-nulth arise due to the derivational inertness which is induced upon syntactic saturation. In the discussion to follow, the nature of these opacity effects are further investigated, as the local spell-out model is contrasted with the phasal spell-out hypothesis of Chomsky (2001, 2005).

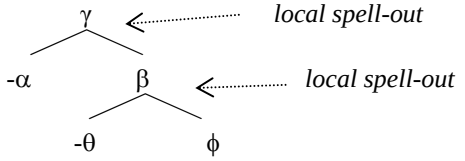
6.2 Theoretical Implications

This section presents three theoretical implications of the local spell-out hypothesis. In §6.2.1, I distinguish the local spell-out model from "phasal" spell-out (Chomsky 2001, 2005). Next, §6.2.2 discusses how PF incorporation in Nuu-chah-nulth fits in to the broader question of the locus of head movement operations in the grammar. Finally, §6.2.3 illustrates how the linearization effected by local spell-out necessarily induces an "outside-in" dependency.

6.2.1 Spell-out is Strictly Interpretive

According to the local spell-out hypothesis, the spell-out mechanism applies iteratively over the derivation, directing the outputs of syntactic concatenation to interpretation at the LF and PF interfaces. A characteristic of this model is that the mapping mechanism of spell-out does not remove the interpreted elements from the derivation. As first discussed in Chapter 1, the Order Preservation hypothesis (Fox and Pesetsky 2005) states that information established by spell-out is not deleted over the course of the derivation. As was shown in Chapter 2, the proposed iterative spell-out model allows a build-up of affixes, which occurs when one affix finds a host at spell-out, and this affix–host complex in turn serves as a host for another affixal at a subsequent application of spell-out. In (4), if $-\alpha$ and $-\theta$ are each suffixes, then a linearization of $\phi-\theta$ is induced in a first round of local spell-out. Next, when $-\alpha$ is spelled-out, its host is this complex, yielding a linearization of $\phi-\theta-\alpha$.

(4)



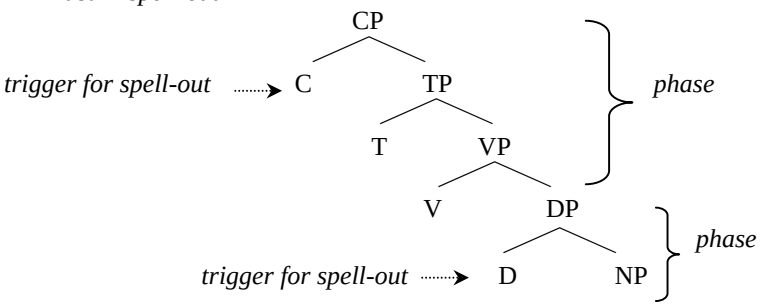
If spell-out removed an affix and its host from the derivation, then such strings of affixes would be predicted to be impossible with iterative spell-out. That is, if spell-out occurred at β, and if this spell-out removed the contents of β from the derivation, then –α and –θ would be predicted to belong to distinct phonological domains. Instead, I hypothesize that spell-out enriches the derivation by establishing cumulative linearization (see also Fox and Pesetsky 2005). By this view, interpretation at the interfaces and removal from the derivation are necessarily distinct: spell-out is strictly interpretive.

This division of labour contrasts with the conflation of the interpretive and removal functions of spell-out in Chomsky (2001, 2005). According to Chomsky's dual-function model of spell-out, portions of the derivation are interpreted as distinct "phases", concomitant with their removal from the active derivation. In what follows, the local spell-out model is compared to phasal spell-out, noting conceptual and empirical shortcomings of the phasal model.

6.2.1.1 Comparison to "Phasal" Spell-out

Chomsky (2001, 2005) proposes a model of multiple spell-out in which chunks of syntactic derivations are mapped cyclically to the interfaces as "phases". Spell-out occurs at designated points of the derivation, triggered by the presence of a "phasal head". Once a phasal head is reached in the derivation, the sister to this head is spelled-out. In the illustration in (5), C and D are represented as phasal heads.[1]

(5) *"Phasal" spell-out*



This model of cyclic spell-out partitions the derivation into discrete units. Within each phase, Chomsky (2005: 9) hypothesizes that all syntactic movement is driven

[1] We set aside here the issue of *v*, which is also taken to be a phasal head (Chomsky 2001, 2005). See §6.2.1.3 for discussion of the *v*P domain.

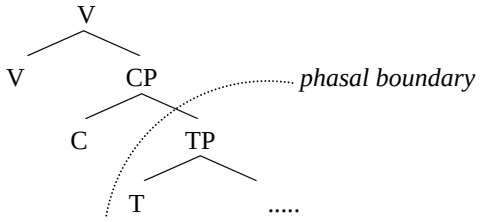
by the phase head. Memory is also phase-bound, since information that is spelled-out is inaccessible to later phases. This opacity effect is imposed by *Phase Impenetrability* (Chomsky 2001), which may be defined as below.

(6) *Phase impenetrability*

If XP is spelled-out, the sister to X may not be accessed later in the derivation.

The diagram in (7) illustrates how C(P) imposes a boundary between two phases of the derivation.

(7)



In (7), the phasal head C remains active in the derivation, while the sister to C – TP – is made inaccessible to operations after spell-out. According to this analysis, the spell-out node of C(P) is an "escape hatch" for movement in that it forms a potential link for movement across the phasal boundary: elements within the CP phase may move to C(P) to carry on in the derivation. Thus, long-distance movement, as in (8), proceeds in cycles by accessing the "escape hatch" at CP.

(8) *Who$_i$ do you think [$_{CP}$ t$_i$ [we can trust t$_i$]?*

The *wh*-word, which originates in the embedded clause as object of the verb, makes an intermediate step to the "escape hatch" in the embedded CP before remerging in the matrix CP.

Before turning to the empirical adequacy of the Phase Impenetrability hypothesis, we first ask the following question: is this stipulation necessary, or does opacity follow from a primitive of the computation? According to the Phase Impenetrability hypothesis, opacity is inherently tied to spell-out itself: once a portion of the derivation is spelled-out, it is no longer retrievable. Under the phasal spell-out model, the source of opacity effects is therefore linked to the designation of spell-out nodes themselves. By this model, only spell-out nodes trigger opacity. However, it remains to be shown under this model what forces the special status of phasal heads as spell-out triggers. The existence of a limited set of spell-out triggers is left as a stipulation. Motivation for the existence of opacity effects is therefore a conceptual shortcoming of this model, to the extent that the choice of spell-out triggers is unexplained.

In contrast, according to the local spell-out model, phrases such as DP and CP are not special spell-out units: every instance of syntactic Merge induces spell-out. By this assumption, the source of opacity effects therefore cannot be in spell-out

itself. Under the local spell-out model, spell-out plays a purely interpretive role, as it fails to induce removal from the derivation. In Chapter 2, the saturated domain hypothesis was advanced regarding the source of opacity effects.

(9) *Saturated domain hypothesis:*
the contents of DP and CP are fully interpreted

Under the proposal, the inertness of the contents of DP and CP follows from their saturation. This inertness derives from economy in that only unsaturated portions of the derivation command attention; saturated portions of the derivation are neglected. What sets D and C apart as "borders" of the derivation may ultimately reduce to the role which these heads play in driving movement: Chomsky (2005: 9) hypothesizes that all syntactic movement is forced by these heads ("phasal heads") which mark the edge of an opaque domain. Thus, introduction of a node such as C allows for syntactic saturation of the sister to C. Under the saturated domain hypothesis, opacity effects thus come naturally from the same derivational primitives which drive interpretation and movement.

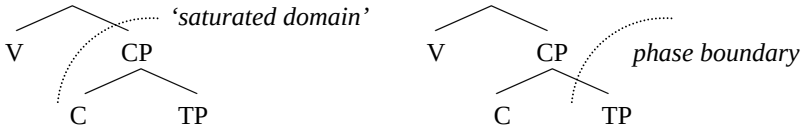
It is also worth noting an empirical flaw of the Phase Impenetrability hypothesis as applied to Nuu-chah-nulth. Assuming that the complementizer *ʔiʔ* (COMP) in Nuu-chah-nulth occupies C, the Phase Impenetrability hypothesis is empirically inadequate in capturing the spell-out properties of affixal predicates. According to this hypothesis, the head of a spell-out domain should be available to the higher phase. For example, in (7), C will attain spell-out along with V when the next phase is reached. This predicted behaviour does not occur in Nuu-chah-nulth. When an affixal predicate takes a CP complement, the complementizer is not available as a host to the affixal predicate. In (10a), it is shown to be ungrammatical for *ʔiʔ* (COMP) to host the affixal predicate *–ƛ̓aƛ̓uuɬ* "observe". Instead, when the affixal predicate takes a CP complement, the expletive *ʔu-* mandatorily hosts the affix, as in (10b).

(10) a. * ʔiinƛ̓aƛ̓uuɬitsiš — tuuxtuux^{w}amitsuk
ʔin-**ƛ̓aƛ̓uuɬ**[+L]-mit-siiš — tuux^{w}-a[+R]-mit-suuk
COMP-**observe**-PST-1SG.IND — jump-IT-PST-2SG.DEP
I observed that you were jumping.

b. ʔuuƛ̓aƛ̓uuɬitsiš — ʔiʔ — tuuxtuux^{w}amitsuk
ʔu-**ƛ̓aƛ̓uuɬ**[+L]-mit-siiš — ʔiʔ — tuux^{w}-a[+R]-mit-suuk
∅-**observe**-PST-1SG.IND — COMP — jump-IT-PST-2SG.DEP
I observed that you were jumping.

This behaviour is unexpected if the affixal predicate and the complementizer were spelled-out together. Thus, the technical implementation of the Phase Impenetrability hypothesis for CPs is problematic for Nuu-chah-nulth. This problem does not arise under the saturated domain hypothesis, since by this analysis, CP is set apart as a distinct domain of the derivation.

(11) a. *Saturated domain hypothesis* b. *Phase Impenetrability hypothesis*



Let us now turn to discussion of cross-linguistic variation in "escape hatches" at the borders of opaque domains.

6.2.1.2 Variation in Permeability of CP Domains

The previous chapters illustrated a range of cases in Nuu-chah-nulth in which CPs and DPs form impermeable domains. In the context of affixation, when an affixal predicate takes a CP or DP as its sister, a host for the affixal predicate may not come from these saturated domains. As first noted in Chapter 2, a similar constraint exists on syntactic movement in the language. *Wh*-movement in Nuu-chah-nulth is barred from crossing a CP (Davis and Sawai 2001), as indicated in (12). A *wh*-question formed via extraction from an embedded clause, as in (12b, c), is ungrammatical.

(12) a. ƫaaquk^{w}iʔaƛʔiš John ʔin kuuẇiɬitḥuk Mary č̓apac
ƫaaquk-čiƛ-'aƛ-ʔiiš John ʔin kuuẇiɬ-mit-ḥuuk Mary č̓apac
believe-PERF-TEMP-3.IND John COMP steal-PST-3.DEP Mary canoe
John believes that Mary stole the canoe. (cf. Davis and Sawai 2001: 133)

b. * ʔačaqḥ ƫaaquk^{w}iʔaƛ John ʔin kuuẇiɬitḥuk č̓apac
ʔačaq-ḥ ƫaaquk-čiƛ-'aƛ John ʔin kuuẇiɬ-mit-ḥuuk č̓apac
who-3.Q believe-PERF-TEMP John COMP steal- PST-3.DEP canoe
Who does John believe stole the canoe? (cf. Davis and Sawai 2001: 133)

c. * ʔačaqḥ ƫaaquk^{w}iʔaƛ John (ʔin) kuuẇiɬitḥ č̓apac
ʔačaq-ḥ ƫaaquk-čiƛ-'aƛ John (ʔin) kuuẇiɬ-mit-ḥ č̓apac
who-3.Q believe-PERF-TEMP John (COMP) steal- PST-3.Q canoe
Who does John believe stole the canoe?

This restriction on cross-domain movement in Nuu-chah-nulth stands in contrast to those languages which are known to allow long-range movement. In English, for example, an "escape hatch" at CP permits movement from one clause to another.

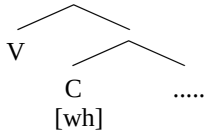
(13) *Who$_i$ do you think [$_{CP}$ t$_i$ [we can trust t$_i$]?*

What ensures that a CP border is tightly closed in Nuu-chah-nulth – barring long-range movement – while a more permeable edge is allowed in those languages which permit cross-clausal movement?

I suggest that the possibility of cross-clausal extraction reduces to incomplete interpretation of CPs – a lack of saturation. In the case of long-range movement, an

"escape hatch" is created if and only if the CP carries a [*wh*] feature which remains unsaturated at this border. This permeable border is represented in (14).

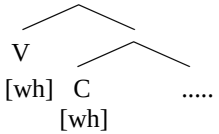
(14) *Unsaturated [wh] feature at a CP border*



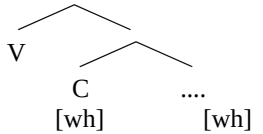
By hypothesis, the lack of saturation which is inherent to (14) leaves the edge of the CP domain "active" in the derivation. In contrast, the edge is rendered "inert" if the [*wh*] feature is saturated at the border – barring any cross-clausal extraction from this domain. Two types of fully interpreted CPs are illustrated in (15).

(15) *Saturated [wh] features at a CP border*

a. *Selectional saturation*



b. *Intraclausal saturation*



One means by which an inert edge may arise is in contexts of "selectional saturation", in which a verb, such as English *wonder*, is lexically specified for an interrogative complement. In (15a), the lexically specified [*wh*] feature of the verb matches the [*wh*] feature of the interrogative complement, allowing for saturation of the embedded [*wh*]. The complements of these inherently interrogative verbs are known to be islands for movement, as indicated by the ungrammaticality of (16b). By hypothesis, the opacity of these lexically selected interrogative CPs follows from their complete interpretation – as fully saturated domains, their edges are inert. The ban on cross-clausal movement from the interrogative complement of a lexically marked [*wh*] verb stands in contrast to the cross-clausal movement permitted when the verb is not inherently interrogative, such as English "think" in (17). Questions such as (17b), which show no lexical selection for a [*wh*] complement, match the configuration in (14). Cross-clausal movement is permitted via the "escape hatch" which arises due to the incomplete interpretation of the CP.

(16) a. I wonder whether John saw Mary.
b. * Who do you wonder whether John saw?

(17) a. I think John saw Mary.
b. Who do you think John saw?

I hypothesize that the featural composition of the CP may also be saturated intraclausally (15b), rather than via lexical saturation (15a). The inert status of CPs in Nuu-chah-nulth is proposed to arise from the intraclausal saturation illustrated in (15b). According to the proposal, the [*wh*] feature of an interrogative clause in Nuu-chah-nulth need not look outside its domain for saturation – a possibility which I suggest may be tied to the obligatory interrogative "mood" marking within the clause. As first described in Chapter 3, clause types in Nuu-chah-nulth are marked in a clause via fusional "mood" enclitics which simultaneously encode subject agreement. Interrogative mood is one paradigm of inflectional endings, as are moods such as indicative, relative, or conditional. A partial mood paradigm is shown in (18); see §3.2.1 for a complete set of mood distinctions.

(18) *Mood/person distinctions (partial set)*

Mood/Person	*1sg*	*2sg*	*3*	*1pl*	*2pl*
INDICATIVE	-siiš	-ʔiick	-ʔiiš	-niiš	-ʔiicuuš
INTERROGATIVE	-ḥs	-k	-ḥ	-ḥin	-ḥsuu
SIMPLE RELATIVE	-qs	-ʔiitk	-ʔiitq	-qin	-ʔiitqsuu
CONDITIONAL	-quus	-quuk	-quu	-q^{w}in	-quusuu

A clause containing a *wh*-word in Nuu-chah-nulth is obligatorily marked for interrogative "mood". In (19a), the portmanteau "mood" marker *–ḥ* simultaneously marks interrogative clause type and third person. It is ungrammatical for alternative "moods" to occur in a sentence with a *wh*-word, as is indicated by the ungrammatical presence of the third person indicative mood ending *–ʔiiš* in (19b).

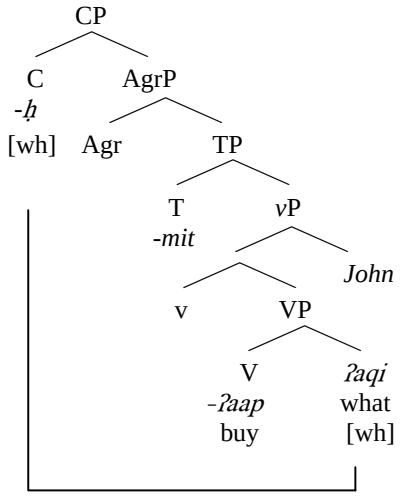
(19) a. ʔaqiʔamitḥ John
ʔaqi-**ʔaap**-mit-ḥ John
what-**buy**-PST-3.Q John
What did John buy? (Davis and Sawai 2001: 123, ex. 1)

b. * ʔaqiʔamitʔiš John
ʔaqi-**ʔaap**-mit-ʔiiš John
what-**buy**-PST-3.IND John
What did John buy?

For an interrogative clause in Nuu-chah-nulth, I hypothesize that the interrogative agreement saturates the [*wh*] feature of a *wh*-word. This is illustrated in (20), where the third person interrogative morpheme is shown housed in C^2:

[2] Other analyses of the location of this fusional interrogative marker within CP (such as Agr) are compatible with the intraclausal saturation analysis. However, interrogative "mood" endings do not co-occur with the complementizer ʔin – this complementary distribution would follow if they occupied the same C slot.

(20)



By this mechanism, the features of the CP domain are fully saturated. The complete interpretation of the [*wh*] features within CP in Nuu-chah-nulth renders the domain ineligible for cross-clausal extraction. If an interrogative clause is necessarily marked with interrogative mood in Nuu-chah-nulth, then saturation of the [*wh*] feature in a *wh*-word is induced within the CP – preventing the creation of an "escape hatch" in cross-clausal contexts.

6.2.1.3 The Status of the *v*P Domain

Although CP and DP pattern as opaque domains in Nuu-chah-nulth, a distinct set of properties holds for the *v*P domain. In Nuu-chah-nulth, *v*P fails to exhibit opacity effects similar to that of CP and DP, as might be anticipated under analyses such as Chomsky (2001, 2005) which posit *v* as a privileged head on par with C or D. The *v*P domain is transparent for affixation in Nuu-chah-nulth: there is a cumulative build-up of affixes and hosts in Nuu-chah-nulth which is not halted at the *v*P "border". As illustrated in Chapter 3, an affixal predicate and its host forms a single word together with a range of affixal morphemes whose syntactic origin is above the *v*P, including tense and agreement clitics. In (21), for example, the affixal predicate *–ʔinɬ* "serve" and its host *čamas* "sweets" forms a word with the tense morpheme *–mit* (PST) and the agreement morpheme *–siiš* (1SG.IND).

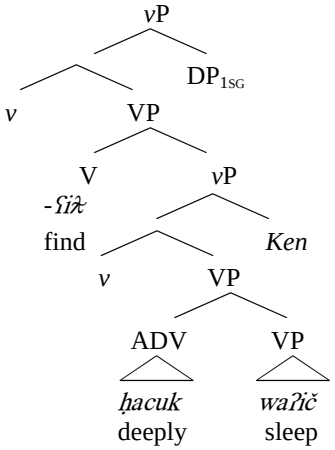
(21) čamayinɬitsiš
čamas-**ʔinɬ**-mit-siiš
sweets-**serve**-PST-1SG.IND
I served sweets.

Such examples are distinct from opacity effects involving CP or DP, as it has been shown that a host for an affixal predicate cannot cross either of these saturated domains. Likewise, a related problem for the notion that *v*P constitutes an opaque domain in Nuu-chah-nulth is the possibility of affixation across a *v*P phrase. When an affixal predicate takes a verbal complement, a host for the affixal predicate is chosen from the complement, as discussed in Chapter 5. In (22), the affixal predicate *-ʕiƛ* "come upon" suffixes to its host *ḥacuk* "deeply".

(22) ḥacukʕiƛitsiš waʔič Ken
ḥacuk-**ʕiƛ**-mit-siiš waʔič Ken
deeply-**come.upon**-PST-1SG.IND sleep Ken
I came upon Ken in a deep sleep.

Syntactically, this complex may be represented as in (23), in which the predicate *ʔu-ʕiƛ* "come upon" belongs to a different verbal projection than *ḥacuk* "deeply".

(23)



If *v*P imposed an impermeable border between the matrix affixal predicate and its complement, affixation would not be predicted between *-ʕiƛ* "come upon" and its attested host, *ḥacuk* "deeply".

Despite this evidence that *v*P constitutes a transparent domain for affixation, there is nonetheless suggestive evidence that the *v*P may contain a unique phonological domain in Nuu-chah-nulth. The inner layer of suffixes in a Nuu-chah-nulth word – namely, affixal predicates and aspectual suffixes – display phonological effects which can be contrasted to that of the outer suffixes.

(24) *"Inner" and "outer" layers of suffixes in Nuu-chah-nulth*

[=PREDICATE=ASP] =TR=TEMP=PAS=POSS=TENSE=AGR/MOOD=PL=AGAIN=HAB

"core" suffixes "peripheral" suffixes

Phonological processes in Nuu-chah-nulth are traditionally classified into two classes or strata: those which apply to "core" or "stem"-level suffixes, and those phenomena which occur peripherally at "word" level (see Sapir and Swadesh 1939; Nakayama 2001; Stonham 2007, among others).[3] In Chapter 2, it was noted that affixal predicates and aspectual suffixes trigger non-local effects on their host morpheme, conditioning vowel length and reduplication on the initial syllable of a host (see §2.1). In contrast, the "peripheral" inflectional suffixes, such as tense markers or agreement morphemes, never induce reduplication or condition vowel length of a host. As Nakayama (2001: 17) notes, any phonological change caused by "peripheral" suffixes is limited to the host segment directly adjacent to the suffix. One such local change is a consonant mutation or "hardening" effect which induces glottalization of a neighbouring consonant. For example, in (25), the "glottalizing" temporal suffix -*ʾaƛ* (TEMP) causes the final stop in *ʕičaak* "rotten" to surface as a glottalized [kˀ].

(25) ʕičaakˀaƛʔiš
ʕičaak-ʾaƛ-ʔiš
rotten-TEMP-3.IND
They're rotten.

(See Sapir and Swadesh 1939; Nakayama 2001; Kim 2003, among others, for detailed discussion of glottalization and other local effects). Although both "core" and "peripheral" suffixes display these local glottalizing effects, the two classes of suffixes differ in their range of targets – while "core" suffixes glottalize a neighbouring stop, affricate, or fricative, the "peripheral" suffixes affect only the first two classes, failing to mutate an adjacent fricative. The differing treatment of the lateral fricative [ɬ] is shown in (26). In (26a), the fricative is adjacent to the glottalizing affixal predicate -*ʾaḥs* "in a vessel", and is realized as the glottalized glide [ẏˀ]. In (26b), the lateral fricative fails to undergo mutation when it occurs with the glottalizing temporal suffix –*ʾaƛ* (TEMP), a "peripheral" suffix.

(26) a. hiẏˀaḥs
hiɬ-ʾaḥs-∅
LOC-in.vessel
'inside a canoe' (Nakayama 2001: 16, ex. 35)

b. hiɬʔaƛ
hiɬ-ʾaƛ-∅
LOC-TEMP-3.ABS
'He was there.' (Nakayama 2001: 16, ex. 36)

Nakayama (2001: 16) summarizes this phonological difference between "core" and "peripheral" suffixes by noting that "the effect on the stem triggered by the core suffixes is stronger than that triggered by peripheral suffixes."

[3] Sapir and Swadesh (1939) refer to "core" and "peripheral" suffixes as "formative" and "incremental" suffixes, respectively.

Additional research is required to determine whether this traditional distinction between "core" and "peripheral" suffixes may be recast as corresponding to the boundary between intra-*v*P and extra-*v*P projections. Under the present analysis, (non-auxiliary) affixal predicates and aspectual markers are contained within the *v*P, while the "outer" suffixes are assumed to be housed in higher projections.[4] This clausal demarcation came into play in Chapter 5, in which it was shown that only the inner layer of suffixes are included together with a verb when the verb is "incorporated" into an affixal predicate. The example in (27) illustrates "verb incorporation" of the verbal complex *waɬ-šiƛ* "go home (PERF) into the affixal predicate *–maḥsa* "want to". While *waɬ-* "go home" may be suffixed by the aspectual suffix *-šiƛ* (PERF), it may not be suffixed by peripheral suffixes, including the tense morpheme *-ʔaqƛ* (FUT).

(27) waɬšiƛ(*ʔaqƛ)maḥsasiš
waɬ-šiƛ-(*ʔaqƛ)-**maḥsa**-siiš
go.home-PERF-(FUT)-**want.to**-1SG.IND
I want to go home.

Thus, there is suggestive evidence from both affixation and other phonological processes that the intra-*v*P suffixes in Nuu-chah-nulth form a more tightly integrated domain with their host than the suffixes which originate outside of *v*P. It remains to be shown how *v*P compares to the saturated domains of CP and DP, and whether the possibility of cumulative affixation may be attributed to the presence of an "escape hatch" at the border of a *v*P.

In sum, the Nuu-chah-nulth data constitute novel support for the derivational independence of CP and DP. Further investigation is necessary to determine the status of the *v*P domain. In the next section, an additional theoretical implication of the study is assessed.

6.2.2 The Head Movement Question

In the wake of Chomsky's (1995, 2001) suggestion that head movement may be best analysed as a PF phenomenon, much attention has been paid to theoretical motivations for eliminating this operation from the narrow syntax. A well-noted objection to a standard syntactic treatment of head movement (e.g., Baker 1988; Chomsky 1993) is its countercyclic violation of the Extension Condition, in which head movement builds the tree at a non-root node (Chomsky 2001, among others). According to a traditional syntactic treatment of head movement, a head X is moved to adjoin to an immediately c-commanding node Y, as in (28a). In (28a), the Y node at which structure-building is effected is not the root node. In cyclic movement, structure-building occurs at the root, as in (28b).

[4] More research is needed on the status of auxiliary affixal predicates. In Chapter 5, it was proposed that these predicates were housed in a functional projection located directly above *v*P.

(28) a. *Countercyclic movement* b. *Cyclic movement*

Countercyclicity entails that the moved element does not c-command its "trace", under standard definitions of c-command. An additional problematic aspect of a traditional analysis of syntactic head movement is the stipulative nature of the Uniformity Condition on the phrasal status of chains (Surányi 2003; Matushansky 2006).

(29) *Uniformity condition* (Chomsky 1995: 253)
A chain is uniform with regard to phrase structure status

However, a variety of analyses have indicated that these problems posed by head movement within a Minimalist syntax may be reconciled through an adjustment in the syntactic machinery of head movement (Donati 2003; Surányi 2003; Matushansky 2006). For example, Matushansky (2006) argues that phrasal movement and head movement have identical landing sites, in which both extend the projection at the root. By this analysis, the issue of apparent countercyclicity evaporates.

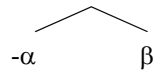
The residue of this theoretical debate on the admissibility of head movement as a syntactic operation is the question of empirical support for the notion that head movement occurs in PF (Boeckx and Stjepanovic 2001). In this light, the empirical basis for diagnosing the symptoms of a PF operation takes on considerable theoretical import (see also Rivero 1999; Embick and Noyer 2001). Specifically, if head movement is a PF operation, then what features should it be expected to have? This examination of incorporation data from Nuu-chah-nulth expands the empirical coverage of the "head movement question". As I have shown, incorporation in Nuu-chah-nulth has the hallmark properties of a post-syntactic, PF process. The phenomenon of PF incorporation in Nuu-chah-nulth demonstrates adherence to string adjacency, and shows an insensitivity to syntactic category and constituency, and as well as an absence of LF effects. Moreover, the opacity effects associated with DP and CP constituents in Nuu-chah-nulth provide novel support for the computational independence of these phrases at a phonological level (cf. Chomsky 2001; Matushansky 2006).

In what follows, I make explicit the claim that while the "head movement" operation of affixal predicates in Nuu-chah-nulth is strictly phonological, other types of head movement show contrasting properties. In §6.2.2.1, I summarize the argument that the linearization mechanism for Nuu-chah-nulth affixes is achieved at spell-out to PF. In §6.2.2.2, this linearization mechanism is contrasted with syntactic head movement.

6.2.2.1 Linearization is Purely Phonological

In a strict sense, the placement of affixal predicates in Nuu-chah-nulth is purely phonological. Although syntactic composition conditions the input to the linearization mechanism at local spell-out, the syntax plays no role in the means by which an affix is attached with its host. As I have argued, an affixal predicate suffixes to its host as a reflex of the spell-out mechanism. For a syntactic construct such as (30), the suffix –α is the linearized object β–α.

(30)



A characteristic of the linearization of Nuu-chah-nulth affixal predicates is that it is conditioned by the "base" position of affixes and their arguments, via aggressive interpretation achieved through local spell-out. That is, as soon as an affixal predicate is merged into the derivation, its linearization is determined: the affixal predicate is hosted by a string adjacent element from its derivational sister. Under the simplest assumptions, it follows from this analysis that subsequent syntactic movement in the derivation, of either the affix or its derivational sister, should not affect this relationship between the affix and its host. This prediction is upheld in Nuu-chah-nulth. For example, when the nominal object of an affixal predicate is passivized, the "complement" effect in affixation remains. Whether an affixal predicate is active or passive, the affix suffixes to a host from its derivational sister, its complement.[5] The examples in (31) show this pattern for the transitive affixal predicate *ʔu-ʔiic* "consume". The active sentence in (31a) shows the affixal predicate suffixing to the nominal *k̓ʷaq* "spawned herring eggs", which the predicate takes as its syntactic object (as argued in Chapter 4). In (31b), the predicate has been passivized: this is indicated morphologically by the addition of the suffix *–ʾat* (PAS). What is relevant is that passivization has no consequence for the choice of host for the affixal predicate. In (31b), the host for the affixal predicate is *k̓ʷaq* "spawned herring eggs", just as it is in the active case of (31a).

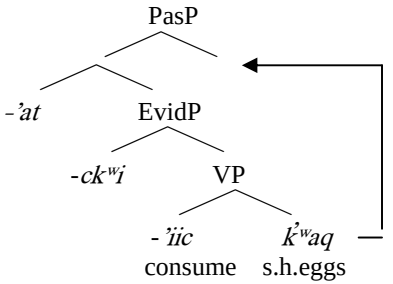
(31) a. k̓ʷaʕiicʔiš kʷaaʔuuc
k̓ʷaq-**ʾiic**-ʔiiš kʷaaʔuuc
s.h.eggs-**consume**-3.IND grandchild
Grandchild is eating spawned herring eggs. *(active)*

b. k̓ʷaʕiicckʷatʔiš ʔuušḥʔat
k̓ʷaq-**ʾiic**-ckʷi-ʾat-ʔiiš ʔuuš-qḥ-ʾat
s.h.eggs-**consume**-EVID-PAS-3.IND some-do.by-PAS
Spawned herring eggs must have been eaten by someone. *(passive)*

[5] This claim directly contradicts Waldie's (2004) assertion that affixal predicates with nominal hosts cannot be passivized in the Ahousaht dialect of Nuu-chah-nulth. The Ahousaht speakers who I have worked with consistently allow passivization in appropriate discourse contexts, with semantically appropriate predicates.

According to a syntactic treatment of Nuu-chah-nulth passivization (Kim 2001), the object of the passivized predicate is promoted to a surface subject position. In (32), the passivized object *ḵ'ʷaq* "spawned herring eggs" moves to specifier position of the projection headed by *–'at* (PAS).

(32)



Crucially, the syntactic movement of *ḵ'ʷaq* does not affect its spell-out position hosting the affixal predicate.

Furthermore, the relationship between an affixal predicate and its host is not affected by other types of word order manipulations which disrupt the surface adjacency between the predicate and its syntactic complement. This effect may be observed in contexts in which the complement of the affixal predicate contains multiple words, such as when the object contains a modifier. In the following examples, the modified nominal *ċuš(uk) šuwis* "new shoes" is the complement of the affixal predicate *ʔuʔu-ċiqa* "lose". As shown in the examples in (33), in which the affixal predicate is hosted by the expletive *ʔu-*, the subject *Louis* and the object *ċušuk šuwis* "new shoes" show a variable word order. (As described in Chapter 3, subjects and objects often show variable word order when the object is inanimate and indefinite.) The crucial examples are given in (34). In (34), the affixal predicate *ʔuʔu-ċiqa* "lose" is hosted by *ċuš-* "new", which originates syntactically in object position as the modifier of the nominal *šuwis* "shoes". In (34a), the subject *Louis* precedes the object "remnant" *šuwis* "shoes". In (34b), *Louis* follows *šuwis* "shoes".

(33) a.

ʔuʔuċiqaʔiš	Louis	ċušuk	šuwis
ʔu-**ċiqa**[+R]-ʔiiš	Louis	ċuš-uk	šuwis
∅-**lose**-3.IND	Louis	new-DUR	shoes

Louis lost a brand new pair of shoes.

b.

ʔuʔuċiqaʔiš	ċušuk		šuwis	Louis
ʔu-**ċiqa**[+R]-ʔiiš	ċuš-uk		šuwis	Louis
∅-**lose**-3.IND	new-DUR		shoes	Louis

Louis lost a brand new pair of shoes.

(34) a.

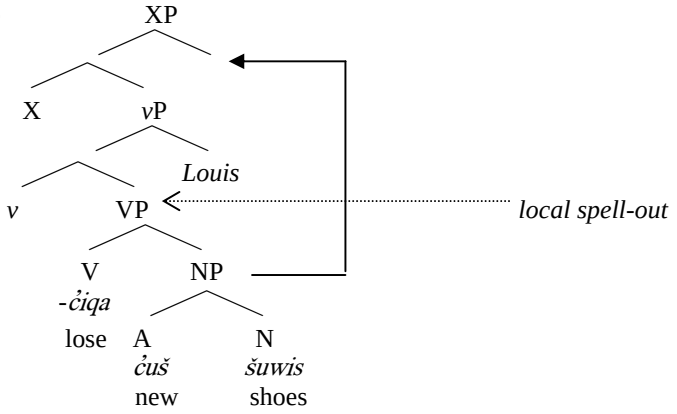
ċuċušċiqaʔiš	Louis	šuwis
ċuš-**ċiqa**[+R]-ʔiiš	Louis	šuwis
new-**lose**-3.IND	Louis	shoes

Louis lost a brand new pair of shoes.

b. ċuċušċiqaʔiš šuwis Louis
ċuš-**ċiqa**[+R]-ʔiiš šuwis Louis
new-**lose**-3.IND shoes Louis
Louis lost a brand new pair of shoes.

What the example in (34a) suggests is that surface position of the predicate and its object is irrelevant for the affixation mechanism. Instead, affixation is determined at the earliest possible stage of the derivation, with the object adjacent to the predicate in complement position. For the syntactic structure in (35), local spell-out determines that the affixal predicate *-ċiqa* "lose" selects *ċuš* "new" as its host because of the string adjacency the two share.

(35)



When movement derives an object-final order, this affixation relationship is unaffected. In the diagram in (35), the object-final word order of (34a) is shown to be derived by movement of the object to a right-linearized specifier position. Under this analysis, I assume that it is the bottom "copy" of the moved element *ċuš* "new" which is pronounced in Nuu-chah-nulth. Note that it is otherwise impossible to separate the modifier *ċuš(uk)* "new (DUR)" from the nominal *šuwis* "shoes", as shown in (36).

(36) * ʔuʔuċiqaʔiš ċušuk Louis šuwis
ʔu-**ċiqa**[+R]-ʔiiš ċuš-uk Louis šuwis
∅-**lose**-3.IND new-DUR Louis shoes
Louis lost a brand new pair of shoes.

The ungrammaticality of such an example suggests that *ċuš(uk) šuwis* "new shoes" moves only as a unitary constituent in Nuu-chah-nulth, lending support to the analysis in (35) that it is the NP which moves rightward, and not simply the nominal head *šuwis* "shoes".

In summary, syntactic movement appears to have no consequence for the linearization mechanism of affixal predicates in Nuu-chah-nulth. The host for an affixal predicate is determined by local spell-out of the affix at the stage in the derivation in which it is first introduced. Linearization of the affix and its host is not

disturbed by subsequent syntactic movement of the syntactic category containing the host. Thus, syntactic manipulations play no role in the linearization of Nuu-chah-nulth affixal predicates, beyond the irreducible conditioning effect of the syntax in forming the local spell-out domain of the affixal predicate.

In the next section, I argue that the linearization mechanism of Nuu-chah-nulth affixal predicates may be contrasted with syntactic head movement, which is achieved by an interplay between syntactic movement and spell-out.

6.2.2.2 Syntactic Head Movement is More Complex

As described in Chapter 2, PF incorporation in Nuu-chah-nulth is sensitive to linear adjacency: an affixal predicate suffixes to a string adjacent element from its derivational sister. In this, Nuu-chah-nulth differs from those languages in which incorporation operates on the basis of hierarchical adjacency. As noted in Chapter 2, the contrast between sensitivity to linear adjacency and hierarchical adjacency is readily observed in environments in which the complement of the "incorporating" verb is modified. With PF incorporation, it is a linearly adjacent modifier which is targeted for suffixation by an affixal predicate. In (37), the affixal predicate *ʔu-ʔiic* "consume" suffixes to the modifier *haʔum* "tasty", stranding the nominal head *ʔaapinis* "apple".

(37) haʔumʔicʔišʔaɬ ʔaapinis
haʔum-**'iic**-ʔiiš-ʔaɬ ʔaapinis
tasty-**consume**-3.IND-PL apples
They are eating delicious apples.

In contrast, in syntactic incorporation, a modifier is necessarily inaccessible for incorporation (Baker 2003). As argued in Chapter 2, the prohibition on syntactic adjective incorporation is a consequence of the Head Movement Constraint, which determines that movement targets the head of a complement.

With respect to adjective incorporation, Nuu-chah-nulth may be contrasted with Mohawk (Iroquoian). As Mithun (1984: 870) describes, when a verb in Mohawk suffixes to a noun, it may strand a modifier.[6] In (28), the verb *ú:ni* "make" suffixes to *-akya'tawi'tsher-* "dress", stranding the modifier *kanekwarúnyu* "polka-dotted".

(38) *Mohawk* (Mithun 1984: 870, ex. 106)

kanekwarúnyu wa'-k-akya'tawi'tsher-ú:ni
it.dotted.DIST PST-I-dress-make
I made a polka-dotted dress.

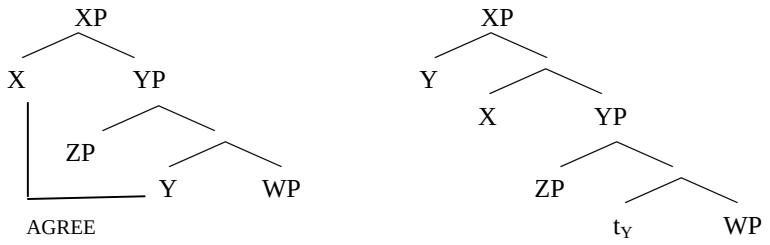
In what follows, I suggest that the difference between Nuu-chah-nulth and Mohawk amounts to whether affixation is achieved through local spell-out, or via a more complex derivation.

[6] Mithun (1984) explicitly argues against a syntactic treatment of noun incorporation. However, I follow Baker (1988, 2003) in assuming that Mohawk incorporation is syntactic.

This section hypothesizes that syntactic head movement arises through an interaction between syntax and local spell-out. According to this notion, syntactic head movement reflects the spell-out of a head not in its base position, but in the position it has attained via a local form of syntactic movement. This falls in line with other work which proposes that syntactic head movement is a multi-step process with individual components of syntactic movement and affixation (Donati 2003; Matushansky 2006).

I adopt Matushansky's (2006) proposal that head movement is a cyclic operation which remerges a head at the root node. For Matushansky (2006), the prerequisite for this local movement is an AGREE relation equivalent to c-selection. In (39a), the head X selects the category Y as its complement. In (39b), Y is (re)Merged at the root node X(P).

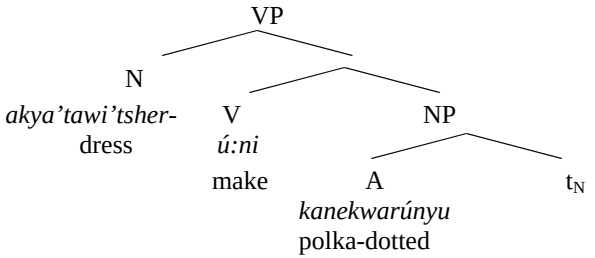
(39) a. *C-selection* b. *Movement (remerge)*



As Matushansky argues, in syntactic head movement, the movement in (39b) is followed up by an affixation process which attaches the moved head Y to the head X.

A syntactic analysis of Mohawk incorporation (Baker 1988) may thus be implemented within the Minimalist framework in which remerge is effected at the root node. This analysis translates into the following movement operation for noun incorporation which strands a modifier.

(40) *Syntactic incorporation in Mohawk*



Here, the noun *akya'tawi'tsher-* "dress" is (re)Merged at the root node, as a projection of V(P).

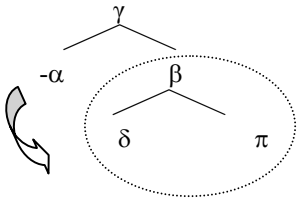
How does the movement operation in (40) result in suffixation of the verb to the noun? I suggest that the affixation reflex for this head movement operation relates to the bound status of Iroquoian nominals. With few exceptions, nominals in Iroquoian languages are obligatorily morphologically bound, and cannot occur independently (Bryan Gick, Marianne Mithun, p.c.).[7] Let us therefore assume that *akya'tawi'tsher-* "dress" is subject to an affixation requirement. On the assumption that a host for this affixal noun must be a linearly adjacent element from its derivational sister, then the verb *ú:ni* "make" will be selected as host due to its position as leftmost element of the derivational sister. The choice of *ú:ni* "make" as host of *akya'tawi'tsher-* "dress" would therefore immediately follow. Thus, the linearization of *akya'tawi'tsher-ú:ni* "dress-make" results.

In the next section, we turn to an inherent restriction on the affixation relations created by local spell-out.

6.2.3 Local Spell-out Creates "Outside-in" Dependencies

According to the local spell-out hypothesis, the relationship between a Nuu-chah-nulth affixal predicate and its host is necessarily "outside-in".[8] A suffix ($-\alpha$) is always "outside", or higher than, the syntactic terminals contained within its derivational sister (β).

(41)



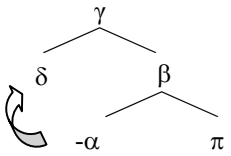
In Nuu-chah-nulth, an affixal predicate ($-\alpha$) must be linearized with respect to a host from its derivational sister β. If its derivational sister is linearized as $<\delta, \pi>$, then the host for an affixal predicate is determined to be δ, due to its string adjacency to this morpheme ($<(\delta-\alpha), \pi>$).

What about "inside-out" dependencies? In this configuration, an affix "climbs up" to find a host higher in the tree. In the illustration below, let us take $-\alpha$ to be a suffix, and δ to be its host. In an "inside-out" dependency, an affix $-\alpha$ attaches to the host δ, even though δ is not contained within its derivational sister. In the tree below, π is the derivational sister of α, not δ.

[7] I return to this topic in §6.3.1. Outside of incorporation contexts, noun stems in Mohawk are most commonly suffixed by *-a'*, a "noun suffix" which contributes no discernible meaning (Marianne Mithun, p.c.).

[8] Thanks to Gunnar Hansson for suggesting this term to me.

(42)



6.2.3.1 "Inside-out" Dependencies are not Possible via Local Spell-out

I hypothesize that the effect of an "inside-out" dependency will never arise from local spell-out. That is, "inside-out" affixation will never satisfy a lexical requirement of an affix. Instead, I suggest that this arrangement is necessarily achieved later in the derivation than what is possible by the "aggressive" linearization algorithm of local spell-out. "Inside-out" arrangements arise via prosody. This type of affixation is not local in the same sense as local spell-out, since it is done on full assemblies of derivations, rather than in the incremental steps taken by local spell-out. In the following section, I present the notion that "inside-out" linearizations apply in later stages of the derivation than local spell-out, due to prosodic requirements.

6.2.3.2 Evidence from Kwakw'ala (Northern Wakashan)

Evidence for the existence of "inside-out" dependencies comes from the Northern Wakashan language Kwakw'ala (Anderson 1984, 2005; Klavans 1985). As Anderson (1984) notes, in Kwakw'ala, determiners are enclitics, and they attach to the right edge of a *preceding* word. The following example is slightly modified from Anderson (1984: 21, ex. 1) to match the morpheme gloss conventions of this book.

(43) *Kwakw'ala "inside-out" enclitic determiner*

kʷixʔid-ida	bəgʷanəma-x̱-a	q̓asa-s-is	t̓əlwagʷayu
clubbed-DET	man-OBJ-DET	otter-INST-POSS	club

The man clubbed the sea-otter with his club.

In this example, the determiner *–ida* (DET) is semantically construed as the marker for the nominal *bəgʷanəma* "man". Yet instead of attaching to this nominal, it attaches leftward to the preceding word, the verb *kʷixʔid* "clubbed". The same leftward pattern is also exhibited by the other determiner in the sentence, *-a* (DET). Although this determiner should be semantically construed with the object nominal *q̓asa* "otter", it nonetheless attaches to the right edge of a different nominal, the subject nominal *bəgʷanəma* "man", which happens to precede the object.

The Kwakw'ala example can be contrasted with the following example from Nuu-chah-nulth, which shows an "outside-in" dependency. In Nuu-chah-nulth, the determiner *–ʔii* reliably suffixes to the right edge of the first word in its complement. (This distribution is identical to that of a Nuu-chah-nulth affixal predicate.) Here, *–ʔii* suffixes to the nominal *huupuuk̓ʷas* "car".

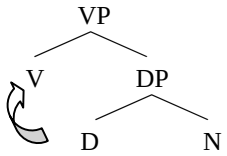
(44) *Nuu-chah-nulth "outside-in" enclitic determiner*

kuuẃiɬitʔiš	čakup	huupuuǩʷasʔi
kuuẃiɬ-mit-ʔiiš	čakup	huupuuǩʷas-ʔii
steal-PST-3.IND	man	car-DET

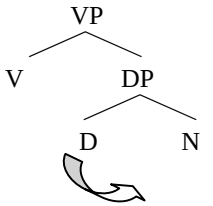
A man stole the car.

The cases in (43) and (44) constitute a minimal pair for the "inside-out"/"outside-in" distinction. The difference between these two types of dependencies is represented syntactically below.

(45) a. *Kwakw'ala "inside-out" affixation*



b. *Nuu-chah-nulth "outside-in" affixation*



In (45a), the Kwakw'ala determiner orients itself leftward to attach to the verb. In (45b), the Nuu-chah-nulth determiner positions itself rightward to attach to the nominal under its semantic scope.

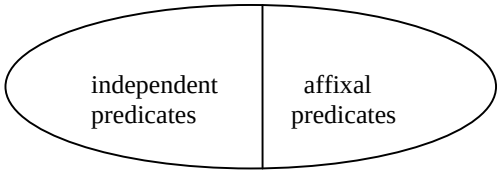
In each case, the determiner takes a single step to attach to a neighbouring word. Why, then, would only (45b) qualify as a "local" linearization? Recall that local spell-out applies only to derivational sisters. Only in (45b) does the affix attach to a host within its derivational sister: in (45a), the derivational sister of the enclitic determiner D is N, not the V which it takes as a host. Therefore, (45a) does not satisfy this strict definition of derivational locality.

In the following section, I propose that linearization induced by local spell-out applies only in cases in which the affix is lexically specified for an affixation requirement.

6.2.3.3 Affixation as Primitive or Derived

What may condition the choice between linearization which is effected by local spell-out and linearization which occurs later in the derivation? I suggest that it may relate to whether affixal status is *primitive* or *derived* (cf. Anderson's (1992) "special" or "simple" clitics). Recall that in Nuu-chah-nulth affixal predicates are lexically specified as affixes. This lexical distinction serves to differentiate them from independent predicates in the language, which never occur as suffixes.

(46) *Free and bound classes of predicates in Nuu-chah-nulth*



The difference between affixal and independent predicates is not independently reducible to a factor distinct from affixhood, such as prosodic weight. With respect to the prosodic heaviness, affixal predicates come in a range of types – from the non-syllabic to the polysyllabic – and, as such, overlap with the syllabic and polysyllabic forms of independent (non-affixal) predicates. Examples of the different weights of affixal and independent roots are given below.

(47) *Polysyllabic affixal predicates*

a. *-ƛ̓akʷuuḥ* [+L] "observe"
b. *-ḥaḥuɬ* [+L] "on front"

(48) *Polysyllabic independent predicates*

a. *kuuƛ̓iɬ* "steal"
b. *paƛ̓aɬ* "to lose something"

(49) *Monosyllabic affixal predicates*

a. *-ƛ̓aaḥ* "trying to locate"
b. *-paɬ* "be present"

(50) *Monosyllabic independent predicates*

a. *ƛ̓aa* "to bite"
b. *kʷ̓ix* "to kiss"

(51) *Non-syllabic affixal predicates*

a. *-q* [+R] "travelling with in vessel"
b. *-š* [+L] "asking for"

Affix, in Nuu-chah-nulth, must therefore be a lexically specified *primitive*. It is not the case that affixation takes place because of a deficiency in prosodic weight: affixal predicates may be weighty or weightless.[9]

If affixal status is a lexical property of an affix in Nuu-chah-nulth, rather than a prosodically conditioned characteristic, then it constitutes a bare output requirement *for that morpheme*. It is a tenet of the Minimalist grammar that the lexically specified properties of an element must be satisfied by the point of spell-out, so that the features of the lexical item may receive an appropriate interface interpretation. Under this view, it is lexical specification that forces affixation in Nuu-chah-nulth to emerge via local spell-out.

According to this line of reasoning, the lexical entry for the Nuu-chah-nulth determiner comes equipped with an affix specification, in the same way that affixal

[9] In Anderson's (1992) terminology, Nuu-chah-nulth affixal predicates thus cannot be "simple" clitics.

predicates' do. In other words, affixal status in Nuu-chah-nulth is primitive. For Kwakw'ala, conversely, the implication of this analysis is that the affixal status of determiners in Kwakw'ala must be derived, not inherent. Only for derived affixes will "inside-out" dependencies be possible. Only for derived affixes will affixation *not* be a requirement at the stage of local spell-out. Instead, if affixal status is prosodically determined, and established at a derivationally later stage, then prosodic manipulations will apply to find a host for the derived affix.

There is independent evidence that affixation of the Kwakw'ala determiner applies later in the derivation than affixation in Nuu-chah-nulth. The key to this idea is the observation that a Kwakw'ala determiner construed with the subject attaches leftward *to the verb*. That is, in the VSO word order of Kwakw'ala, the determiner of the S attaches to the V, as we saw in example (43), repeated here below.

(52) kʷixʔid-ida bəgʷanəma-χ-a q̓asa-s-is t̓əlwagʷayu
clubbed-DET man-OBJ-DET otter-INST-POSS club
The man clubbed the sea-otter with his club.

Crucially, as I noted in Chapter 3, VSO is not possible as an underived word order for a language, since the verb and object necessarily form a constituent. Instead, VSO order must always be derived. The fact that affixation takes place in Kwakw'ala only after VSO order has been established entails that it must be occuring at a derivationally later stage than in Nuu-chah-nulth. In Nuu-chah-nulth, an affixal predicate can only ever find a host from the object, never the subject, even though either VOS or VSO surface permutations are permitted.

The analysis of the affixation patterns of Kwakw'ala rests on empirical confirmation of the prosodic characteristics of Kwakw'ala determiners. Evidence in this direction comes from Anderson (2005). According to Anderson (2005: 14–22), these elements are prosodically deficient. Anderson presents an analysis in which affixation of these elements to a host arises via prosodic constraints on "stray adjunction" of weak elements. Future research is required in ascertaining the defining prosodic characteristics of this class of clitics.

The contrast between the "inside-out" linearization of Kwakw'ala determiners and the "outside-in" pattern of Nuu-chah-nulth affixes implies a typological split between the Northern and Southern branches of the Wakashan family. This typological contrast may be modelled through distinct lexical specifications of the affixes. In the following section, I discuss additional typological implications for my proposal.

6.3 Typological Implications

This section presents three typological implications for my analysis of PF incorporation. I address implications for the typology of noun incorporation in §6.3.1, followed in §6.3.2 by discussion of the traditionally assumed "governing/restrictive" distinction in Wakashan. In §6.3.3, I argue that it is inaccurate to portray "lexical suffixation" as an uniform areal feature of the Pacific Northwest.

6.3.1 The Typology of Noun Incorporation

A claim of this book is that the affixation phenomenon descriptively labelled "noun incorporation" is not a uniform construction (cf. Mithun 1984, 1986; Sadock 1986; Baker 1988). According to my analysis, a noun may come to be suffixed by a verb via four distinct "routes" of bound/free dependencies. As first discussed in Chapter 2, the noun may be free or bound, and the verb may itself be free or bound. This four-way typology is given in (53).

(53) *Typology of noun–verb dependencies*

	Bound noun	*Free noun*
Bound verb	Nuu-chah-nulth	Nuu-chah-nulth
Free verb	Mohawk	English

This section reviews the affixation patterns for each of these four underlying noun–verb dependencies.

Nuu-chah-nulth exhibits two of these four relationships. In Nuu-chah-nulth, bound predicates mandatorily require suffixation to a host, and never occur independently. The inability of an affixal predicate to separate from its host is illustrated in (54) for the predicate *ʔu-siik* "make". In (54a), the affixal predicate suffixes to *ɬučʔin* "dress". In (54b), suffixation fails to occur and the result is ungrammaticality.

(54) a. ẅuṗititsa — ɬučʔinsiik
ẅuṗit-mit-sa — ɬučʔin-**siik**
once-PST-1SG.ABS — dress-**make**
I made a dress once.

b. * ẅuṗititsa — siik ɬučʔin
ẅuṗit-mit-sa — **siik** ɬučʔin
once-PST-1SG.ABS — **make** dress
I made a dress once.

This lack of isolatability of the predicate sets the suffixation strategy in Nuu-chah-nulth apart from noun incorporation languages such as Mohawk. In Mohawk, a verb can be grammatically separated from an incorporated noun. In (55a), the inflected predicate *ye-nuhwe'-s* "like" incorporates the nominal *nuhs-* "house", while in (55b) it does not.

(55) *Mohawk* (from Postal 1962, as cited in Baker 1988: 81–82, ex. 14a, b)

a. Yao-wir-a'a — ye-nuhs-nuhwe'-s
PRE-baby-SUF — 3FS/3N-house-like-ASP
The baby house-likes.

b. Yao-wir-a'a ye-nuhwe'-s ne ka-nuhs-a'
PRE-baby-SUF 3FS/3N-like-ASP DET PRE-house-SUF
The baby likes the house.

From this, I deduce that incorporation in Mohawk satisfies no boundedness requirement on the verb.

An opposite effect is found with Mohawk nominals, however. In Mohawk, a noun separated from an incorporating verb typically cannot stand on its own. In Mohawk, the majority of nominals are obligatorily bound (Marianne Mithun, p.c. 2005). Outside of incorporation contexts, the regular pattern is that a noun stem is suffixed by a neuter prefix and a "noun suffix".[10]

(56) NEUTER-noun.stem-NOUN.SUFFIX

An example of this pattern is given below for the Mohawk noun *ohnennà:ta'* "potato".

(57) ohnennà:ta'
o-hnenna't-a'
NEUT-potato-NOUN.SUFFIX
'potato' (Marianne Mithun, p.c. 2005)

This example employs the most common noun suffix, *-a'*, which contributes no discernible meaning (Marianne Mithun, p.c.). This noun suffix appears to bear a formal resemblance to the expletive morpheme *ʔu–* in Nuu-chah-nulth. In Nuu-chah-nulth, *ʔu–* acts as a "placeholder" for an affixal predicate requiring a host which it may suffix to. In Mohawk, a plausible hypothesis is that *-a'* acts as a "placeholder" for an affixal nominal requiring a host which it may prefix to. Note that this morpheme does not surface when the noun has undergone incorporation, as indicated in (55) for the nominal *nuhs-(a')* "house".

The final dependency is one in which a free noun suffixes to a free verb. This option corresponds to compounding in English. In (58), the noun *file* is free, as is the verb *share*.

(58) a. They are sharing files.
b. They are file-sharing.

As each of the components of this compound are morphologically free, the absence of a morphological "placeholder" akin to Nuu-chah-nulth *ʔu-* or Mohawk *-a'* is predicted.

[10] There are some odd words used as lexical nouns which do not show this structure, but they are quite rare, and reportedly are never incorporated (Marianne Mithun, p.c. 2005).

6.3.2 The Governing/Restrictive Hypothesis in Wakashan

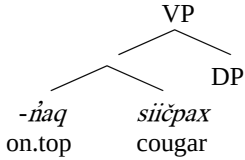
In proposing that the combinatory properties of Nuu-chah-nulth affixal predicates are conditioned by their argument structure, the present analysis differs markedly from traditional treatments of these suffixes (e.g., Sapir and Swadesh 1939; Swadesh 1939; Rose 1981; Nakayama 1997, 1998; Davidson 2002). In existing literature on the language, differences in these morphemes' suffixation patterns have been noted, but it has not previously been recognized that these "lexical suffixes" serve as predicates which show a range of distinctive argument structures. Under traditional classifications, affixal predicates are subject to a Wakashan-specific dichotomy between "governing" and "restrictive" suffixation. This distinction amounts to whether the suffix has a predicative or modificational role, respectively.

Suffixes which I have analysed as transitive and location predicates are treated as predicative "governing" lexical suffixes which take their morphological base as their object (Rose 1981). On the other hand, predicates which I classify as unaccusative and locatum predicates are grouped together with an assortment of other suffixes (such as plural markers) as modificational "restrictive" lexical suffixes. According to Rose (1981: 313), these "restrictive" suffixes "have an appositive relation to their base and do not influence the semantic class of the stem in which they occur." Syntactically, these suffixes are not considered to take complements. It is claimed that when a "restrictive" suffix attaches to a nominal, the nominal does not serve as the object of the suffix, but rather as the main predicate. For example, Rose (1981) analyses the locative construction in (59) as being syntactically headed by the nominal predicate *siičpax* "cougar". Crucially, by traditional analyses, the nominal *siičpax* "cougar" does not serve as the object of the locative suffix.

(59) siičpaxn̓aq
siičpax-**n̓aq**-∅
cougar-**on.top**-3.ABS
There's a cougar on top.
(Kyuquot dialect; adapted from Rose 1981: 314, ex. 447)

In contrast, the proposed analysis states that the locative *–n̓aq* "on top" is a locatum predicate which takes *siičpax* "cougar" as its syntactic object. (The subject is a null third person pronominal, registered by absolutive agreement.) This analysis is represented below.

(60)



Thus, by my analysis, it is not the case that the nominal *siičpax* "cougar" serves as the main predicate.

At the heart of the governing/restrictive hypothesis is the notion that "restrictive" suffixes, unlike "governing" suffixes, do not syntactically head a predicate phrase. The proposal presented in this book offers an alternative to the language-specific governing/restrictive hypothesis, and derives the behaviours of affixal predicate subclasses through universal tenets of argument structure. According to this analysis, the syntax of affixal predicates is built from two basic underlying syntactic configurations of unaccusative or extended unaccusative structures. The host for affixal predicates is chosen from their complement.

6.3.3 Lexical Suffixation as an Areal Feature of the Pacific Northwest

There is a lengthy tradition of viewing the phenomenon of lexical suffixation as an areal feature of languages of the Pacific Northwest (see, e.g., Sapir 1911; Swadesh 1948; Gerdts and Hinkson 1996; Kinkade 1998; Mithun 1999). Kinkade (1963) coined the term "lexical suffix" due to "the semantic similarity between these suffixes and usual lexical items" (Kinkade 1998: 266). These bound morphemes bear a lexical load parallel to that of free morphemes. Under a strict definition, lexical suffixes are thus simply suffixal morphemes which convey lexical content (see Swadesh 1939). Within the Salishanist literature, however, the term "lexical suffix" has come to be synonymous with the noun-like bound elements found in these languages (see Saunders and Davis 1975; Gerdts and Hinkson 1996). For Salishan languages, Gerdts (1998; citing Carlson 1989) notes that there is support for the notion that "lexical suffixes can be regarded as incorporated nouns that have lost their status as free-standing nominals" (Gerdts 1998: 97). For Wakashan affixal predicates, however, the inverse is true: these "lexical suffixes" pattern productively as incorporating predicates in Nuu-chah-nulth. For this reason, the "lexical suffixes" of Wakashan may be viewed as only superficially similar to their counterparts in Salish (Wojdak 2003b).

Gerdts and Hinkson (1996) provide a survey of Salishan lexical suffixes and identify two basic categories of lexical suffixes in Salish. The authors argue that both types are derived historically from nouns, but have undergone differing degrees of grammaticalization. In the first case, exemplified by noun compounds and suffixation paralleling compounding incorporation, the lexical suffix retains its categorial status as a noun. The example in (61) shows an instance of lexical suffixation in Lillooet Salish (St'at'imcets), in which the lexical suffix corresponds to the theme of the root verb. (Data is from Gerdts and Hinkson 1996: 168 (11); originally van Eijk 1985).

(61) *Lillooet Salish*
níḵ'-**ɬc̓a?**
cut-**flesh**
"cut meat"

In the second type, represented by applicatives and suffixation resembling classificatory noun incorporation, the lexical suffixes are semantically bleached and behave acategorially. An example of this highly grammaticized form of lexical

suffixation is shown below with data from Halkomelem Salish. (Data is from Gerdts and Hinkson 1996: 172 (20)).

(62) *Halkomelem Salish*

teʔcs-**élə**	kʷθə	nə	mém̓ənə
eight-**people**	DET	1POS	children

I have eight children.

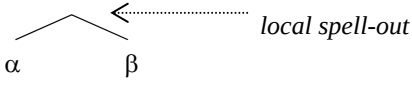
This book presents evidence against a cross-linguistically uniform treatment of Pacific Northwest lexical suffixes. I have demonstrated that morphemes which have been analysed as lexical suffixes in Nuu-chah-nulth are fundamentally distinct from their noun-like counterparts in Salishan languages. In Nuu-chah-nulth, these bound morphemes are affixal predicates which productively incorporate a host selected from their complements (see also Woo 2000; Yiu 2001; Davis and Sawai 2001; Stonham 2004). They are not, as has been proposed for Salish, degenerate nominals which occur in compounds. This contrast entails a strong formal distinction between those morphemes in Salishan and Wakashan languages which have been labelled "lexical suffixes".

6.4 Conclusion

This book has introduced typologically rare affixation effects to the debate surrounding the division of labour between the modules of the grammar. Evidence from Nuu-chah-nulth suggests that syntactic composition indirectly conditions linearizations which are established by the phonological component. In Nuu-chah-nulth, the argument structure of affixal predicates serves to restrict the source of "host" for affixation: only complements of affixal predicates are eligible. Hand-in-hand with this sensitivity to argument structure, however, Nuu-chah-nulth affixation also shows an insensitivity to syntactic dominance relations in that hosts are selected on the basis of string adjacency to the predicate. The local spell-out model successfully captures these superficially paradoxical effects. This Minimalist approach to the linearization of affixal predicates presents Nuu-chah-nulth affixation as proof-of-concept for the hypothesis that syntax is "spelled out" to phonology in strictly minimal syntactic domains.

In the introductory chapter to this book, affixation in Nuu-chah-nulth was discussed as a "displacement" effect. Affixation in Nuu-chah-nulth allows a host from the complement of an affixal predicate to be removed from the post-predicative position it would otherwise occupy. It may be more accurate, however, to describe this phenomenon more literally as a "placement" effect. That is, affixal status serves to induce a linearization on unordered elements. According to the local spell-out hypothesis, linearization is induced each time the syntactic tree is expanded, when α and β are spelled-out to PF.

(63)

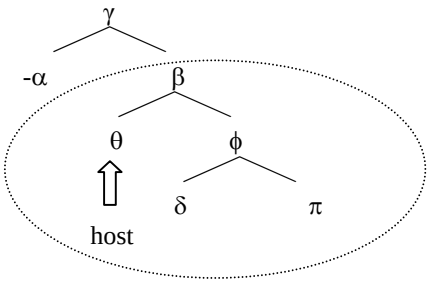


local spell-out

By this linearization algorithm, an affix (α) must look to its derivational sister (β) in order for it to be linearized. This results in a "complement" effect in affixation.

The string adjacency effect in Nuu-chah-nulth affixation arises when the derivational sister to an affixal predicate is internally complex. In such contexts in Nuu-chah-nulth, an affixal predicate (–α) attaches to the element at the left periphery of the linearized derivational sister.

(64)



By attending to the periphery of this derivational sister, the linearization mechanism avoids processing the internal components of the complex phrase. Hence, this linearization mechanism is sensitive to linear positioning rather than internal syntax composition.

Under this model of spell-out, the syntax is "phonologized" over the course of the derivation, in minimal stages induced by application of Merge (Epstein 1999). Consequently, interface requirements are assessed aggressively throughout the derivation. The cumulative build-up of affixes in Nuu-chah-nulth was advanced as indication of the strictly interpretive nature of the spell-out mechanism. By this analysis, the inertness of interpreted constituents arises not via spell-out inself, but instead through saturation (cf. Chomsky 2001, 2005). The constituents of CP and DP were shown to bear the characteristics of saturated domains in Nuu-chah-nulth, as evidenced by opacity effects for affixation and syntactic movement.

A central ramification of the local spell-out proposal is that spell-out to PF manipulates the order of syntactic elements by imposing linearizations (see also Ndayiragije 2000). This analysis entails a dichotomy between PF linearizations and head movement. In affixation which occurs strictly as a linearization reflex of spell-out, internal dominance relations are ignored in place of restrictions on string adjacency. In head movement, in contrast, dominance relations are respected. Thus, head movement cannot be strictly phonological (contra Chomsky 1995, 2001).

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Appendix

Orthography

Although Nuu-chah-nulth is traditionally an oral language, written forms of the language are currently in use by linguists, educators, and some other community members. I adopt a modified IPA orthography, following the practice of the Haa-Huu-Payak school in Port Alberni, BC. This orthography appears widely in materials developed by the Nuu-chah-nulth communities (e.g., *The Nuu-chah-nulth Alphabet Book*, created by the Nuu-chah-nulth-eets Tsitsiqi Language and Cultural Resource Project, and the *Ha-shilth-sa* community newspaper). The orthography is closely based on the system represented in standard sources such as Sapir and Swadesh (1939).

The orthography captures a three-way contrast in vowel quality, and a distinction between short and long vowels: (i, ii), (u, uu), (a, aa). A lexically determined contrast between long and "persistently" long vowels is standardly assumed for Southern Wakashan (Sapir and Swadesh 1939). "Persistently" long vowels escape a vowel-shortening rule which targets long vowels outside of the first foot of a word (Jacobsen 1979; Wilson 1986; Stonham 1990; Werle 2002). I represent both long and "persistently" long vowels as long vowels in the second line of my four-line glosses; however, only "persistently" long vowels surface as long outside of the first foot.

The consonant inventory is complex, and distinguishes several places of articulation. The orthographic representations for each phoneme are listed in the table below.

(1) *Consonant inventory* (Nakayama 1997: 9)

	Labial	Apical	Alveolar	Lateral	Palatal	Velar	Labio-velar	Uvular	Labio-uvular	Pharyngeal	Glottal
Stops	p	t	c	ƛ	č	k	k^w	q	q^w	ʕ	ʔ
Ejectives	ṗ	ṭ	ċ	ƛ̓	č̓	k̓	$k̓^w$		($q̓^w$)		
Fricatives			s	ɬ	š	x	x^w	(χ)		ḥ	h
Resonants	m	n			y		w				
Glottal resonants	m̓	n̓			y̓		w̓				

Abbreviations

ABS	absolutive mood
AGR	agreement
ASP	aspect
AUG	augmentative
AUX	auxiliary
BEN	benefactive
CAUS	causative
COMP	complementizer
COND	conditional mood
CONF	confirmation mood
CON1	conjunction
CONT	continuous
DEIC	deictic
OEP	dependent mood
DET	determiner
DIM	diminutive
DIR	directive
DUR	durative
FUT	future tense
GO	“go” imperative
HAB	habitual
IMP	imperative
IND	indicative mood
INST	instrumental
INV	invisible
IPOSS	inalienable possessive
IREL	“indefinite” relative mood
ITER	iterative
L	vowel lengthening
LOC	locative
NEG	negative
NOM	nominaliser
OBI	object
PAS	passive
PERF	perfective
PL	plural
POSS	possessive
PRE	prefix
PS	possessive mood
PST	past tense
Q	interrogative mood
QUOT	quotative mood
R	reduplication
RD	round
REL	relative pronoun
RES	resultative
RL	(simple) relative mood
S	vowel shortening
SG	singular
SPOR	sporadic
SUB	subordinate mood
SUF	suffix
TR	transitivizer
TEMP	temporal
TENSE	tense

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