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Multi-predicate Constructions in Nuuchahnulth

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A dissertation
submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy

University of Washington

2019

Reading Committee:

Emily M. Bender, Chair

Program Authorized to Offer Degree:
Linguistics

University of Washington

Abstract

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This dissertation documents and models two types of multi-predicate constructions in Nuuchahnulth: serial verb constructions, and a construction involving a suffix called the predicate linker. I define a serial verb construction (SVC) as any clause with two verbs present and no over coordinating element. I document the circumstances under which this occurs and its grammatical constraints, and classify SVCs in Nuuchahnulth into 5 categories. I also examine the linker suffix and provide a grammatical description for it. Unlike SVCs, the linker coordinates two elements which serve as predicates in the syntax, a category which includes more than verbs. I use the properties of the linker and SVCs to shed light on words that are category-ambiguous. Finally, this is all implemented inside of a DELPH-IN style HPSG computational grammar. The analyses are implemented and tested against a set of vetted sentences illustrating the phenomena.

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Chapter 1

THE BASIC CLAUSE

Before I turn to the meat of this dissertation, the multi-predicate constructions present in Nuuchahnulth, I will first give an overview of the language's basic clause structure and define some important terminology and lexical-syntactic distinctions present in the language. I will begin with the predicate/-participant distinction (§1.1, §1.2), an important syntactic split which roughly maps to how verbs and nouns are used in English, but subsumes many lexical categories in Nuuchahnulth. I will then describe some special cases in which participant ordering is altered (§??). Finally I will look at second-position clausal clitics (§1.3), and how the syntactic properties of Nuuchahnulth require special attention when modeling in HPSG (§??). I will interleave HPSG-style analyses with the data, but the descriptive facts should be available to linguists working in other formalisms.

1.1 *Syntactic Predicates*

Like many languages of the Pacific Northwest, Nuuchahnulth is predicate-initial and has a great deal of flexibility with respect to what parts of speech can be used predicatively (Jacobsen 1979). Because the term “predicate” and its associated derivations (“predicative” and so on) are often ambiguous between syntactic and semantic concepts, I have found that linguists often talk past each other when trying to describe the syntax of the languages of South Wakashan. Throughout this work I will use special vocabulary to try to reduce this confusion.

I will reserve the word *predicate* to refer to the syntactic component that heads a clause and connects components like subject and object to one another. In English, a syntactic predicate must be verbal, as in (1,2). The verb ‘barks’ serves as the predicate of (1), connecting it to the subject ‘the dog.’ In (2), ‘is’ serves as the sentential predicate, connecting its subject ‘the grass’ to the complement ‘green.’ I will refer to the units that predicates connect as *participants*—this term encompasses both subject and complements.

The sole participant of (1) is ‘the dog’, and the participants of (2) are ‘the grass’ and ‘green’.

(1) [The dog]_{participant} [barks]_{predicate}.

(2) [The grass]_{participant} [is]_{predicate} [green]_{participant}.

In contrast to *predicate* and *participant*, which are syntactic concepts, I will use *relation* and *argument* to refer to their correlates in compositional semantics. The *relation* is the atomic semantic unit that relates arguments to each other, typically represented with capital letters. For example, in (1), the English word *barks* has the relation BARK. Every semantically contentful morpheme has a relation, including syntactic participants (DOG, GRASS, GREEN).

Relations have some number of semantic *arguments*. For example, BARK can be modeled with two arguments: the event of barking, and the barker. This could be represented in a Neodavidsonian manner as BARK(*e*, *x*). Note that the relation itself BARK is at least conceptually separate from the number and type of its arguments. When I find it important to highlight the separation between the semantic relation and the number of its arguments, I may also refer to the relation as a *predicate symbol*.¹ This semantic scheme is a simplification of the fuller semantic model that I will use later, Minimal Recursion Semantics (Copestake et al. 2005).

It is important to keep in mind that the number of arguments that a semantic relation has is separate from its syntactic properties. The English predicate *barks* may be represented as a semantic relation with two arguments BARK(*e*, *x*). However, the syntactic non-predicate *green* can be modeled in the same way: GREEN(*e*, *x*). The syntactic properties of *barks* and *green*—predicate vs participant, which in English is straightforwardly subsumed into the verb vs adjective distinction—is separable from their semantic properties.

Though Nuuchahnulth has syntactic categories like verb, noun, and adjective, any of these may function as syntactic predicate or participant depending on where they fall in the sentence. The terms “verb phrase,” “noun phrase,” and “adjective phrase” are valid insofar as they refer to a phrase headed by a

¹From terminology used by the DELPH-IN consortium. <http://moin.delph-in.net/ErgSemantics/Basics>

verb, noun, or adjective, but they are not illuminating for determining syntactic roles, as any of these categories may be predicates.

In (3), the verb *ñaacsiičĩł* ‘see’ is serving as the clausal predicate, while the clause *hałmiiḥa quuʔas* ‘drowning person’ is serving as the participant. In (4), the adjective *qʷačal* ‘beautiful’ is the predicate of the sentence, while the noun *ḥaakʷaał* ‘young girl’ is the participant. In (5) the noun *pisatuwił* ‘gym’ is the predicate and there are no participants. In this case, postposed *ʔaanaḥi* ‘only’ is a predicate-modifying adverb and not fulfilling any argument role of the relation GYM.

- (3) *ñaacsiičĩłʔiṣ hałmiiḥa quuʔas.*

ñaacs-i-čĩł=ʔi-ṣ hałmiiḥa quuʔas

see-IN=STRG.3SG drowning person

‘He sees a drowning person.’ (N, Fidelia Haiyupis)

- (4) *qʷačalʔiṣ ḥaakʷaałʔi.*

qʷačal=ʔi-ṣ ḥaakʷaał=ʔi-

beautiful=STRG.3 young.girl=ART

‘The young girl is beautiful.’ (C, *tupaat* Julia Lucas)

- (5) *pisatuwiłma ʔaanaḥi.*

pisatuwił=ma ʔaanaḥi

gym=REAL.3 only

‘It’s only a gym.’ (B, Marjorie Touchie)

Descriptively, it is sufficient to say that nouns, verbs, and adjectives may all be clausal predicates in Nuuchahnulth, in the same way that English requires clausal predicates to be verbs. Importantly, this data (including the modifying adverb in (5)), along with evidence from participant clauses (§1.2), is sufficient to claim that nouns are events in Nuuchahnulth (Inman 2018). I will give my method for modeling this in (§1.4).

1.2 Syntactic Participants

Just as verbs, nouns, and adjectives may all be predicates, they may also all be participants. Example (4) showed a straightforwardly nominal participant, the noun and article *ḥaak^waaλ*i** ‘the young girl.’ However, verbs (6) and adjectives (7) may also serve as participants.

(6) ʔuhʔiiš ʔihak kamatqukʔi.

ʔuh=ʔi·š ʔihak kamatq-uk=ʔi·

be=STRG.3 cry.DR run-DR=ART

‘The running one is crying.’ (C, *tupaat* Julia Lucas)

(7) wikiičʔaał ʔiixćus ʔaλuuʔi.

wik=ʔi·č=ʔaał ʔiixćus ʔaλuu=ʔi·

NEG=CMMD.2PL=HABIT laugh.at.DR other.PL=ART

‘Don’t laugh at others.’ (C, *tupaat* Julia Lucas)

As detailed in Jacobsen (1979) and Wojdak (2001), when an adjective or verb is used as a participant, as in (6, 7), the article =ʔi· is required to make the sentence grammatical. When the participant is headed by a common noun, as in (3), the article is optional. Proper nouns differentiate themselves from common nouns in that they may never take the article (Inman 2018). They are also never in predicate position.

My analysis of these facts is that the article =ʔi· is in fact a relativizer that creates a participant from a notional predicate Inman (2018).² Noun phrases may be relativized without the article, but other predicate phrases must be headed by the relativizing second position article =ʔi·. That is, the semantics of the verb *kamatquk* ‘run’ and the noun *pisatuwił* ‘gym’ look like:

(8) RUN(*e*, *x*)

GYM(*e*, *x*)

²This ultimately is original to Werle, *p.c.*, who has also documented that =ʔi· is morphologically in the same position as mood portmanteaus, and has supplanted the third person definite mood in some dialects.

The event variable *e* allows for tense, aspect, mood, and evidentiality values (TAME). This *e* is also necessary for adverbial modification, which both verbs and nouns can undergo. However, when either type of word is used as a participant in the syntax, it is the variable (*x*) that is needed by the semantics. *=ʔiʔ* provides the relativizing function to accomplish this for all predicate types, and common nouns may undergo this process without an overt *=ʔiʔ* attached. The analytical mechanisms for this will be addressed more fully in §1.4.

There is a strong tendency in Nuuchahnulth for each clause to have one overtly-expressed participant (Rose 1981:38) but if there are two participants expressed, they can come in any order. There is a preference in the southernmost dialects (Barkley sound and Central) for VSO ordering (Jacobsen 1993:267), and a preference in the northern dialects (Northern and Kyuquot) for VOS ordering (Werle, *p.c.*). This preference is not absolute, and to make the sentence unambiguous, speakers can use *ʔuukʷit* to mark any non-highest argument (Woo 2007).

1.2.1 Participant Fronting

It is possible for speakers to move a participant in front of the predicate for focus, as in (9). This left-dislocated participant is notably outside the calculation for second position inflection (§1.3).

- (9) ʔaaq ʔuʔaatamin, waaʔaʔweʔin quʔuʔšin.
 ʔaaq ʔu-ʔaʔta=(m)in waa=ʔaʔ=weʔin quʔuʔšin
 oil X-lack=REAL.1PL say=NOW=HRSY.3 raven
 ‘“We need oil,” said Raven.’ (B, Marjorie Touchie)

Wh-words and phrases also front, obligatorily, as in (10). In this case, the second position enclitics attach to the wh-word, so this fronting is “inside” the second position calculation.

- (10) quʔhaačʔink hiʔ čuumaʔaas.
 quʔhaa-čʔiʔ=int=k hiʔ čuumaʔaas
 how.many-day=PST=QUES.2SG be.at Port.Alberni
 ‘How many days were you in Port Alberni?’ (Q, Sophie Billy)

In addition to *wh*-words and focused participants, quantifiers tend to front as well (11, 12). It is possible in this case for the fronted quantifier to be either outside the syntactic scope of the second position enclitics (12) or inside it (13).

- (11) *haʔukquuʔaala ʔuuʃiʔ haʔum.*
haʔuk=quu=ʔaala ʔuuʃ-L.(č)iʔ haʔum
eat.DR=PSSB.3=HABIT some-DO.TO food
 ‘He would only eat some things.’ (B, Bob Mundy)

- (12) *ʔuuʃiʔ haʔukquuʔaala.*
ʔuuʃ-L.(č)iʔ haʔuk=quu=ʔaala
some-DO.TO eat.DR=PSSB.3=HABIT
 ‘He would only eat some things.’ (B, Bob Mundy)

- (13) *hiʃukʷaʔʔiʃʔaʔ kamitquk.*
hiʃuk=!aʔ=ʔi·ʃ=ʔaʔ kamitq-uk
all-NOW=STRG.3=PL run-DR
 ‘Everyone is running.’ (N, Fidelia Haiyupis)

I have not done a deep investigation into the conditions that determine whether the second position complex falls on the fronted quantifier or on the following predicate. In fact, this may vary by quantifier type. I have examples in my data of the fronted quantifier *ʔuuʃ* taking the clitics (14) or not (15).

- (14) kumaawitasʔaλquu, naačukitʔišʔaafʔaʔ ʔin hiʔʔapitʔaafʔaʔ sučas, ʔuušʔaλquu wiikapuλ.
 kum-a·-witas=!aλ=quu, naačuk=(m)it=ʔi·š=ʔaaf=ʔaʔ ʔin hiʔ=!ap=(m)it=ʔaaf=ʔaʔ
 point-CT-going.to=NOW=PSSB.3 look.DR=PST=STRG.3=HABIT=PL COMP be.at=CAUS=PST=HABIT=PL
 sučas, ʔuuš=ʔaλ=quu wiikapuλ
 tree, some=NOW=PSSB.3 pass.away.MO
 ‘If he is going to be pointer, they look to see if they put (someone) in a tree, if someone has passed away.’ (C, *tupaat* Julia Lucas)

- (15) ʔuuš naacsamitsλa hiʔqh načiqs.
 ʔuuš naacsa=(m)it=s=λa· hiʔ-(q)h načiqs
 some see.CT=PST=STRG.1SG=also be.at-LINK Tofino
 ‘I also saw some at Tofino.’ (C, *tupaat* Julia Lucas)

This same pattern with respect to *ʔuuš* is present in Sapir’s original data.³ The same pattern holds in my data for the form *ʔuušit*, which is *ʔuuš* ‘some’ with the object marking *-L.(č)it* attached. *ʔuušit* may be fronted without the second position enclitics, as already seen in (12), or it may then take the enclitics, as in (18) below. I could not find any *ʔuušit* fronting in the Nootka Texts, so *ʔuušit* fronting may represent a change in the language in the intervening generations.

³With the clitic complex:

- (16) ʔuušʔaλ maqwin.
 ʔuuš=!aλ maq-win
 some=NOW tie-middle
 ‘Some are tied about the middle.’ (Sapir & Swadesh 1955:70)

Without the clitic complex:

- (17) ʔuuš saaciniʔiʔaλλaa ʔahʔaa λacʔii λisitʔi sačup.
 ʔuuš saaciniʔ-iʔ=!aλ=λa· ʔahʔaa λac=ʔi· λisit=ʔi· sačup
 some seafood.feast(?)=MO=NOW=also DDYN fat=ART white=ART spring.salmon
 ‘Some would start feasting with the fat, white-bodied tyee salmon.’ (Sapir & Swadesh 1955:22)

(18) ʔuušɪlqača ɲaacsɑ.

ʔuuš-L.(č)ɪl=qača ɲaacsɑ

some-DO.TO=INFR.3 see.CT

‘He must’ve seen something.’ (C, *tupaat* Julia Lucas)

I have no examples of the strong quantifier *hišuk* ‘all’ fronting without the second position complex, and it is possibly ungrammatical. The version of the strong quantifier in the Nootka texts, *čuučk*, does not occur in a fronting environment where the enclitics unambiguously fall on the following predicate. (That is, in a case where the enclitic could not be a singly null-marked third person morpheme.)

My provisional analysis of these facts is to describe two types of fronting: (i) focus-fronting, which falls outside the calculation for second position enclitics and adds focus information to a word; and (ii) non-focus fronting, which falls inside the second position calculation and does not add focus. Non-focus fronting does not mean that the word is necessarily not focused, only that its left-extracted position is not giving it focus. This is significant as, according to many analyses, wh-words must be focused (Lambrecht 1996:Chapter 5). Table 1.1 gives the parts of speech that are compatible with each type of fronting.

Table 1.1: Fronting properties of different words

	nouns	weak quantifiers	strong quantifiers	wh-words
Focus fronting	✓	✓	✗	✗
Non-focus fronting	✗	✓	✓	✓

This discussion should not be considered definitive with respect to fronting and quantifier fronting in particular. Notably absent is *ʔaya* ‘many’, which I predict would pattern with *hišuk*, but have not investigated. The claims with respect to the difference between *hišuk* and *ʔuuš* need checking, as well as claims about the status of these elements as having focus or not. For the purpose of this dissertation, I am only attempting to list the exceptions to the general rule that syntactic participants follow their predicate. Each of these cases is a special deviation from that general rule, and only happens under particular circumstances. I will ultimately model these as different types of extraction (§1.4).

1.3 Second-position clitics

The majority of clausal inflection in Nuuchahnulth is in a complex of second position enclitics which attach to the first word of the clause, modulo the left extraction seen in §1.2. Table 1.2 shows the ordering of the clitic complex, and is adapted from Adam Werle’s grammar reference. A fuller list of these enclitics is given in Appendix B.3.

Table 1.2: Order of second position clitics

morph	=ʔaaqʕ	=!ap	=!aʕ	=!at	=uk =ʔak	=(m)it	=ʔi·š =ma· =ha· =∅ ...	=ʔaala	=ʔaʕ	=ʕa·
meaning	FUT	CAUS	NOW	PASS	POSS	PST	subject-mood portmanteaus	HABIT	PL	also

The =∅ morpheme, which indicates the third-person neutral mood, merits some special attention. While there is no phonological element associated with this inflection, all of the other enclitics appear in their typical order around where it would be. A predicate with no enclitic, or with one or more of the non-subject-mood enclitics (such as past, or habitual and plural) is always interpreted as being in the neutral mood with a third person subject. I do not put a =∅ in my gloss lines, except below in (22) to show that it is notionally present. The syntactic information about neutral mood and 3rd person subject has to come from somewhere and this can be modeled as a phonologically empty morpheme providing it. I address this more in the implementation section (§1.4).

The examples I have given so far have all shown this clitic complex attaching directly to the clausal predicate. However, it may also attach to preceding adverbial modifiers (19), conjunctions (20), and adpositions (21).⁴ Likewise, the relativizing enclitic article (§1.2) may also attach to a preceding modifying

⁴The claim that (21) is an adposition is somewhat controversial. Woo (2007) analyzes these as little-*v*, a category which does not exist in HPSG analyses. What this unit does is mark participants that fulfill a certain role with respect to the verb, similar to case-marking. An analysis that treats this particle as an adposition can generate the same set of sentences as a little-*v* analysis, and is necessary within the HPSG framework. In this model, non-agentive arguments may be realized by a Participant Phrase or an Adposition Phrase headed by *-L.(č)it*. This means that in (21), the word *hiišit* is an adposition phrase

adjective (22) and not directly to the head noun, as seen in (4).

(19) ýuuq^waaʔaqʕs náačuk.

ýuuq^waa=ʔaqʕ=s náačuk

also=FUT=1SG look.for.DR

‘I will also look for it.’ (C, *tupaat* Julia Lucas)

(20) ʔahʔaaʔaʕna huʔacačič ʔahkuu.

ʔahʔaaʔaʕ=naʕ huʔa-ca-čič ʔahkuu

and.then=STRG.1PL back-go-MO D1

‘And then we came back here.’ (C, *tupaat* Julia Lucas)

(21) ʔuuk^wiʕwitasah haaʕin čims.

ʔu-L.(č)iʕ-witas=(m)aʕ haaʕin čims

X-DO.TO-going.to=REAL.1SG invite.DR bear

‘I’m going to invite bear’ (B, Marjorie Touchie)

(22) muya haa ʕaʔuuʔi mahʔti.

muy-aʕ(=∅) haa ʕaʔuu=ʔi mahʔti

burn-DR(=NEUT.3) D3 other=ART house

‘The other house was burning.’ (C, *tupaat* Julia Lucas)

Every clause in Nuuchahnulth contains an enclitic, even if it is only the notional =∅ third person neutral enclitic. With the exception of extraction (§1.2), the enclitic always appears on the first word of the clause, which is either the predicate or a preceding adverb. Together with the restrictions on syntactic predicates, I use this data to claim that the clitic complex is the syntactic head of the clause in Nuuchahnulth, and the clitic complex then selects for predicates. That is, the second position enclitic complex is the auxiliary head of a clause, and inherits its valence (number of complements) from the

modifying the following verb ʔiʕhuk.

predicate, which also provides the main semantic relation of the clause. Because of its second position properties, this analysis of the Nuuchahnulth clitic requires some special attention in HPSG (§1.4), but descriptively I can stop at calling the enclitic complex the head of the Nuuchahnulth clause.

One final fact about the clause worth mentioning is clitic spreading. The presence of a clitic *in situ* within the second position complex is required. If the clause is passive, the passive morpheme must appear within the complex, and so on. However, some of these clitics may appear multiply within a clause: first in the second position enclitic complex, and then later on the predicate or predicates of the sentence. This occurs in cases where there is a preposed adposition⁵ (23), a preposed adverb (24, 27), a preposed quantifier (25),⁶ or a clefting construction (26). In all these cases, there is a syntactic reason for the second position clitic complex to fall on something other than the main predicate of the clause, and some of the clitics may appear multiply: within the second position complex (obligatorily) and on the main predicate (optionally). To my knowledge, the only clitics that “spread” like this are *=!aλ* ‘now’ (23, 24), *=!at* PASSIVE (25, 26), and *=!ap* CAUSATIVE (27). I will come back to how the multiple instances of the valence-altering clitics *=!at* and *=!ap* functions within serialization structures in §3.2.2.

- (23) ʔuyiʔeλna hawiiʔeλ kaathʂiʔeλquu.

ʔuyi=ʔaλ=naʔ hawiiλ=!aλ kaθ-ʂiλ-LS=!aλ=quu
at.a.time=NOW=NEUT.1PL finish=NOW be.light-MO-GRAD=NOW=PSSB.3
‘We stop when it starts getting light.’ (C, *tupaat* Julia Lucas)

- (24) ʔuuqʷaaʔaλweʔin ʂiħmaħmit ʔunaakaλ yaaqʷapakʔitq kʷiçiλ.

ʔuuqʷaa=!aλ=weʔin ʂiħmaħmit ʔu-naʔk=!aλ yaqʷ-L.apak=ʔitq kʷi-çiλ
also=NOW=HRYS.3 woodpecker x-have=NOW who-beyond=DEFN.3 stick-MO

‘And also Woodpecker had his man who was best of all in marksmanship.’ (B, Sapir & Swadesh 1939:50)

⁵For the argument that *ʔuyi* is an adposition, see §4.2.2.

⁶Note that in this instance the quantifier has a linker attached. The semantics of the linker will be addressed in §4.

- (25) ʔuušhʔatquus ʔaačukʷat, ʔiiqhukum ʔanis weʔič.

ʔuuš-(q)h=!at=quus ʔaačuk=!at ʔiiqh-uk=!um ʔani=s weʔič
 some-LINK=PASS=PSSB.1SG look=PASS tell-DR=CMMD.GO COMP=1SG sleep
 ‘If anyone is looking for me, tell them I’m sleeping.’ (B, Marjorie Touchie)

- (26) ʔuhʔatsʔat ʔumʔiiqsakqs maʷaaʔat ʔiisuwił.

ʔuh=!at=s=ʔaʔ ʔumʔiiqsu=ʔak=qs maʷaa=!at ʔiisuwił
 be=PASS=STRG.1SG=HABIT mother=POSS=DEFN.1SG bring=PASS school
 ‘It’s my mother who brings me to school.’ (N, Fidelia Haiyupis)

- (27) ʔiqsilapʔaa hinʔatap ʔiinaakʔi.

ʔiqsila=!ap=ʔaʔ hinʔatap ʔiinaa=ʔak=ʔiʔ
 still=CAUS=also in.water.CAUS quartz=POSS=ART
 ‘Again they put the quartzes under water.’ (B, Sapir & Swadesh 1955:60)

It is significant that in all the above examples, this syntactic doubling does not indicate any semantic doubling. In all of the examples, the unit that the second position enclitic attaches to is not notionally compatible with the semantics of “now,” or the application of a causative or passive.⁷ That is, the examples here all show a strictly syntactic, not semantic, phenomenon.⁸ This syntactic “doubling” is restricted to the clause in which the semantics of the morpheme apply. This can be seen in (28, 29) below, where the =/aʔ ‘now’ morpheme cannot be introduced in the subordinate clause, where it would alter the semantics in a bizarre or unintelligible way.

⁷The possible exception to this is (23), if ʔuyi is understood as a full verb. As mentioned above, I believe it is an adposition.

⁸This is not the case under serialization, where causative and passive morphology may affect only one verb under serialization. This will be addressed in §3.2.2.

(28) $\acute{t}apat\acute{s}i\eta a\lambda s \eta uca\acute{c}i\lambda \acute{c}a\eta ak\eta i.$

$\acute{t}apat-\acute{s}i\lambda=!a\lambda=s \quad \eta u-ca-\acute{c}i\lambda \quad \acute{c}a\eta ak=\eta i.$

think-MO=CAUS=STRG.1SG X-go-MO river=ART

'I decided to go to the river.' (N, Fidelia Haiyupis)

(29) $*\acute{t}apat\acute{s}i\eta a\lambda s \eta uca\acute{c}i\eta a\lambda \acute{c}a\eta ak\eta i.$

$*\acute{t}apat-\acute{s}i\lambda=!a\lambda=s \quad \eta u-ca-\acute{c}i\lambda=!a\lambda \quad \acute{c}a\eta ak=\eta i.$

think-MO=CAUS=STRG.1SG X-go-MO=CAUS river=ART

Intended: 'I decided to go to the river.' (N, Fidelia Haiyupis)

1.4 HPSG Analysis and Implementation

I will now go over how I have modeled the above syntactic facts about clauses in my HPSG implemented grammar. Though the framework is particular, much of this analysis should be intelligible to people working in other frameworks. For those more familiar with other syntactic formalisms, I will attempt to give some basic guidance to decoding the formalism.

In HPSG, each node in a tree (including words) is composed of a large attribute-value matrix defining the properties of the node. Attributes are things like *HEAD* and a value may be something like *noun*. This is written as [*HEAD noun*]. Values can be a simple atomic symbol or they can be another attribute-value matrix. For instance, *noun*, which is a possible value for *HEAD*, is itself a matrix with further information inside it, such as [*FORM finite*]. HPSG is dedicated to fidelity to the surface string order, and there is no movement. Long-distance dependency is done instead through valence lists present at each node in the tree. The two most common of these lists are *SUBJ* (subject) and *COMPS* (complements). As the tree is constructed, information is added to (or more precisely, unified with) *SUBJ* and *COMPS* values, which is how valence information is preserved. Long-distance dependencies which in other theories are modeled through movement are here modeled by moving a valence item from the *SUBJ* or *COMPS* list into a *SLASH* list, which propagates up the tree until the extracted element is found.

In addition to the matrices present at each point in the tree, the phrase structure rules (PSRs) have

to be defined for each possible ordering. So there may be a *head-complement-rule* which defines how a head node combines with a non-head node to its right. This is analogous to *merge* in Minimalism, although in HPSG the rules about which merges are allowed are specified within each PSR. For instance, a PSR may specify that one of its daughters has to have a certain property: for instance, when discharging a long-distance dependency, the head daughter should have something on its SLASH list, and the non-head daughter needs to have properties consistent with what the head daughter says about the item on its SLASH. This unification is indicated through reentrancies (boxes with the same label) which specify that two items in the attribute-value matrix are the same.

Or a PSR might say that its head daughter needs to be [HEAD.AUX +]. In this case, that rule cannot operate on a node that is defined as [HEAD.AUX −]. However, we allow for values to be underspecified. A node may not know if it is an auxiliary or not, in which case it is simply [HEAD.AUX *bool*], our way of denoting underspecification. A node of this type can unify with PSRs that require [AUX +] and [AUX −]. However, once it goes through that kind of rule, its AUX value is set. This is how the framework allows words and even phrases to be used in different ways in different tree structures. Complex forms of type hierarchies are important to unification in HPSG. While the type *bool* only has two subtypes, + and −, the types available to *aspect* may be far more complex, which then allows for more complex types of unification.

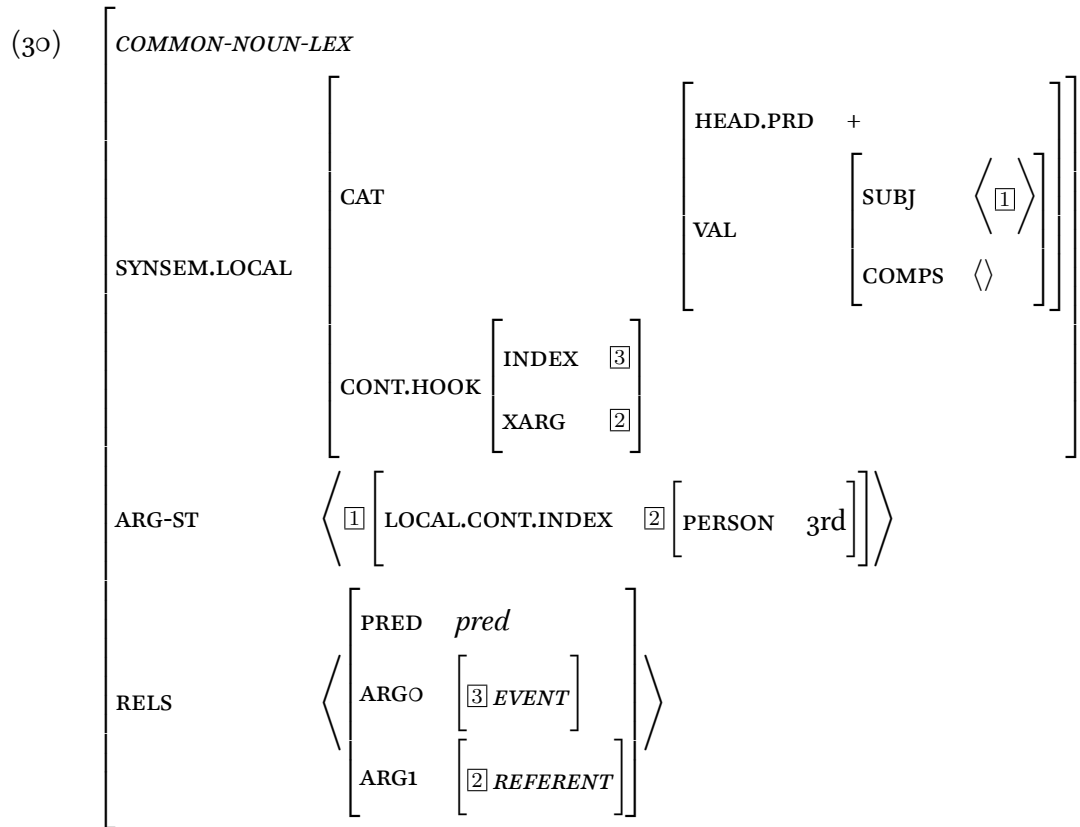
My grammar is built on top of analyses present in the Grammar Matrix (Bender et al. 2002), and where possible I reuse distinctions and analyses present there. In particular, I use some of the features defined in the Grammar Matrix (like PRD, AUX), and inherit from generic phrase structure types like *decl-head-subj-phrase* and *basic-unary-phrase*. I will not expect familiarity with all these pre-defined types, and will attempt to give all the relevant components of the rules and type definitions. However, most definitions given here are subsets of full definitions given in my implemented grammar, which can be found at [\[\[TODO: bitbucket repo link\]\]](#).

1.4.1 *Predicates and participants*

As argued in §1.1, nouns, adjectives, and verbs are all events, and yet when used as participants, the grammar needs to distinguish nouns from adjectives and verbs (§1.2). I use the value PRD (predicative)

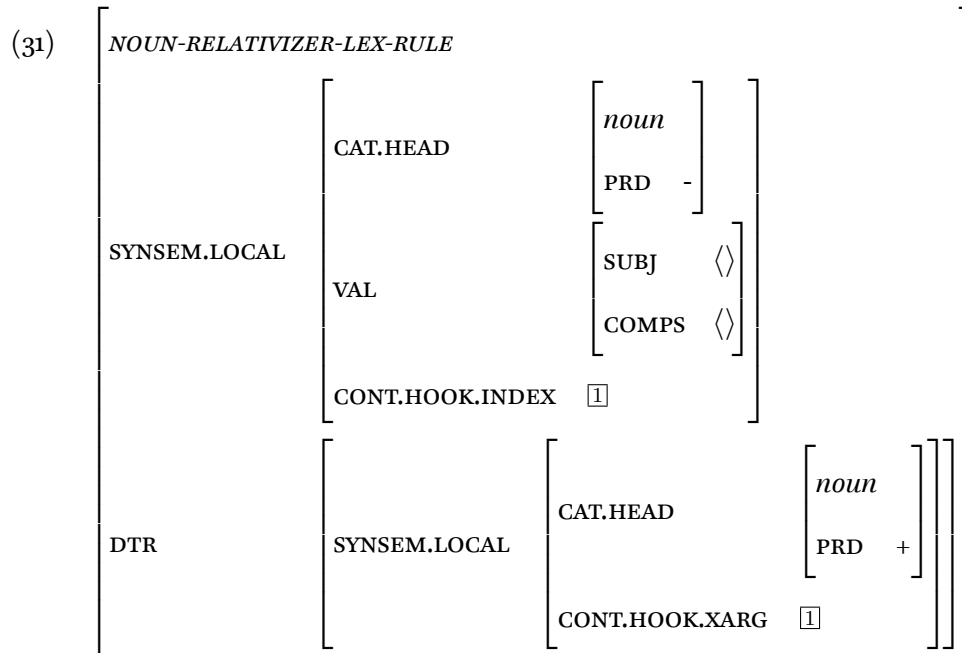
on the HEAD feature to model the predicate/participant distinction in Nuuchahnulth. I have a supertype, *predicate-lex*, which states that its HEAD.PRD value is +. All the lexical types that are predicative—verbs, and adjectives, and common nouns—inherit from this supertype. So every lexical entry for a verb, adjective, or common noun inherits the property [HEAD.PRD +], and can be treated as a predicate where the grammar demands it.

Participants are simply defined as [HEAD.PRD –]. A word can be defined as [HEAD.PRD –] by its lexical inheritance (e.g., proper nouns are defined as non-predicative), or through the application of a rule. As detailed in §1.2, all dependent clauses headed by the enclitic =?i' are participants. I will address the analysis for this in §1.4.2. However, common nouns also need to be treated as participants as well as predicates. I achieve this through a lexical rule (that is, something that must apply prior to syntactic rules) that alters the semantics of the noun. Recall that as predicates, common nouns have an event variable and a subject. Parts of my type definition for a common noun are given in (30).



This rule can most easily be read bottom-to-top. It states that common nouns are semantically a relation between two arguments: an event, and a referential index.⁹ The referent argument is identified with the INDEX attribute of the only thing in the noun's syntactic ARG(UMENT)-ST(RUCTURE). ARG-ST is used in HPSG as a translation layer between the semantics (the RELS list) and the syntax (in the SYNSEM layer above). All items on a word's ARG-ST must correspond to items in its valence lists (most notably, SUBJ(ECT) and COMP(LEMENT)S). The lone item in the noun's ARG-ST is identified with its subject, and it has no complements. The semantic argument that is the available in the compositional syntax, at the path SYNSEM.LOCAL.CONT.HOOK.INDEX, is that of the event variable in the relation, and so the noun is treated as eventive. The variable to the referent is kept on the XARG, a sort of semantic scratch value that is typically used for subjects. (I will return to the XARG later.) Finally, the HEAD.PRD attribute is set to +, indicating that common nouns, and all trees headed by a common noun, are predicative.

The above *COMMON-NOUN-LEX* type functions when nouns are acting as predicates. To treat nouns as participants, they must go through a lexical rule first. The major parts of the lexical rule are in (31).



⁹Note the underspecified PRED value. Not to be confused with my use of “syntactic predicate,” the PRED(ication) value in the DELPH-IN HPSG implementation is the name of the relation. So the Nuuchahnulth word *ʕiniil̥* ‘dog’ has the meaning ʕINIIL̥, or for legibility in my grammar, DOG_N.

item finds a transitive predicate, it becomes ditransitive. Once again, it will have a subject identified with that transitive predicate, and then its complements list will include two items: first the transitive predicate itself, and then the transitive predicate's own complement. And so on.

As indicated in §1.3, there are two major types of clausal second position lexemes: the auxiliary predicate head, and the article. The predicative versions are part of the mood complex, and belong to the type *MOOD-2P-VERB-LEX* (33), which inherits from (is a subtype of) *2P-LEX-ITEM* above. This rule needs to state that this lexical item makes a predicate and inherits its complement's semantic event. Then the lexical entry for each morpheme further specifies the clitic's particular properties: the mood of the complement, and the person and number properties of the subject.

$$(33) \left[\begin{array}{l} \text{MOOD-2P-VERB-LEX} \\ \\ \text{SYNSEM.LOCAL} \left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{HEAD.PRD} \\ \text{VAL.COMPS. . . INDEX} \end{array} \right] + \\ \text{CONT.HOOK.INDEX} \quad \boxed{1} \end{array} \right] \end{array} \right] \end{array} \right]$$

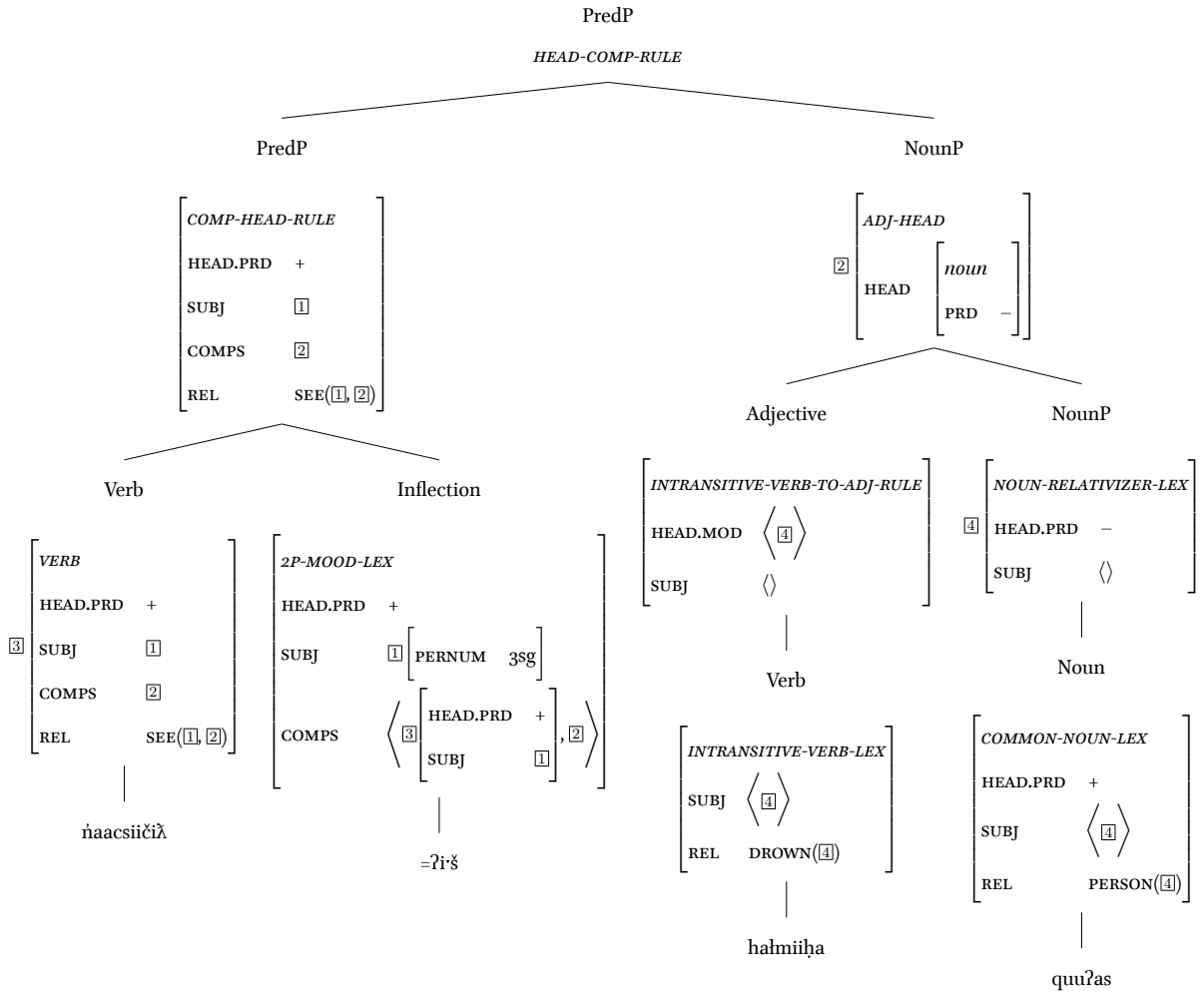
The article lexeme also inherits from *2P-LEX-ITEM*, but adds different constraints (34). The article needs to state that it creates a participant (that is, a non-predicate), that it is picking up its complement's subject's semantics (that is, the referent and not the event), and that that referent is in the third person.

$$(34) \left[\begin{array}{l} \text{ARTICLE-LEX} \\ \\ \text{SYNSEM.LOCAL} \left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{HEAD.PRD} \\ \text{VAL.COMPS. . . SUBJECT. . . INDEX} \end{array} \right] - \\ \text{CONT.HOOK.INDEX} \quad \boxed{1} \left[\begin{array}{l} \text{PNG.PER} \quad 3\text{rd} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

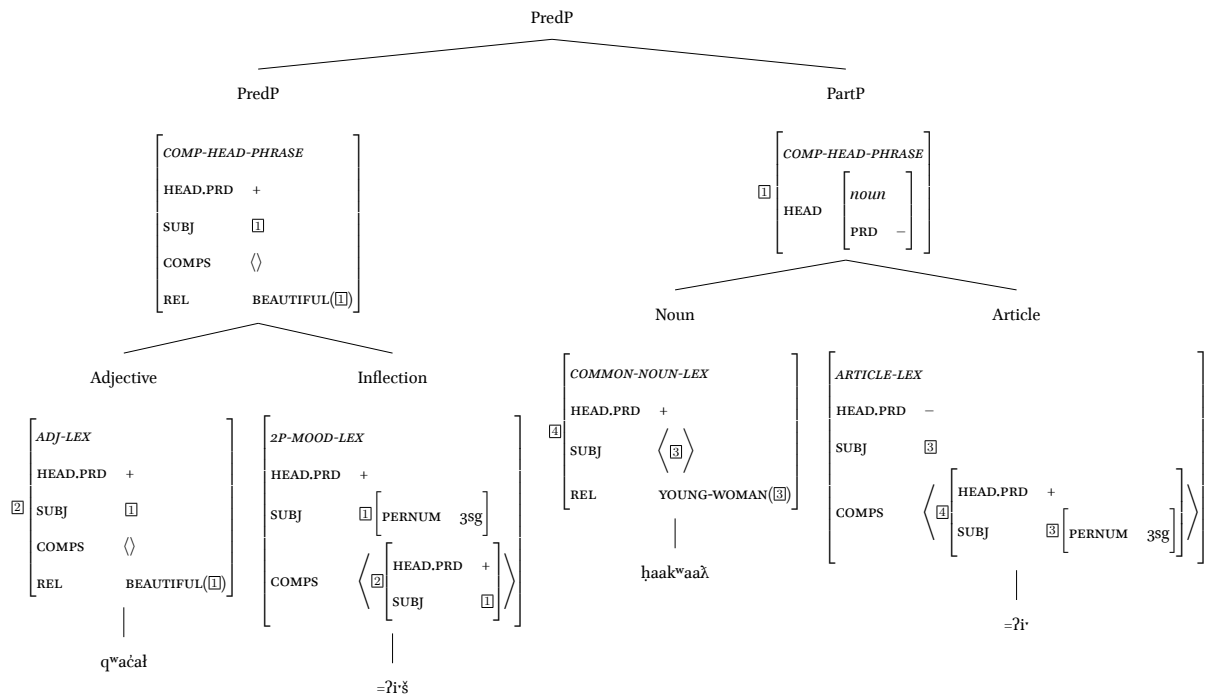
The above definitions for second position elements license trees that have simple second position elements. I will give sample trees for the three types of predicates introduced in §1.1: verbs (3), adjectives (4), and nouns (5). Trees for each of the sentences are given in (35), (36), and (37) respectively. The

attribute-value matrices have been somewhat simplified to fit on the page, and identifying semantic features (through `HOOK.INDEX` and `HOOK.XARG`) have been elided. Identification of semantic features is shown simply by identifying a slot (e.g., the x the relation $\text{SEE}(x, y)$) with an entire feature structure. In the implemented grammar, this is done through the identification of values with the `HOOK` features. Finally, there are some phrase structure rules that have not yet been introduced. They are present to complete the trees. The main points I am illustrating are second position argument composition and the predicate-participant distinction, which is created by the `HEAD.PRD` value at each level of the tree.

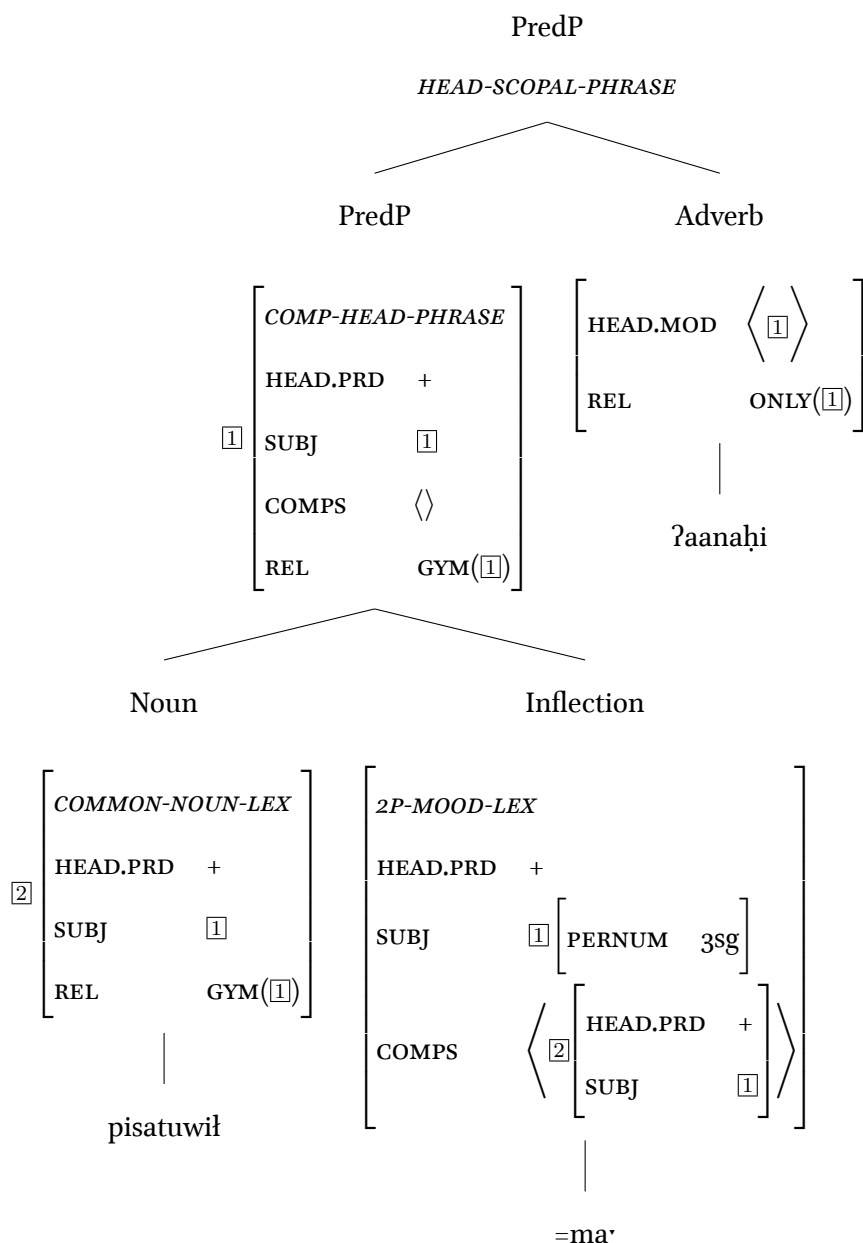
(35)



(36)



(37)



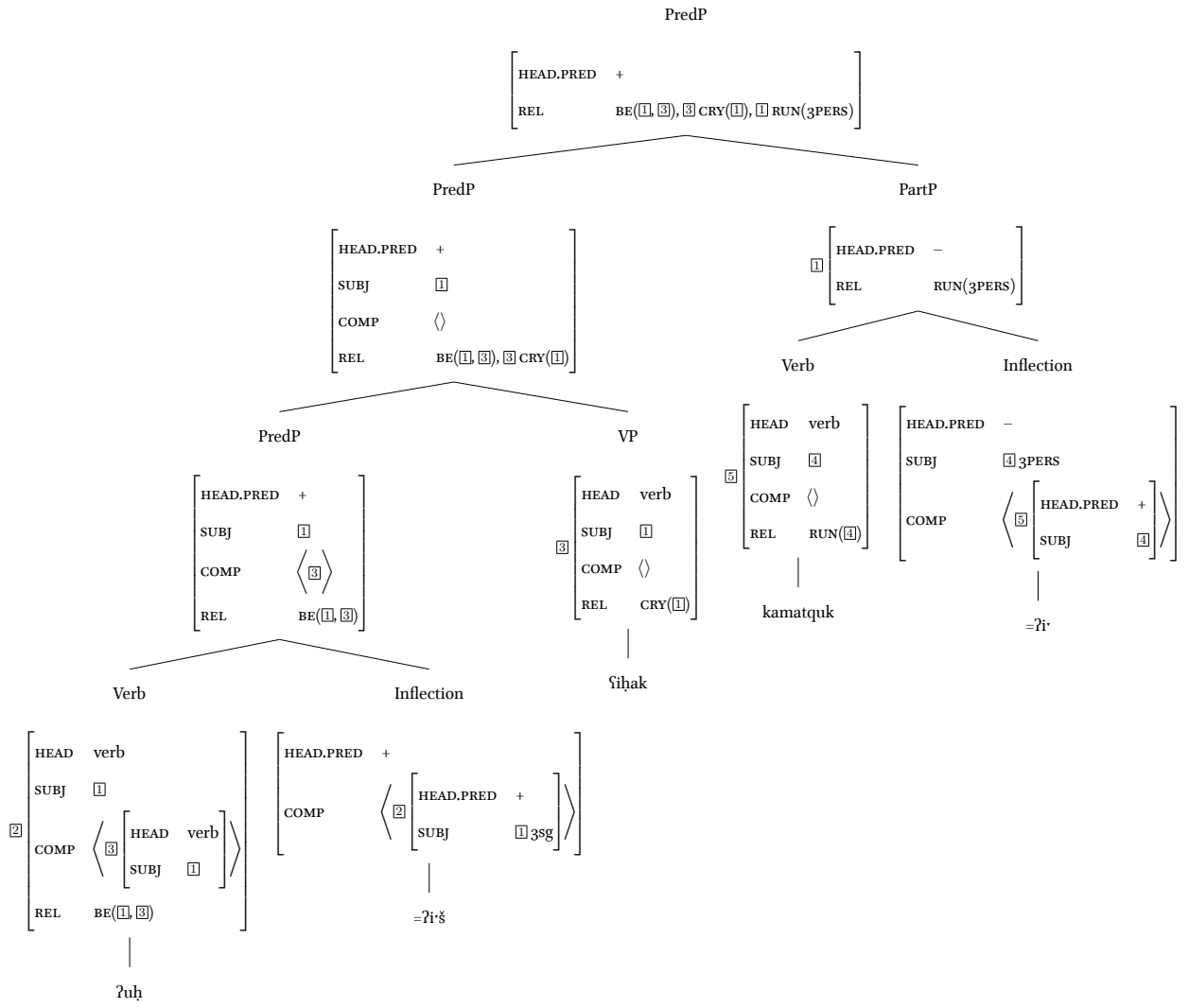
Syntactic predicates are modeled by placing a PRED value within the HEAD features of parts of speech. Any part of speech that is [PRED +] may behave as a predicate. The predicate phrase in Nuuchahnulth is analogous to a verb phrase in English. Just as a clause in English HPSG analyses is defined as a VP that has empty SUBJ and COMP lists, a clause in Nuuchahnulth is a PredP that has empty SUBJ and COMP lists. A significant difference between predicates and a PredP in Nuuchahnulth and verbs and a VP in

English is that, because of the second position clitics, the PredP is headed by inflectional material while the predicate is its first complement. This is unlike English VPs, where the verbal element is itself the head of the clause. The nature of this second position will be discussed in more detail in §1.3 and §??. With the nature of the syntactic predicate sketched out, I now turn to participant phrases (PartP).

I model this by again making use of the PRED feature. Like other second position inflection, I model the “article” (relativizer) as requiring its complement to be [PRED +], creating a structure that is [PRED –]. Since verbs, nouns, and adjectives are all [PRED +], they can all appear with the article attached. I model proper nouns as [PRED –], so that they cannot be taken as a complement of the article. I define participants (as opposed to predicates) as necessarily [PRED –], which allows article-headed clauses and proper nouns to occur as participants.

The trees (38, 39) sketch my syntactic analysis of the verbal and adjectival participants in (6, 7). In (39) a PartP is serving as a complement of the predicate through a head-complement rule (Bender et al. 2002; Pollard & Sag 1994) while in (38), the PartP is filling a subject role through a head-subject rule (*ibid*). Importantly, both of these rules are selecting for a non-head-daughter that is [PRED –]. This guarantees that either the article will appear on the participant, or the participant will be of a category that is non-predicative.

(38)



as well as adverbial modification, as in (5). However, it is the first argument (x) that is needed by the semantics when nouns are used as participants. That is, on this model nouns need to be relativized the same way that adjectives and verbs need to be. The only distinction is that nouns may be relativized without the article *=?i:* present. I create a unary lexical relativization rule that requires that its daughter node be a common noun.

The way I model this phenomenon is via a gap-filler construction (Pollard & Sag 1994:Chapter 4), which avoids the problem of having to recalculate how the clitics behave in a sentence like (9). A sketch of the tree is given below.

(41)

PredP

(focus-filler-head-rule)

	HEAD.PRED	+
	SUBJ	1pl
[3]	COMP	$\langle \rangle$
	GAP	$\langle \rangle$
	PRED	LACK([1], [2])

Noun

PredP

(complement-head-rule)

[2]	PRED	OIL(x)
-----	------	------------

 λ aaq

	HEAD.PRED	+
	SUBJ	1pl
[3]	COMP	$\langle \rangle$
	GAP	$\langle [2] \rangle$
	PRED	LACK([1], [2])

Verb

Inflection

	SUBJ	[1]
	COMP	$\langle \rangle$
[3]	GAP	$\langle [2] \rangle$
	PRED	LACK([1], [2])

ʔuʔaata

	HEAD.PRED	+
	COMP	$\langle [3] \left[\begin{array}{cc} \text{HEAD.PRED} & + \\ \text{SUBJ} & [1] \text{ 1pl} \end{array} \right] \rangle$

=(m)in

My analysis for this is the same as that for focus fronting, minus the addition of focused information. I create a similar rule that behaves in the same way, *non-focus-filler-head-rule*. Where the *focus-filler-head-rule* adds focus information to its non-head-daughter, the *non-focus-filler-head-rule* does not, and requires that its non-head-daughter be [HEAD *quantifier*]. Similarly, I add the constraint to *focus-filler-head-rule* that its non-head-daughter be [HEAD *non-quantifier*].

I assert that the clitics are the syntactic heads of the clause. This analysis requires argument composition, or a word (in this case, the syntactic word of the second position enclitic complex) taking on the arguments of its complement (here, the sentential predicate), an analysis first developed in Miller & Sag (1997). The way I model this in my implementation is by the subject-mood clitics taking their complement's valence properties and making it their own. That is, the generic type for the second-position clitics is:

$$(42) \left[\begin{array}{l} \text{CLAUSAL-INFLECTION} \\ \text{HEAD.PRED} \quad + \\ \text{SUBJ} \quad \boxed{1} \\ \text{COMP} \quad \left\langle \begin{array}{l} \text{HEAD.PRED} \quad + \\ \text{SUBJ} \quad \boxed{1} \\ \text{COMP} \quad \boxed{2} \end{array} \right\rangle \oplus \boxed{2} \end{array} \right]$$

The inflection unifies its complement's subject with its own, and adds its complement's complements list to its own complements list. Particular lexical items in the class of clausal inflection inherit from the rule type above and add their own semantic information (second person subject and hearsay evidentiality, for example).

This type of analysis depends on viewing the second position enclitic complex as its own syntactic word. Since my implementation currently lacks a morphophonological component, I have whitespace-separated the second position enclitic complex. This analysis also requires that only one of the enclitics inherit from (42) above: one of the enclitics must be the root of the syntactic word. Every enclitic is optional, with the exception of the subject-mood portmanteaus. Given this, I model the subject-mood

portmanteau as the root, with preceding enclitics attaching to the subject-mood portmanteau as “pre-fixes,” and following morphemes attaching as “suffixes.”

This creates an analytical issue for the third person neutral mood, which is null-marked. I model this by inserting an unpronounced element into the string, written ‘=o’, to mark the third person neutral mood. It is likely possible, with some work, to have an analysis without an unpronounced element. But because the subject-mood portmanteau is the root for the enclitic complex, this would require a large number of additional rules, which would introduce a considerable amount of brittleness into the analysis. It would require:

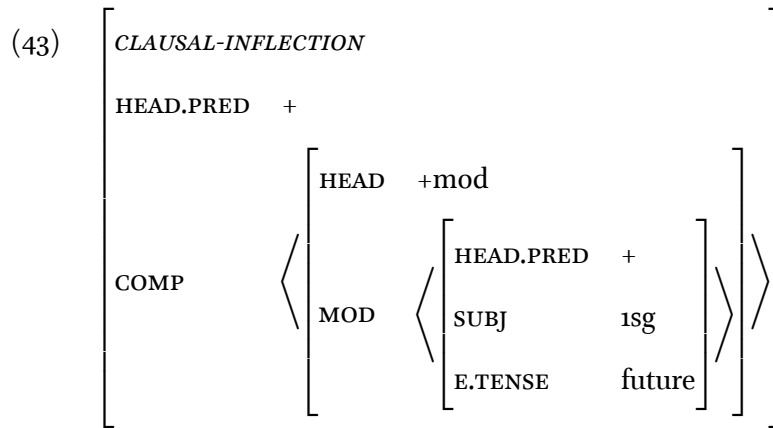
1. A non-branching lexical rule that adds a third-person subject and neutral mood to predicates.
2. A similar lexical rule that does the same for modifiers (see §??).
3. Alternate root forms of every other enclitic, so that they can appear on their own without a subject-mood portmanteau, and which only unify with third person subject and neutral mood.
4. Alternate prefix/suffix forms of every other enclitic which only unify with third person subject and neutral mood, so that two enclitics can appear adjacent to each other without a subject-mood portmanteau as a root. Together with (3) will generate spurious ambiguity for strings like =ʔaaqλ=!aλ, since either enclitic could be the “root” morpheme.

This additional engineering work both exposes the grammar to more potential problems, and necessarily generates additional, meaningless parses. I opt instead for the analysis with a phonologically null element for the third person neutral mood portmanteau, and introduce ‘=o’ into my strings.

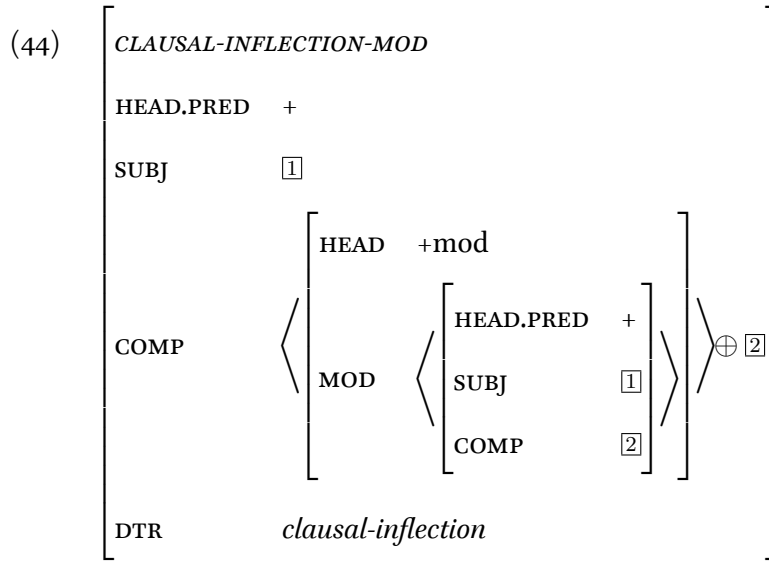
As mentioned, second-position clausal clitics may also attach to the preceding modifier of a predicate. In the case of the main clause predicates, they may attach to preceding adverbs

Because there is no movement in HPSG, my analysis cannot simply say that the clitics in (19–22) “move” into position of the leftmost item in the phrase. There are benefits to this design decision (faster computation, fidelity to the ordering of the surface string, bidirectionality of parsing and generation), but second position phenomena is one of the areas that requires extra analytical work in HPSG.

In both (19) and (22), the second position clitic containing the subject information is attaching to a modifier of a later predicate. In the version of the lexical entry seen in (42), these clitics are selecting for predicate complements, to which they assign semantic information (such as tense), and taking on their subject and complements. However, in the case where the clitics attach to a modifier, I cannot model the clitics as selecting for a predicate. I must have the clitic select for a modifier, and assign its semantic information to the modifier's modified value. That is, the attribute-value matrix (AVM) for the full predicate complex =ʔaqʔ=s in (19) should look something like this:



One way to create structures like that in (43) is to have different lexical entries for every clitic, with alternate structures for predicate complements and modifier complements. Because Nuuchahnulth has literally hundreds of these clitics, this is perhaps not the best solution. Instead, I create a lexical rule which creates a structure like (43) from lexical entries of the type (42). The key parts of this lexical rule are in (44). Note that it requires that its daughter be of type *clausal-inflection*, so this rule cannot apply to other lexemes.



1.5 Summary

Because of predicate flexibility in Nuuchahnulth, I have defined special terminology to distinguish between semantic and syntactic phenomenon. I use *relation* to refer to atomic semantic units and *argument* to refer to the variables that those semantic units relate. I refer to syntactic *predicates*, which are the position in the clause where semantic arguments may be filled. *Participants* are the syntactic units that fulfill a predicate's semantic arguments, and thus correlate with semantic *arguments*.

Verbs, adjectives, and common nouns may all be used predicatively, but proper nouns cannot be. All of these lexical categories can be used as participants, but verbs and adjectives require an “article,” which I argue is a relativizer. Each clause is headed by a second-position inflectional element which provides, among other things, subject agreement. Adverbs may precede the clausal predicate, in which case the second position inflection appears after the adverb.

I model syntactic predicates and participants with a boolean-valued feature [PRED +|–]. Predicate phrases and participant phrases are defined as units that are [PRED +] and [PRED –] respectively. The clausal clitics, including the article, select for [PRED +], with the article generating a [PRED –] parent node and the other second position inflection generating [PRED +]. The head-complement and head-subject rules select for participants by specifying that the non-head daughter is [PRED –]. Verbs, adjectives, and

common nouns are [PRED +], while proper nouns are [PRED –]. Common nouns may go through a unary rule that relativizes their semantics and makes them [PRED –], and thus eligible as syntactic participants.

When participants occur to the left of the verb, they fall outside the second position of the clausal clitic complex. I model this as a gap-filler rule that places focus information on the left-dislocated element. To model the second position clitics, I have a generic *clausal-inflection* type which adds its complement (the clausal predicate)’s complement list to its own. This is an analysis called *argument composition*. In order to account for clitics attaching to preceding, modifying elements, I define a rule that applies only to *clausal-inflection* lexemes and changes their syntactic construction so that the element adds its complement’s MOD’s complements to its own complements list. With this basic sketch of the clause and my HPSG analysis of it, I will be able to describe my understanding of serial verbs (§3) and the predicate linker (§4), and how I model these phenomena.

Chapter 2

METHODOLOGY

This work has proceeded along two tracks. The first has been gathering primary data through field work as well as using published corpora in the language to uncover grammatical facts. The second is the implementation of the analysis of these grammatical facts through a computational syntactic framework. I will address my methods for each part of this separately.

2.1 Gathering data in Nuuchahnulth

Before I began my project on serial verbs and the linker, I first had to learn enough Nuuchahnulth to become at least conversant in the language. I did this by reading the published literature (especially Sapir & Swadesh 1939), attending language learning classes in Port Alberni (many of them with my colleague, Amie DeJong), and direct study with Adam Werle, some of which was funded through summer Foreign Language Acquisition Scholarships (FLAS). The language lessons I participated in were taught by Adam Werle and often included elders and native speakers who would assist, correct, and aid in teaching. It was through this venue that I first met fluent Nuuchahnulth elders.

In the summer of 2016, Adam and I traveled to Hot Springs Cove and collected texts from some Hesquiaht elders. On request, that data is not presented in this dissertation, but some of that work has informed my analysis, which I have confirmed with other speakers.

2.2 Data sources

I began learning and working with Nuuchahnulth at the start of 2015. Before I collected my own data, I looked at data from a variety of sources to generate appropriate questions. My sources were previous syntactic work on the language, especially Jacobsen (1993), Nakayama (2001), Wojdak (2003), Waldie (2004), and Woo (2007). I also relied on corpora published by linguists, especially the Nootka Texts

(Sapir 1924; Sapir & Swadesh 1939, 1955; Sapir et al. 2000, 2004, 2009).

In addition to these resources, I looked at community-produced texts such as “Son of Thunderbird” and texts I received from linguists Adam Werle and Henry Kammler. The largest of these were an in-progress Bible translation Adam Werle and Sophie Billy were working on and several recordings Henry Kammler made with the late Barbara Touchie. I looked through these sources for examples of the phenomena I was looking for, annotated and cataloged them, and used some of these examples as prompts for speakers.

2.3 *Elicitation methods*

I spent January, February, and part of March of 2018 in Port Alberni working with native speakers and gathering data specifically for this dissertation. In that period of time I worked with Julia Lucas (Nuuchahnulth name *tupaat*, Ahousaht tribe, central dialect), Bob Mundy (Uclueleht tribe, Barkley Sound dialect), Marjorie Touchie (Uclueleht tribe, Barkley Sound dialect), Fidelia Haiyupis (Ehattesaht tribe, northern dialect), and Sophie Billy (Checkleseht, Kyuquot-Checkleseht dialect). I also present data I gathered from Simon Lucas (Nuuchahnulth name *yuutnaak*, Heshquiaht tribe, northern dialect), the late husband of Julia Lucas.

I have made an effort to make my work, and at the very least my recordings and transcriptions, available to the communities I have worked with. Some of my work with Fidelia Haiyupis and Sophie Billy was funded by the Ehattesaht tribe, which has received copies of my notes and recordings. The Uclueleht tribal office has also received the notes and recordings I made with Bob Mundy and Marjorie Touchie. I have also made recordings and transcriptions available online to language learners. Some of this information is restricted to people who have the right password to access the folder. I take precautions not to collect data that is sensitive to audience restrictions, and so for most of these materials, password-restricted access is not done out of a concern with rights management, but with the fact that many of these materials are works in progress and I do not want possibly-inaccurate transcriptions to be disseminated widely among people who are lower-level language learners.

When working with speakers, I tended to work two to four hours at a time and tried to structure sections in three parts: grammatical questions and elicitations, vocabulary questions and clarification

questions on existing texts, and text elicitation. The purpose of this was to avoid wearing speakers out with too many grammatical questions in a row, and to collect other important data. While there has been good primary linguistic documentation in Nuuchahnulth, particularly in Sapir & Swadesh (1939) and Rose (1981), there are many differences across the language's wide spread of dialects that remain undocumented and unknown. Although one of my speakers did not like giving lengthy texts, I was able to collect connected, fluent texts from other speakers, which is a lasting artifact and can be used to answer questions beyond the scope of my dissertation. I have approximately six hours of fluent Nuuchahnulth from that period, about two-thirds of which is currently transcribed. I have since visited my consultants again and asked follow up questions as well as collected more texts.

2.4 *Methods of Elicitation*

I used eight methods of elicitation, which I will describe below. The aim of all these methods is to obtain the most natural Nuuchahnulth examples or grammatical judgments that are relevant to the phenomenon under investigation. Some methods worked better than others. Only one of my consultants was literate in the language, and while she would correct my pronunciation sometimes by writing out a word, she preferred to work in an oral environment and have me read my notes back to her. That is to say, these elicitation sessions occurred in either a completely or nearly-completely oral context. All Nuuchahnulth speakers I worked with were bilingual in English.

2.4.1 *Describing Images*

The aim of this methodology is to avoid the metalanguage (English) through the visual medium. The speaker is presented with a series of images and asked to describe what is going on using only Nuuchahnulth. One set I used was a series of photos of dogs at a reserve. The dogs are standing at a pier. They begin barking at the water. A boat approaches the pier. The dogs go up to meet the man in the boat, who pets them. The purpose of this was to elicit a few serial verb constructions, the equivalent of "The dogs are at the wharf" (locations are verbs in Nuuchahnulth), and "The man pilots the boat to the dock" (which would require two verbs). In addition to photo series, I also used hand-drawn pictures on index cards, and existing picture-story books.

I found this method occasionally fruitful but limiting. Sometimes (especially with my hand-drawn cards), speakers would spend a lot of time questioning what the picture was meant to represent. Even with photos, they wanted to know what to focus on: Who is the man in the photo, and who is he related to? While broad grammatical structures could be gathered this way, other methods were more fruitful for eliciting targeted phenomena.

2.4.2 Answering Questions

Another way of getting natural speech is by asking questions to elicit the phenomenon. In this method, I would tell a short story and ask a question about what happened. I hoped elicit a response that used the grammatical phenomenon I was investigating.

For instance, one of my setups was the following:

- (45) náaciičĩłits hitacsuhta ʔała saštup. ćawaak ʔiniił, ćawaak qʷayaćiik. ʔawiićĩʔats ćawaakʔi. hitaaqłił ʔaʔuuʔi. kamitqšĩłit. ʔuħʔats ʔiniił ʔawiićĩʔat. ʔaaqinʔaph qʷayaćiik.

naac-°i-ćĩł=(m)it=s hitacsuhta ʔała saštup. ćawaak ʔiniił, ćawaak qʷayaćiik.
see-IN=PST=STRG.ISG out.of.the.forest.DR two animal. one dog, one wolf.

ʔaw-°i-ćĩł=!at=s ćawaak=ʔi. hitaaqłił ʔaʔuu=ʔi. kamitq-šĩł=(m)it.
near-IN=PASS=STRG.SG dog=ART. into.the.forest.MO other=ART. run-MO=PST.

ʔuħ=!at=s ʔiniił ʔaw-°i-ćĩł=!at. ʔaaqinʔap=ħ qʷayaćiik.
be=PASS=STRG.ISG dog approach-IN=PASS. do.what=QUES.3 wolf.

‘I saw two creatures come out of the forest. One was a dog, one was a wolf. The dog approached me. The other went back into the forest. He ran. It was the dog that approached me. What did the wolf do?’

The expected answer is “The wolf ran into the forest,” which requires coordinating the two verbs ‘run’ and ‘into the forest.’ I had very low success rates with this kind of elicitation and quickly abandoned it. Speakers would select the most semantically salient verb, in this case ‘into the forest’, and drop the other verb in the construction. There is probably a better way of using this kind of elicitation method, but I was unable to find it.

2.4.3 *Recording Texts*

My fieldwork also involved recording fluent texts from Nuuchahnulth speakers. This work is a valuable endeavor in itself, but it also allows speakers to give examples of these phenomena in a fluent context. Both linker and serial verb constructions occur naturally in running texts, although not at very high frequencies.

2.4.4 *Rephrasing Stories*

The typical person is interested in language as a means of communication and not a set of abstract grammatical rules. Rephrasing traditional stories or short narratives is one way of trying to get natural versions of grammatical phenomena, especially if the original telling requires those grammatical phenomena. I tried three forms of retelling: (1) asking a speaker to summarize in a few sentences a text I had previously gotten from them; (2) asking a speaker to summarize my own story; (3) asking a speaker to retell a traditional story they may not know well.

I did not have good results with (3), but I did better with (1) and (2). Not every consultant I worked with had the patience to resummarize their own text, but those that did could be persuaded to give a few-sentence quick summary. For retelling my own stories, I quickly found that the best way to do this when I gave a succinct story in English and asked for a retelling in Nuuchahnulth. For example, “I like to walk in the forest in the mornings. There are lots of bluejays in the forest. They must like me, because they follow me around the forest.” The first sentence has the opportunity for three verbal expressions in a sentence: location, action, and time. The final sentence also has the possibility for a serial verb construction: a location and an action.

2.4.5 *Forced Choice*

Another tool I mixed with rephrasing stories was forced choice. This gives the speaker a few examples to choose from when trying to select the best way to describe something. In my experience, giving speakers a limited set of choices will also lead them to describe what makes one sentence worse, for example “It could mean something else...” which they would not volunteer without the choice present. If

both choices are bad, consultants would also tend to give an explanation why.

One case where I used this was a situation where I am spending time with someone and I am clearly tired. I have a new baby, and I want to explain that the baby kept me up all night. The options were:

(46) ? ʔuusaḥimta naʔaqakʔi wikitaḥ ʃuʔ weʔič.

ʔuusaḥi=imt=maʔ naʔaqak=ʔiʔ wik=(m)it=(m)aʔ ʃuʔ weʔič

because.of=PST=REAL.3 baby=ART NEG=PST=REAL.1SG good sleep

? 'I didn't sleep well because of the baby.'

(47) ? ʔuusaḥiqḥita naʔaqakʔi wikitaḥ ʃuʔ weʔič.

ʔuusaḥi-(q)ḥ=(m)it=maʔ naʔaqak=ʔiʔ wik=(m)it=(m)aʔ ʃuʔ weʔič

because.of-LINK=PST=REAL.3 baby=ART NEG=PST=REAL.1SG good sleep

? 'I didn't sleep well because of the baby.'

In this case, my consultant strongly rejected (47), and this helped me understand how the because words interacted with the linker morpheme. Forced choice was very useful for determining the naturalness of linker constructions, and clear grammatical/ungrammatical judgments.

2.4.6 Translation

I also used translation from English, which I consider a less preferable form of elicitation due to the possibility that the speaker will adopt English-like syntactic structures instead of Nuuchahnulth-like structures. However, some speakers were most comfortable with this kind of elicitation task. With one speaker, we worked slowly over a couple of sessions through an abridged translation of *The Little Prince*.

There were other, shorter versions of this kind of elicitation. For instance, "We are going to go camping. I want the children to help their mother. I want them to pack. I want them to carry the luggage. What should I tell them?" The purpose of this was to get a command form, which is always marked with overt second position inflection, with a serialized verb construction where the verbs must necessarily share the command mood. The construction would minimally have two sequential verbs and perhaps the benefactive verb to express "for your mother."

2.4.7 *Grammatical judgments*

A necessary technique was straight grammatical judgments. These were sentences I constructed and asked whether it sounded like something they or someone they knew would say, or if it sounded “off” in one way or another. I provided context when these came out of the blue. During elicitation sessions, I would also ask if I could rephrase what the speaker said by adding or removing an element, or moving the words around. These in-session rephrases were attempts to get grammatical/ungrammatical examples of the phenomena I was investigating.

2.4.8 *Constructing a sentence*

There were many instances where I would ask speakers, “Can you think of a case where you would use this word?” I constructed this method on the fly, as speakers would reject examples I thought were grammatical, or I could not come up with a context that would elicit the construction I was looking for. In most of these cases, I was trying to get an example of a word with a linker morpheme attached (§4).

None of these methods worked all of the time. Anecdotally, I found that staying in Nuuchahnulth for longer periods of time helped more than anything else, although this was quite difficult to do.

2.5 *Data Collation*

I collated the examples of the grammatical phenomena I was interested in. These came from a set of stories I had previously interlinearized, from a randomly-selected subset of Nootka Texts stories, from my elicitation sessions with consultants, and from my transcriptions of elicited texts. I entered these examples into a spreadsheet that was tagged with the phenomenon that the example illustrated, and used this to help me find patterns in the grammatical data. To port this data to a test suite that the implemented grammar can run on, I simply had to export it to a comma-separated value file format and run a script that would generate a format readable by the implemented grammar (see §2.6).

2.6 Implementation through the DELPH-IN framework

My grammatical analysis has been through the DELPH-IN¹ framework, which is a computationally-implemented formalism of the head-driven phrase structure grammar (HPSG, Pollard & Sag 1994) using Minimal Recursion Semantics (MRS, Copestake et al. 2005). My implementation is built on a base that uses the Grammar Matrix (Bender et al. 2002, 2010).

My first step in the grammar development was to answer a questionnaire on the Grammar Matrix webpage, which generates a baseline grammar in the form of text files in the type description language (TDL). TDL is a series of declarative statements that describe grammatical rules, and the Grammar Matrix is a database of common grammatical rules across the world's languages. For instance, below I replicate a part of the TDL that describes the basic form of a head-complement rule.

```
basic-head-comp-phrase := head-valence-phrase & head-compositional &
                        binary-headed-phrase &
[ SYNSEM phr-synsem-min &
  [ LOCAL.CAT [ VAL [ SUBJ #subj,
                    SPEC #spec,
                    SPR #spr ],
                POSTHEAD #ph,
                HC-LIGHT #light ],
    LIGHT #light ],
  HEAD-DTR.SYNSEM [ LOCAL.CAT [ VAL [ SUBJ #subj,
                                      SPEC #spec,
                                      SPR #spr ],
                                HC-LIGHT #light,
                                POSTHEAD #ph ]],
  NON-HEAD-DTR.SYNSEM canonical-synsem ].
```

¹<http://www.delph-in.net>

This rule first states that head-complement rules inherit all the constraints of head-valence-phrase, head-compositional, and binary-headed-phrase. I will gloss over what is present in these rules. Then this rule adds to the constraints of the rules it inherits from, stating that, minus the COMPS list (where complements are stored), the mother node inherits the valence and CAT (category) values of its head-daughter. The non-head-daughter is specified only to be some kind syntactic-semantic item. A further rule, the basic-head-1st-comp-phrase, inherits from the basic-head-comp-phrase and specifies what happens to the head-daughter's complements.

```
basic-head-1st-comp-phrase := basic-head-comp-phrase &
[ SYNSEM.LOCAL.CAT.VAL.COMPS #comps,
  HEAD-DTR.SYNSEM.LOCAL.CAT.VAL.COMPS < #synsem . #comps >,
  NON-HEAD-DTR.SYNSEM #synsem ] .
```

This code states that the non-head-daughter is identified with whatever the first thing is on the head-daughter's complements list, and the mother node's complements list is reduced by one. In the case where the head-daughter only has a complements list with one item on it, the value #comps above will be a null element, and the mother node will have an empty comps list. This means that that node is no longer looking for any complements.

All of the above rule specifications are from the Grammar Matrix, and part of what is drawn on when the system generates an output grammar based on a user's answer to questions. So far, the basic-head-1st-comp-phrase says nothing about whether the head or non-head appears first. In my generated grammar, I have a head-comp-phrase that inherits from both the basic-head-1st-comp-phrase above, as well as the head-initial constraint, which simply says that the head is the leftmost element in the structure. Together with a few other constraints, this defines the basic head-complement rule in my Nuuchahnulth grammar.

Once this output from the Grammar Matrix was generated, I could then develop my own, more complex syntactic analyses. This process included generating type hierarchies and lexical entries as well. For instance, below is my definition for a second position clitic lexical item:

```
2nd-pos-clitic := lex-item &
```



```

[ SYNSEM [ LOCAL.CAT [ HEAD verb & [ AUX +,
                                MOD <> ],
                                VC -,
                                VAL [ SUBJ.FIRST #subj ,
                                COMPS < #comps >,
                                SPR < >,
                                SPEC < > ]]],
ARG-ST < #comps &
[ OPT -,
  L-PERIPH +,
  LOCAL [ CAT [ HEAD verb &
                [ AUX - ],
                VAL.SUBJ.FIRST #subj ]]] > ].

```

This rule states that second position clitics are lexical items that are auxiliaries, and have a subject which is equivalent to their complement's subject (the complement being the item they attach to). This rule is my own, and not generated by the Grammar Matrix.

I have limited the scope of my work in two major ways. Firstly, I am not modeling the morphophonology. There are two reasons for this: Morphophonology is theoretically separate from morphosyntax, and the DELPH-IN tool sets are focused on the morphosyntax. Because this is a project modeling multi-predicate constructions, the morphophonology is also not the most relevant component of the grammar. What this means is that a sentence like *ʔuumačuk^waλah quʔušin* 'I am going to talk about Raven' is represented in the grammar in its already-segmented form, "ʔu-L.mačuk =!aλ=(m)a·h quʔušin."

I am also not separating dialect features into different grammatical models. My data comes from many different dialects of Nuuchahnulth, which each have different morphemes and slightly different grammatical rules. In my grammar's lexicon, I have simply entered all dialect variations. This means that on generation, the grammar is happy to mismatch morphology from different dialects, which is

an overgeneration. A larger project would catalog this information by dialect in a larger metagrammar which could then produce separate grammars targeting each dialect. While worthwhile, this project was set aside so I could focus on the multi-predicate constructions.

Development was done against a test suite of example sentences. These included both grammatical and ungrammatical examples. For the basic components of the grammar, I used simple example sentences from stories or sessions with consultants. Many of the ungrammatical examples for basic clauses were vetted only by me as ungrammatical, but I have a high degree of certainty in their ungrammaticality. For the phenomena under investigation, I used only grammatical examples from my elicitation and corpora work, and ungrammatical examples from my elicitation sessions. These came from my collated data (§2.5), which was loaded into a `[incr tsdb()]` database (Oepen 2001). This test suite of sentences could be run against each version of the implemented grammar and checked for changes to the parse coverage. Beyond parsing/not-parsing, each example sentence was tested for semantic faithfulness. Semantic validation has to be done manually, but regression tests allowed for parsing results to be compared with previous iterations of the grammar rather than independently reverified every time the grammar changed.

I have focused so far on the parsing component of the grammar. Future work will involve focusing on generation, for which the grammatical tool sets I have used are descriptively adequate. The challenges here involve restricting dialect variation, as mentioned above, as well as restricting certain second position elements which may recurse (an issue explored in more depth in Bender 2010). These issues represent avenues for future research and do not affect the validity of the analyses presented here.

The result of the implemented grammar is a series of files that detail the grammatical rules, the lexicon, and rules for generation. The format for most of these files is TDL, which is a series of grammatical descriptions which are equivalent to HPSG attribute-value matrices. The regression tests in `[incr tsdb()]` (Oepen 2001) are also outputted to readable databases which show the resulting coverage of the grammar run over test cases. All of these materials are available at `[[TODO: github repo]]`.

Chapter 3

SERIAL VERBS

In this section I will introduce what I mean when I refer to serial verb constructions (SVCs) in Nu-uchahnulth (§3.1), give the data on the construction (§3.2), and finally my analysis as implemented in my grammar (§3.3).

3.1 *Serial Verb Definition*

The definition of a serial verb is somewhat contested. In their typological survey, Aikhenvald & Dixon (2006) give several definitions, some of which conflict or overlap. Among their key proposed criteria is multiple verbs that (i) are monoclausal; (ii) form a “single predicate”; (iii) form a “single event”; (iv) form one unit phonologically; (v) are negated singly.

Most of these definitions are problematic, however. Aikhenvald & Dixon give no clear definition for a single predicate or a single event. Without a formal semantic representation, these are left vague, and for the most part a single predicate (when it is not synonymous with a single event) seems to come down to monoclausality. While serial verbs may be phonologically connected, they give several examples where the serial verbs are separated by intervening words (such as a direct object), and give instances of (what they term) serial verbs where one verb is negated while the other is not.

Butt (1995) gives an analysis of serialization in Urdu within the structure of Lexical-Functional Grammar (LFG). Since her work is grounded in a specific analysis of a specific language, Butt can be more specific in the definition of a serial verb. A key component of Butt’s analysis is the notion of a “complex predicate,” which is the creation of a new atomic unit of meaning from two separate words. The two components of a complex predicate can have a hierarchical relation in the syntax of the language. The semantic relation for the word ‘write’ might be $WRITE(x, y)$, but when combined with the permissive, the new semantic relation is $LET-WRITE(x, y, z)$, with a syntactic subordination. The predicate composition

has created a new, higher-order relation with a different number of arguments, which is necessary in the event that there is evidence (as in Urdu) that the combined verbs have a larger number of arguments than either of the individual verbs.

There are reasons to disprefer this kind of analysis, if possible. One is that this form of complex predicate makes semantic composition much more difficult to model. In the typical lexicalist framework, each content morpheme is associated with an elementary predication, which is a shorthand for the ‘meaning’ of that morpheme, conventionally written as the morpheme in upper-case letters. This convention is for human readability: we could easily label word meanings as MEANING₁₆₄₇, MEANING₁₆₄₈, etc., with no loss of specificity. Butt’s analysis creates a situation where there is a new mathematical operation in the semantic representation: ‘let’ LET + ‘write’ WRITE = LET-WRITE. Despite the similarity in labels, there is no formal relationship between these three meaning representations except by that equation, just as if the equation had been MEANING₃₀₈ + MEANING₂₁₁₉ = MEANING₈₇₈₀. Even though the meaning is in fact strictly semantically compositional, the meaning representation of the “complex predicate” is non-compositional in the model with respect to its member verbs.

In some contexts, this is not necessarily a bad thing. Some sort of arbitrariness like this could be used to model idioms, for example [[TODO: find keystone literature on idiom & multi-word expression from 100 things book]], where individual lexical meanings are non-compositional. However, when this kind of combination is productive (as in the case of serialization), it is preferable not to introduce such semantic non-compositionality, or one ends up with a list of semantic equations, as above, which is nearly the size of the set of verbs in the lexicon (if not larger).

In LFG, the elementary predication of a word is linked to the number of its arguments. That is, the meaning of ‘write’ isn’t merely WRITE, but WRITE(x, y). In this framework, to add an argument to a predication, it is necessary to change the predication itself. In MRS (Copestake et al. 2005), the semantic meaning and its arguments are separated from each other. That is, the meaning of ‘write’ is schematized as below:

PRED	WRITE
ARG0	<i>e</i>
ARG1	<i>x</i>
ARG2	<i>y</i>

In this way, it is possible to separately alter the number of arguments of the predication `WRITE` without having to create a new predication. This is something the formalism shares with Neodavidsonian representations (Parsons 1990). This difference between the representation Butt uses and MRS semantic representations will allow me to maintain strict semantic compositionality in my analysis of serial verbs in Nuuchahnulth.

As stated, serial verbs are not clearly defined in the literature, and attempts to generate cross-linguistic definitions quickly run into problems. Even monoclausality, so central to Aikhenvald & Dixon (2006), is thrown out in Butt (1995), who gives good reasons for syntactic subordination in a structure that otherwise falls into the umbrella of a serialization construction. I will use a very narrow definition of a serial verb construction for Nuuchahnulth. Any clause containing two verbs without an overt coordinator and where the verbs share the semantics of the second position inflectional complex is a clause containing a “serial verb construction.” Each matrix and dependent clause is marked with a second-position clitic, and so the boundaries of a clause are fairly easy to determine.¹ Because of the restriction that serial verb constructions lack an overt coordinator, constructions containing a linker morpheme (§4) do not count as SVCs.

This definition is also restricted to verbs, and not other kinds of multi-predicate constructions. Non-verbs do not participate in the kinds of constructions I will investigate here, and non-verbal multi-predicate constructions are fairly limited in type: they require overt coordination through a coordinand or through a linker construction. The former is outside the scope of this dissertation, and the latter will be addressed in §4.

¹The one exception to this is that the third-person neutral mood is null-marked. For this reason, I will use examples that are not in this person-mood combination.

3.1.1 Non-SVCs

I will give a few examples of common constructions which fall outside my definition of a serial verb construction, although there may be some similarities. The first is juxtaposed clauses (48).

(48) hača pawaššił [pause] ʔuušpiq [pause] ʔuušpiqqača wawaa.

hača pawaš-šił ʔuuš-piq ʔuuš-piq=qača wawaa.
maybe lost-MO some-do.slightly.MO some-do.slightly.MO=INFR say.CT

‘“Maybe he got lost... something happened... perhaps something happened,” they said.’ (C, *tupaat* Julia Lucas)

(48) comes from a text about a man who was lost at sea and returns. Although one could claim that the first two verbs, *pawaššił* and *ʔuušpiq*, are in a SVC, the prosody used in the utterance indicates something else. The repeated *ʔuušpiq*, complete with a second position clitic, suggests that these are clauses (the first two under null-marked third person neutral mood) that are adjacent. This kind of structure occurs in speech as people are rephrasing or redescribing an event. (49) has the same structure, and is from a description of Raven in a narrative text.

(49) ʔayiiššił, hiʔiiššił haʔumukʔi.

ʔaya-liis-šił hiš-liis-šił haʔum=uk=ʔi·
many-consume-MO all-consume-MO food=POSS=ART

‘He ate a lot, he ate all of the food.’ (B, Marjorie Touchie)

Like (48), (49) is in the third person, and I believe this is two separate clauses, and not a serialization structure. When these sorts of constructions occur outside the third person, the adjacent clauses require an overt morpheme, and so this apparent ambiguity (serialization vs adjacent clause) does not occur.

The second kind of construction that falls outside my definition of a SVC is Nuuchahnulth temporal expressions. The way to express a duration of time is to juxtapose the time period with the rest of the clause. If the time expression is in the durative aspect, the interpretation is ‘for *x* time’ (50). If the time expression is in a perfective aspect, the interpretation is ‘after *x* time’ or ‘at the end of *x* time’ (51).

(50) sučačlintiis hił cúumaŋaas.

suča-čił=int=(y)iis hił cúumaŋaas
five-day.DR=PST=WEAK.1SG be.at port.alberni

‘I was in Port Alberni for five days.’ (Q, Sophie Billy)

(51) ʔahʔaaʔaλqača nupqʔičhšiʔeλ náacsaaλ hiškʷiiʔath čapac hintšiλ ʔuucayúk hiškʷiiʔath.

ʔahʔaaʔaλ=qača nup-qʔičh-šiλ=laλ náacsa=laλ hiškʷiiʔath čapac hint-šiλ ʔu-L.cayúk
and=INFR one-year.DR-MO=NOW see=NOW Hesquiaht canoe arrive-MO X-go.DR

hiškʷiiʔath

Hesquiaht

‘And one year later the Hesquiahts saw a boat arriving toward Hesquiaht.’ (C, *tupaat* Julia Lucas)

Although these two types of temporal expression are distinct, it is possible to use the second construction, which uses a perfective form, to express a duration, i.e. *it has become X length of time that Y has been done*, as in 52. The opposite (interpreting the durative form to mean ‘after’) is not possible to my knowledge.

(52) ʔahʔaaʔaλ muučiiłšiλna hił siya ʔahʔaaʔaλ haakʷaaλuk Matthew, kʷaaʔuucukqs.

ʔahʔaaʔaλ muučiił-šiλ=na hił siya ʔahʔaaʔaλ haakʷaaλ=uk Matthew
and four-day.DR-MO=NEUT.1PL be.at 1SG and young.girl=POSS Matthew

kʷaaʔuuc=uk=qs

grandchild=POSS=DEFN.1SG

‘We were there for four days, me and Matthew’s daughter, my granddaughter.’ (C, *tupaat* Julia Lucas)

What differentiates these expressions from serial verb constructions, as well as linker constructions (see §4) is the interpretation of the subject. While the temporal component can take the subject-mood portmanteau (50, 52), the person expressed in the subject clitic is not in any way the subject of the temporal expression. In (50), ‘I’ is not the subject of ‘five days.’ This is also the case for the subjects of the

verbs in (51, 52). Instead, the time expression seems to be opaque to the subject information present in the clause. This is not the case for serial verbs, as I will show below.

3.2 *Data*

3.2.1 *Semantic Types of Serial Verb Constructions*

Descriptively, I categorize observed serial verb constructions into five broad semantic types. These types are not motivated a priori by any external typological theories or a commitment to these categories, but an attempt to make sense of my data. I grouped constructions by words with identical syntactic behavior and tried to create groupings with broad semantic similarities.

3.2.1.1 *I. Manner and Action*

The broadest semantic type of SVC links actions and manner. By “manner” what I mean is words that express intention of a main action, or clarify or specify that main action in some way. In Nuuchahnulth, this is typically expressed verbally. I include in this category manner of motion (e.g., go + walk as in 53), emotional affect (e.g., feel-sorry + make-pathetic as in 54), some kinds of adverbial-like expressions using semantically light verbs like “do” and “go ahead” (e.g., only-do + lie-down as in 55, and go-ahead + go as in 56), and metaphoric motion and action (e.g., go-back + become-alive as in 57).

(53) ʔuucuʔukwitasah yaacuk ʕuumaʃas.

ʔuucuʔuk-witas=(m)ah yaacuk ʕuumaʃas
go.to.DR-going.to=REAL.1SG walk.DR Port.Alberni
‘I’m going to walk to Port Alberni.’ (B, Bob Mundy)

(54) wikiis ʔaxaʔaʔ ʔakʷiil siya.

wik=li’s ʔaxaʔaʔ ʔakʷ-L.(č)iil siya
NEG=CMMD.2SG>1SG feel.sorry pathetic-make 1SG
‘Don’t feel sorry for me, mistreating me.’ (C, tupaat Julia Lucas)

- (55) ʔanishintwaʔš ʔawilšš̃.

ʔani-sł=int=waʔš ʔawil-š̃i
 only-do=PST=HRSY.3 lie.down-MO
 ‘He just laid down.’ (Q, Sophie Billy)

- (56) nayiiʔakaʔin kuwila walaak.

nayiiʔak=!aʔ=(m)in kuwila walaak
 immediately=NOW=REAL.1PL go.ahead go.DR
 ‘We immediately went ahead and went.’ (B, Marjorie Touchie)

- (57) huʔacačiʔaaqʔsuuk tiičačiš̃.

huʔa-ca-čiš̃=!aaqʔ=suuk tiič-°ačiš̃
 back-go-MO=FUT=NEUT.2PL live-IN
 ‘You will come back to life.’ (C, *tupaat* Julia Lucas)

This kind of SVC can “stack” beyond coordinating just two verbs, to at least three.

- (58) ʔanasilaʔi kuwila ʔucačiš̃ makuʔaʔ.

ʔana-sila=ʔi kuwila ʔu-ca-čiš̃ makuʔaʔ
 only-do=CMMD.2SG go.ahead x-go.to-MO store
 ‘Only go to the store.’ (C, *tupaat* Julia Lucas)

- (59) huʔacačiš̃witasah̃ šiiʔuk walaak yuuʔuʔiʔath̃.

huʔa-ca-čiš̃-witas=(m)ah̃ šiiʔuk walaak yuuʔuʔiʔath̃
 back-go-MO-going.to=REAL.1SG move.house.DR go Ucluelet-live.at
 ‘I’m going to move back to Ucluelet.’ (Q, Sophie Billy)

It is possible for one of the verbs and its object (that is, the full VP of one of the serial verbs) to interrupt the other verb and its object, as in (60, 61).

(60) ʔuuctiilʰs]v_1 [ʔiḥaa]v_2 Queens Cove]obj_1.

ʔuuctiilʰ]v_1=s ʔiḥ-aʰ]v_2 Queens Cove]obj_1

go.to.DR=STRG.ISG drive-CT Queens Cove

'I am driving to Queens Cove.' (N, Fidelia Haiyupis)

(61) hiniicintiisʔinʰ]v_1 ʔucičʔ]v_2 ciquwʰi]obj_2]vp_2 ʔaatnaʔiskqs]obj_1.

hina-iic]v_1=int=iis=ʔinʰ ʔu-ci-čʔ]v_2 ciq-uwʰi]obj_2]vp_2 L.<t>-ʔaḥa=ʔis=uk=qaʰs]obj_1

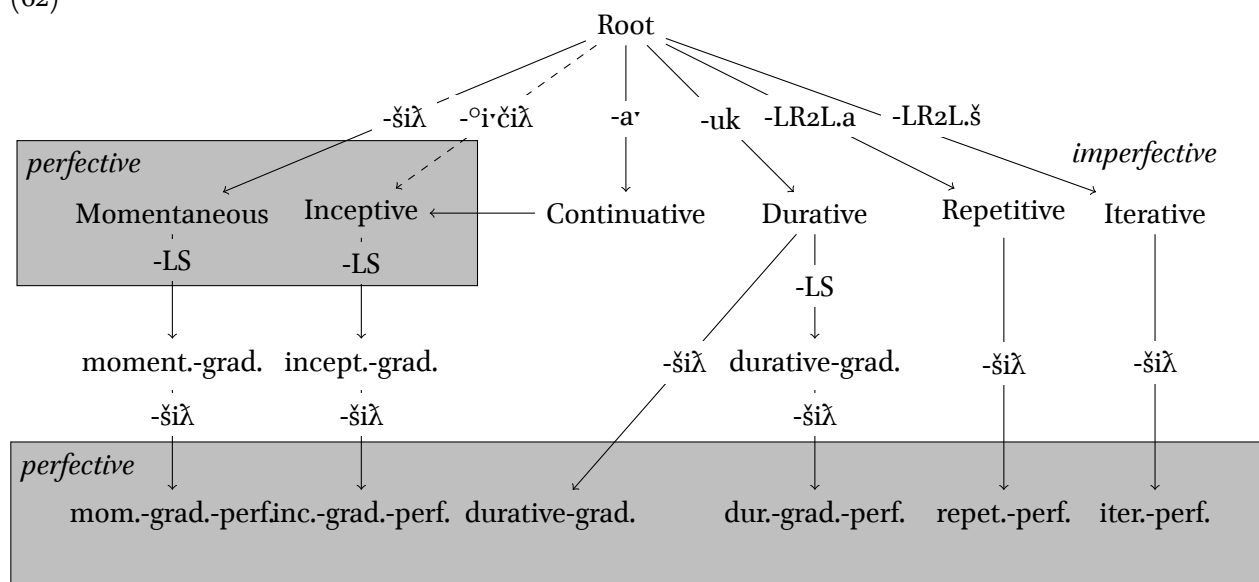
EMPTY-carry=PST=WEAK.ISG=HABIT X-go.to-MO pray-building PL-child=DIMIN=POSS=DEFN.ISG

'I would always take my children to church.' (Q, Sophie Billy)

The verbs in this type of SVC, for most speakers, must agree in perfectiveness. Nuuchahnulth has a great many verbal aspect markers which follow the root, but they can be broken into two categories: perfective aspect (momentaneous and inceptive) and imperfective aspect (continuative, durative, repetitive, iterative, and graduative). The derivations in (62) give a simplified view of my understanding of how these aspects are related to each other. Much of this is taken from Davidson (2002), as well as personal correspondence with Davidson, who deserves much credit for working out this system. My understanding of the inceptive as underlyingly continuative + perfective is indebted to Werle.² To simplify the graph, I have combined repetitive-perfective, graduative-perfective, and iterative-perfective into a single node, since verbs in this form cannot undergo further aspectual change.

²Note that this means that the morphology for the continuative and inceptive do not "stack," unlike the other aspect forms. So momentaneous + graduative is realized as -šʔiḥ and also a long-short template. However continuative + inceptive is simply -ʔi-čʔiḥ, not *-aʰ-ʔi-čʔiḥ. In my implementation, I treat the inceptive as a fully separate aspect, although I believe it is conceptually continuous + perfective.

(62)



The requirements on SVC aspectual agreement only seem to extend to the level of perfective vs imperfective. In (63), the two verbs are both in the durative aspect. In the ungrammatical 64, the second verb has been moved to the momentaneous, which is a perfective aspect, and mismatches with the first verb, which remains in an imperfective aspect.

(63) ʔuucuyukwitas yuuhʔilʔath yaacuk.

ʔuucuyuk-witas=s yuuhʔil-ʔath yaacuk
 go.DR-going.to=STRG.1SG Ucluelet-live.at walk.DR
 'I'm going to walk to Ucluelet.' (C, *tupaat* Julia Lucas)

(64) *ʔuucuyukwitas yuuhʔilʔath yaacšiļ.

ʔuucuyuk-witas=s yuuhʔil-ʔath yaacšiļ
 go.DR-going.to=STRG.1SG Ucluelet-live.at walk.MO

Intended: 'I'm going to walk to Ucluelet.' (C, *tupaat* Julia Lucas)

(65) and (66) show the same pattern. In (65), the first verb *lihaa* is in the continuative aspect, which is imperfective, and the second verb *waatšiļ* is in gradative, which is also imperfective. In (66), the

same two verb roots are used, but instead of imperfective, graduative *waatšił*, there is momentaneous, perfective *wałšił*. This aspectual mismatch causes (66) to be ungrammatical.

(65) *łiħaamitniš siya ħuučńuupukqs wałšił.*

łiħ-a'=(m)it=niš siya ħuučńuup=uk=qs wał-šił-LS

drive-CT=PST=STRG.1PL 1SG sister=POSS=DEFN.1SG go.home-MO-GR

'We were driving home in the car.' (C, *tupaat* Julia Lucas)

(66) **wałšiłwitasniš łiħaa.*

wał-šił-witas=niš łiħ-a'

go.home-MO-going.to=STRG.1PL drive-CT

Intended: 'We will drive home.' (C, *tupaat* Julia Lucas)

However, for one of my consultants, Sophie Billy, who is the youngest speaker, the only Checkleseht speaker I worked with, and typically the most innovative in her speech patterns, the verbs in this kind of SVC may differ in aspect. I do not know if this is a Checkleseht feature, a Kyuquot-Checkleseht feature, a feature of her generation, or a feature of her idiolect. But this pattern is productive for her.

(67) *łucičłsiš šiłłuk mituuni.*

łu-ci-čłš=siš šiłłuk mituuni

x-go-MO=STRG.1SG move.house.DR Victoria

'I moved to Victoria.' (Q, Sophie Billy)

(68) *łuuctiłłsiš šiłłuk mituuni.*

łuuctiłł=siš šiłłuk mituuni

go.DR=STRG.1SG move.house.DR Victoria

'I moved to Victoria.' (Q, Sophie Billy)

3.2.1.2 II. Location and Action

Perhaps the most common semantic type of serialization is location-action. Most descriptive locations in Nuuchahnulth are verbs, ‘be at a place’ and locations are simply juxtaposed with the action performed there. This strategy is used for transitive *hił* ‘be at’ as well as intransitive locations like *hitaas* or *ʔaaʔaas* ‘be outside’ and *hitingis* ‘be at the beach.’

(69) *hiłʔii wiinapuʔ.*

hił=liʔ wiinapuʔ

be.at=CMMD.2SG stop.MO

‘Stop there.’ (B, Bob Mundy)

(70) *hitaasitaḥ ciiqciqa.*

hitaas=(m)it=(m)aḥ ciq-LR2L.a

be.outside=PST=REAL.1SG speak-RP

‘I was outside speaking.’ (B, Bob Mundy)

As with Type I, it is possible in this construction for the transitive location verb *hił* ‘be at’ to be split from its object by the other verb (71), or the other verb and its object (72).

(71) *hiłqiimitʔiʔaał huuxsʔatu nučii.*

hił-qii=(m)it=ʔiʔaał huuxsʔatu nučii

be.at-on.top=PST=STRG.3=HABIT rest.DR mountain

‘He rests on top of mountains.’ (N, Fidelia Haiyupis)

(72) *hiłqiiʔaʔin ʔaacsiičiči ʔums nučii.*

hił-qii=!aʔin ʔaacs-ʔiʔiči ʔums nučii

be.at-on.top=NOW=STRG.1PL see-IN bear mountain

‘We saw a bear (we being) on top of the mountain.’ (N, Fidelia Haiyupis)

Unlike Type I SVCs, there is no requirement that the verbs match in their aspect. This is partly because most locatives do not inflect for aspect. For the basic verb *hił* ‘be at’ there is no perfective form of *hiłšił*, and *hił* can serialize with both perfective (69) and imperfective verbs (71). There exist perfective forms for some of the other location words, for instance *hitingsał* ‘go to the beach’ from *hitingis* ‘be at the beach.’ However, there is no requirement for aspectual agreement here, as these location verbs can serialize with both perfective (72) and imperfective verbs (70).

Unlike Type I verbs, there is a strict ordering requirement. The location verb must always come before the action verb (73, 74).

- (73) hitaasitaḥ ciiqciqa.

hitaas=(m)it=(m)aḥ ciq-LR2L.a

outside-PST=REAL.1SG speak-RP

‘I was speaking outside.’ (B, Bob Mundy)

- (74) *ciiqciqamitaḥ hitaas.

ciq-LR2L.a=(m)it=(m)aḥ hitaas

speak-RP=REAL.1SG outside-PST

Intended: ‘I was speaking outside.’ (B, Bob Mundy)

- (75) hiłʔaλin mamuuk wałyuuʔakqs.

hił=!aλ=in mamuuk wał-yuu=ʔak=qa’s

be.at=NOW=STRG.1SG work.DR be.home-RES=POSS=DEFN.1SG

‘We are working at my home.’ (Q, Sophie Billy)

- (76) *mamuukλin hił wałyuuʔakqs.

mamuuk=!aλ=in hił wał-yuu=ʔak=qa’s

work=NOW=STRG.1SG be.at be.home-RES=POSS=DEFN.1SG

Intended: ‘We are working at my home.’ (Q, Sophie Billy)

- (77) $\lambda aa\gamma aas\check{c}i \ \gamma aaq\gamma aaqa.$
 $\lambda aa\gamma aas=\check{c}i \quad \gamma aaq-LR2L.a$
 outside=CMGO.2SG yell-RO
 ‘Go yell outside.’ (N, Fidelia Haiyupis)

- (78) $*nunuuk\check{c}i \ \lambda aa\gamma aas.$
 $nunuuk=\check{c}i \quad \lambda aa\gamma aas$
 sing.DR=CMGO.2SG outside
 Intended: ‘Go sing outside.’³ (N, Fidelia Haiyupis)

One of my speakers, *tupaat* Julia Lucas did accept, under elicitation and after dealing with many such constructions over many sessions, sentences like (74, 76, 78). However, she has never produced utterances of this type in any texts I have collected from her, and my earlier elicitation work had her rejecting these sentences. Julia is a language instructor, and my interpretation is that she was being accommodating toward my bad Nuuchahnulth at the margins of grammar in her role as a language revitalizer.

This restriction on location-action serialization can be interpreted as a grammaticalization of a larger preference in Nuuchahnulth for modifying expressions to precede what they modify. For instance, adverbs will preferentially precede the verb (and speakers will correct themselves and others by moving adverbs before to a verb). But unlike this type of serialization adverbs can in the right circumstances occur post-verbally.

3.2.1.3 III. Adpositive-like verbs

A fuller discussion of adpositive-like words will have to wait for §4.2.3. It is enough here to mention that, according to the analysis in (Woo 2007), a series of words with meanings that in English are

³(78) can be “saved” by adding a linker to the location, i.e. *nunuuk\check{c}i \lambda aa\gamma aash\gamma*. This creates a new type of construction, which I will discuss in §4.

expressed with prepositions are, in Nuuchahnulth, expressed with verbs (79, 80). This includes verbs with basic commative, benefactive, and instrumentive meanings. These constructions have the same property of the above SVCs, where an intransitive verb may “interrupt” a transitive verb (in this case, the adpositive-like verb) and its object (81).

- (79) hiinasinłayaʔiš hawacsacumʔi ʔuuhwəl kʷaacsacum.

hiinasinł-aya=ʔi·š hawacsacum=ʔi· ʔu-L.hwəl kʷaacsacum

climb-CT=STRG.3SG table=ART x-use chair

‘Using the chair he climbed onto the table.’ (N, Fidelia Haiyupis)

- (80) ʔuupaalwitasniš yukʷiiqsu ʔucačił Campbell River.

ʔuupaal-witas=ni·š yukʷ-i·qsu ʔu-ca-čił Campbell River

with-going.to=STRG.1PL younger.sibling-relation x-go.to-MO Campbell River

‘I’m going with my younger sister to Campbell River.’ (C, *tupaat* Julia Lucas)

- (81) ʔuchins mamuuk Trudeau.

ʔu-čin=s mamuuk Trudeau

x-do.for=STRG.1SG work.DR Trudeau

‘I’m working for Trudeau.’ (N, Fidelia Haiyupis)

None of the adpositive-like verbs inflect for aspect, and in this way are similar to the locative verb *hił*. Like *hił* and like Type II SVCs, adpositive-likes can serialize with both perfective (80, 82) and imperfective verbs (79, 81). Unlike Type I and II SVCs, the “interrupting verb phrase” cannot be a transitive verb with its argument.

- (82) ʔucačiʔaλukwitaḥ taḥeʔis cuumaʔas ʔukʷink yaqsčafinʔitq.

ʔu-ca-čił=!aλ=uk=(m)it=(m)aḥ taḥa=ʔis cuumaʔas ʔu-(č)ink yaq-sčafin=ʔi·tq

x-go-MO=NOW=POSS=PST=REAL.1SG child=DIMIN Port.Alberni x-with who-friendly=DEFN.3

‘My child went to Port Alberni with his friend.’ (B, Bob Mundy)

- (83) *ʔuk^winkáʔuk^witaḥ ʔucačiʔ taṇeʔis yaqsčafinʔitq.

ʔu-(č)ink=!aʔ=uk=(m)it=(m)aḥ ʔu-ca-čiʔ taṇa=ʔis yaq-sčafin=ʔiṭq

X-with=NOW=POSS=PST=REAL.1SG X-go-MO child=DIMIN who-friendly=DEFN.3

Intended: 'My child went with his friend.' (B, Bob Mundy)

3.2.1.4 IV. Transitive-Intransitive Repetition

Nuuchahnulth has a series of words with similar or identical meanings that differ only or mostly in transitivity. These include transitive and intransitive eat (*-liis* and *haʔuk*, as in 84) and cry and cry for (*ʔihak* and *ʔuʔuuʔuk*, as in 85). Speakers frequently will use both versions in a sentence.

- (84) ʔuʔiičáʔʔ haʔuk.

ʔu-!iic=!aʔ=liṭ haʔuk

X-eat.DR=NOW=CMMD.2SG eat

'Eat it!' (Q, Sophie Billy)

- (85) ʔiiḥakitʔiṣ ʔuʔuuʔuk ʔumʔiiqsakʔi.

ʔiḥ-ak-LS=(m)it=ʔiṣ ʔuʔuuʔuk ʔumʔiiqsu=ʔak=ʔiṭ

cry-DR-GRAD=PST=STRG.3 cry.for mother=POSS=ART

'She cried for her mother.' (C, *tupaat* Julia Lucas)

While *waa* 'say' can be used as a transitive quotative, it can be used intransitively as well, similar to English *speak*. It can enter into this kind of SVC in this capacity, doubling with another verb of speaking (86). This characteristic doubling can also occur with *ʔiiqḥuk* 'tell' (87).

- (86) **waaʔaʕiič ʔuumač ʔuušhýimsukqs.**

waa=!ʕʕ=ii=č **ʔuumač** ʔuuš-hýims=uk=qas
 say=NOW=WEAK.3=HRSY **talk.about** some-be.related.or.friends=POSS=DEFN.1SG
 ‘I heard he was talking about my friends or family.’ (Q, Sophie Billy)

- (87) **ʔuhʔaʕiič ńuwiiqskqs ʔuumač^w ʔiiqhuk ʔumʔiiqskqs.**

ʔuh=ʔaʕ=ii=č ńuwiiqsu=ʔak=qas **ʔuumačuk ʔiiqhuk ʔumʔiiqsu=ʔak=qas**
 be=NOW=WEAK.3=HRSY father=POSS=DEFN.1SG **talk.about tell** mother=POSS=DEFN.1SG
 ‘It was my father who told my mother about it.’ (Q, Sophie Billy)

Like the other SVCs, the transitive verb can be separated from its object.

- (88) **ʔuʔiisʔaʕin haʔuk suuḥa.**

ʔu-!iis=!ʕʕ=!in **haʔuk** suuḥa
 X-eat=NOW=CMMD.1PL **eat.DR** spring.salmon
 ‘Let’s eat spring salmon!’ (B, Bob Mundy and Marjorie Touchie)

As with Type I serialization, aspectual agreement is required (89-91).

- (89) **haʔukwitasin ʔuʔiis suuḥa.**

haʔuk-witas=in ʔu-!iis suuḥa
 eat.DR-going.to=REAL.1PL X-eat spring.salmon
 ‘We’re going to eat spring salmon.’ (B, Bob Mundy and Marjorie Touchie)

- (90) ***haʔukwitasin ʔuʔiisšiḥ suuḥa.**

haʔuk-witas=in ʔu-!iis-šiḥ suuḥa
 eat.DR-going.to=REAL.1PL X-eat-MO spring.salmon
 Intended: ‘We’re going to eat spring salmon.’ (B, Bob Mundy and Marjorie Touchie)

(91) **haʔukšiʔa¹in ʔuʔiisši¹ suuḥa.**

haʔuk-ši¹=!a¹=in ʔu-!iis-ši¹ suuḥa

eat.DR-MO=NOW=REAL.IPL X-eat-MO spring.salmon

‘We start eating spring salmon.’ (B, Marjorie Touchie)

3.2.1.5 *V. Sequential or Separable Action*

In all the above types of serialization, the verbs are describing in some way “the same action” or something that is at least simultaneous. Type I and Type III both describe in some way the manner of an action (answering what-with, how, by what means, etc) or action simultaneity (carrying and walking). Type II serial verbs describe location, and Type IV describes literally the same action twice. When Aikhenvald & Dixon (2006) talk about serial verbs describing the “same event” I believe this is an attempt to capture the sort of unity seen in these (and other) types of serialization. When I model the semantics of these constructions (§3.3) I will preserve compositionality and thus the different verbs will each have separate semantic event variables, and so they are not the “same event” in this formal way. But in all these SVCs there is, at minimum, some kind of “meanwhile” interpretation applied to the two verbs, and this is not insignificant. When I turn to the modeling (§3.3), I will have to introduce a separate elementary predication for this “meanwhile” component.

The sequential/separable action subtype of SVC is different from the other serialization types. In these constructions, there is no interpretation of simultaneity and there is sometimes a (perhaps pragmatic) interpretation of sequentiality. This is by far the least common type of SVC, but speakers do produce them spontaneously. For instance, (92) is from an exhortative text, and immediately follows the command “Don’t throw your clothes on the floor.”

- (92) suk^{wi}?i kašsaap
 suk-iļ=li· kaš-sa·p
 hold-MO=CMMD.2SG put.away-MO.CAUS
 ‘Take it and put it away.’ (C, *tupaat* Julia Lucas)

When presented with a possible reordering (93), my consultant said it was in the wrong order, and didn’t make sense.

- (93) # kašsaap?i suk^{wi}ļ
 kaš-sa·p=li· suk-iļ
 put.away-MO.CAUS=CMMD.2SG hold-MO
 # ‘Put it away, then take it.’ (C, *tupaat* Julia Lucas)

This ordering effect is apparent in other constructions where one action leads to another. (94) was a sentence given by a consultant, and when I asked about (95) her response was that it sounded backwards.

- (94) ?uciči?im pankuupa ýakšiļ siičil.
 ?u-ci-čiļ=lim pankuupa ýak-šiļ si-L.(č)il
 X-go.to-MO=CMFU.2SG Vancouver appear-MO 1SG-do.to
 ‘Come to Vancouver and see me.’ (Q, Sophie Billy)

- (95) ?? ýakši?im siičil ?ucičļ pankuupa.
 ýak-šiļ=lim si-L.(č)il ?u-ci-čļ pankuupa
 appear-MO=CMFU.2SG 1SG-do.to X-go.to-MO Vancouver
 Intended: ‘Come to Vancouver and see me.’ (Q, Sophie Billy)

This construction can also be used to describe planning actions (96) or giving formal instructions to children (97).

- (96) $\dot{\lambda}$ iptqšĩĩn k̄anis̄yakukqin walaak hitinqis̄ĩi.

$\dot{\lambda}$ iptq-šĩĩ=lin k̄anis-̄yak=uk=qin walaak hitinqis=ĩī
 pack-MO=CMMD.1SG camp-for=POSS=DEFN.1SG go at.beach=ART

‘Let’s pack our camping stuff and go to the beach.’ (B, Marjorie Touchie)

- (97) naʔaataḥʔatmaʔaala nunuukʔi ̄naacsa huyaalʔi.

naʔaataḥ=!at=maʔ=ʔaala nunuuk=ʔī ̄naacsa huyaal=ʔī
 listen=PASS=REAL.3=HABIT sing=ART watch dance.DR=ART

‘One listens to the singing and watches the dancing.’ (B, Marjorie Touchie)

It is important to note that the sequential interpretation of (97) is not required: it is possible (indeed, likely) that the children will be watching dancers and listening to singing at the same time. This sentence can be used to describe both eventualities: listening to a song, followed by watching dancing, or listening while also watching.

It is possible for both verbs in this kind of SVC to share a single direct object. [[TODO: Could below be recategorized as another type?]]

- (98) naʔaataḥʔaaq̄liʔaal ʔiisak ʔuuk^wil ʔaʔiičim.

naʔaataḥ=ʔaaq̄li=liʔ=ʔaal ʔiisak ʔu-L.(č)il ʔaʔiičim
 listen.DR=FUT=CMMD.2SG=HABIT respect.DR X-do.to elder.PL

‘Listen to and respect the elders.’ (C, *tupaat* Julia Lucas)

As with other SVCs, it is possible to get more than two verbs in this construction.

- (99) naʔaathĩʔ ̄naacsuuh̄ huuḥtikšiih̄.

naʔaath̄=ʔī ̄naacsuuh̄ huuḥtikšiih̄
 listen.DR=CMMD.2SG watch.DR learn.MO

‘Listen, watch, and learn.’ (Q, Sophie Billy)

Aspect does not have to agree, which makes sense if this SVC has a sequential (or at least, not necessarily simultaneous) interpretation. Neither does aspect agree across overt clausal coordination. The examples below show the verbs in this construction disagreeing (100) and then agreeing (101) in aspect. There is a slight difference in meaning.

(100) ʔuʔuk^waqhʔi ʔiptqšiš hiniic mučičtup.

ʔuʔuk^waqh=liʔ ʔiptq-šiš hina-iic mučič=(s)tuʔp
on.your.own=CMMD.2SG pack-MO EMPTY-carry.DR clothing-kind
'Pack and carry your own clothes.' (C, *tupaat* Julia Lucas)

(101) ʔuʔuk^waqhʔi ʔiptqšiš hiniicšiš mučičtup.

ʔuʔuk^waqh=liʔ ʔiptq-šiš hina-iic-šiš mučič-(s)tuʔp
on.your.own=CMMD.2SG pack-MO EMPTY-carry-MO clothing-kind
'Pack and take along your own clothes.' (C, *tupaat* Julia Lucas)

While object sharing is permitted (99), Type V SVCs do not allow VPs to be interrupted, as seen in Types I-IV.

The context for (102–104) is sitting outside, eating a picnic that you brought in a pail. A dog comes to eat your food, you pick up your food and chase it off. The context entails an ordering of the actions (first picking up the bucket, then chasing away the dog), but it is possible to give the verbs in either ordering, (102) was suggested by my consultant, and I suggested (103) and (104).

(102) cassaaps ʕinii ʕax^waciis.

cas-saʔp=s ʕinii ʕax^wac-iis
chase-MO.CAUS=STRG.1SG dog bucket-hold.DR

'I chased the dog, (I) carrying the bucket.' (C, *tupaat* Julia Lucas)

(103) čax^waciicsiš cassaap řiniił.

čax^wac-iic=siř cas-sa·p řiniił

bucket-hold.DR=STRG.ISG chase-MO.CAUS dog

‘Carrying the bucket, I chased the dog.’ (C, *tupaat* Julia Lucas)

(104) *cassaaps čax^waciis řiniił.

cas-sa·p=s čax^wac-iis řiniił

chase-MO.CAUS=STRG.ISG bucket-hold.DR dog

Intended: ‘Carrying the bucket, I chased the dog.’ (C, *tupaat* Julia Lucas)

Although it confused me at the time, I now understand the VP adjacency constraint on Type V SVCs to explain the ungrammaticality of (104). There is an aspectual mismatch in the verbs, so this sentence is not of Type I (manner + action), and it does not match the lexical types for II-IV, containing no location word, no adpositive-like verb, and no transitive-intransitive semantic doubling. The only difference in (104) from the previous examples is that *cassaap* is separated from its object *řiniił*. That is not allowed under this construction.

I tested this theory with another speaker from another dialect region, Sophie Billie. (105) and (106) show a minimal pair where in (106) there is the “typical” V₁ VP₂ Obj₁ structure of other SVCs. Despite the verb of motion ‘go’ and the action ‘carry’, this is not a Type 1 motion + manner construction. Sophie consistently translated *hiniic řatqukk^wqs* as ‘pack my belongings’ or ‘get my luggage,’ as a preparatory step for moving to Vancouver. The interpretation of (105) is sequential action: First pack/carry one’s things, then go to Vancouver.

(105) hiniicłintiis řatqukk^wqs řucičł Vancouver.

hiniic=!ał=int=iis řatquk=uk=qa’s řu-ci-čł Vancouver

carry=NOW=PST=WEAK.ISG belonging=POSS=DEFN.ISG X-go-MO Vancouver

‘I packed my belongings and went to Vancouver.’ (Q, Sophie Billie)

(106) hiniicłintiis ʔucičł Vancouver ʔatqukkʷqs.

hiniic=!ał=int=iis ʔu-ci-čłł Vancouver ʔatquk=uk=qa's
 carry=NOW=PST=WEAK.1SG x-go-MO Vancouver belonging=POSS=DEFN.1SG
 Intended: 'I packed my belongings and went to Vancouver.' (Q, Sophie Billie)

Finally, there are a few properties which span all constructions. Cross-serial dependencies are never possible (107, 108).

(107) ʔuułhwałʔiś kʷaacsacum łaamaas-ił hawacsacumʔi.

ʔu-L.hwał=ʔi's kʷaacsacum łaamaas-ił hawacsacum=ʔi'
 x-use=STRG.3 chair climb-MO table=ART
 'Using a chair he climbed onto the table.' (C, *tupaat* Julia Lucas)

(108) *ʔuułhwałʔiś łaamaasił kʷaacsacum hawacsacumʔi.

ʔu-L.hwał=ʔi's łaamaas-ił kʷaacsacum hawacsacum=ʔi'
 x-use=STRG.3 climb-MO chair table=ART
 Intended: 'Using a chair he climbed onto the table.' (C, *tupaat* Julia Lucas)

Multiple types of serialization can cooccur in a clause. (109) is an example of Type V (separable action) serialization and Type III (adpositive-like) serialization in a single clause. As in the English, it is not obvious from the sentence alone whether the adpositive is scoping over both the previous verbs or just one, but for now it is sufficient to note that one type of serialization does not preclude later forms from attaching.

(109) łiptqšłiʔi hiniic mučičtup ʔuʔatup ʔuumʔi.

łiptq-šłł-łi' hina-iic.DR mučič-(s)tup ʔuʔatup ʔuum-ʔi
 pack-MO=CMMD.2SG EMPTY-carry clothing-stuff do.for mother-your.relation
 'Pack and carry clothes for your mother.' (C, *tupaat* Julia Lucas)

3.2.2 Interaction with Valency Changing Operations

These serialization strategies can all interact with operations that change the verb's valency: in Nuuchahnulth the most common of these are the causative, the passive, and the possessor (under “possessor raising,” Braithwaite 2003). What is unique about these three morphemes in Nuuchahnulth is that they are all part of the second position clausal clitic complex, which normally attaches to the first word of a clause and scopes over the clause as a whole. This makes their interaction with SVCs interesting and not a priori predictable. Does the valency operation affect both verbs in the SVC, or does it target just one? Leaving the possessor construction aside, I now look at how these operations interact with serial verb constructions.

All serialization strategies may have the causative attach to and affect the valence of one verb and not the other, as shown in (110) (Type I), where the causative only affects the semantics of the verb *ca* ‘go’ and not to the verb *šičiš* ‘shoot’.

- (110) ʔahʔaaʔaʎna šičiš ʔucaap ʔaa hupaʔi.
 ʔahʔaaʔaʎ=naʔ šičiš ʔu-ca=!ap ʔaa hupaʔ=ʔiʔ
 and.then=NEUT.1PL shoot-MO x-go=CAUS DDYN sun.or.moon=ART
 ‘Then we shoot toward the moon.’ (C, *tupaat* Julia Lucas)

It is also possible for the causal morpheme to affect both verbs in an SVC (111) (Type II). Here, the causative scopes over both verbs, altering the semantics of *ca* ‘go’, making it cause to go, and the semantics of *hiʔ* ‘be at’, making it cause to be at. It is also possible for the causative to appear separately on each verb, as in (112) (Type I) and (113) (Type V).

- (111) ʔucaapʔapʔat tuʔćiti hiʔ ʔapwʔinʔatʔi.
 ʔu-ca=!ap tuʔćiti hiʔ ʔapwʔin=!at=ʔiʔ
 x-go=CAUS head be.at shoulder=POSS.INALIEN=ART
 ‘He put his head on his shoulder.’ (C, *tupaat* Julia Lucas)

is possible is restricted, but don't know for sure. In (116), the passive attaches to perfective 'become near,' giving the meaning 'approach.' The other verb 'be at' is not passivized: its typical argument structure is that its subject (in this case "sister") is the figure and object (here, "Port Alberni") is the ground. (117) has the exact same structure, but the passive has been "copied" onto the second verb in the construction, without altering its subject/object relations. This is perhaps related to the status of the passive in Nuuchahnulth having "inverse-like" properties, as has been noted by previous scholars (Emanatian 1988; Braithwaite 2003).

(116) $\lambda awii\check{c}?\text{ats } huu\check{c}m\acute{u}upukqs \text{ hi}\check{l} \acute{c}uuma\acute{f}aas.$

$\lambda aw^{-\circ}i\cdot\check{c}\check{\lambda}=!at=s$ $huu\check{c}m\acute{u}up=uk=qas$ $hi\check{l}$ $\acute{c}uuma\acute{f}aas$
 near-IN=PASS=STRG.1SG sister=POSS=DEFN.1SG be.at port.alberni
 'My sister came to visit at Port Alberni.' (Q, Sophie Billy)

(117) $\lambda awii\check{c}?\text{ats } huu\check{c}m\acute{u}upukqs \text{ hi}\check{l}?\text{at } \acute{c}uuma\acute{f}aas.$

$\lambda aw^{-\circ}i\cdot\check{c}\check{\lambda}=!at=s$ $huu\check{c}m\acute{u}up=uk=qas$ $hi\check{l}=!at$ $\acute{c}uuma\acute{f}aas$
 near-IN=PASS=STRG.1SG sister=POSS=DEFN.1SG be.at=PASS port.alberni
 'My sister came to visit at Port Alberni.' (Q, Sophie Billy)

Causative and passive morphemes in SVCs may scope over the entire construction or just the verb they attach to. In the case where the morpheme appears on the first word in the construction, the proper interpretation is constrained only by context. In the case of the passive, the passive may "copy" onto a later verb without affecting its argument structure.

3.2.3 *Summary*

I have used a very narrow definition of serial verb constructions (SVCs) in Nuuchahnulth: Any clause that contains two verbs without a coordinator, and where one verb is not clearly subordinating the other, is a serial verb construction. I have further broken this construction type into five semantic subtypes: (I) manner and action, (II) location and action, (III) adpositive-like verb and main verb, (IV) transitive-intransitive repetition, and (V) separable or sequential events.

For most speakers, Type I requires aspectual agreement of the verbs involved. Types II and III do not require aspectual agreement, but this may be due to an underspecification of aspect on adpositive and locative verbs. Types I-IV all allow one verb to be separated from its object, in a $V_1 V_2 (\text{Obj}_2) \text{Obj}_1$ pattern. [[TODO: may be a restriction on transitivity for Type III adpositive SVCs.]] Type V stands out in allowing aspectual mismatching, and disallowing this kind of object separation. It appears that modificational elements (such as location and manner) are preferred to come first.

As I turn to analysis, I will model these facts with three grammatical serial verb constructions: One which covers Types I and requires aspectual matching, one for Types I-IV, and one which covers Type V. I will model the semantics of Types I-IV as necessarily simultaneous, and account for the aspectual mismatching of Types II and III by underspecifying locatives and adpositives for aspect. Type V will be underspecified temporally, allowing the semantics of AND to give rise to sequential interpretations. [[TODO: There has definitely been work on the temporal pragmatics of and, cite that here.]]

3.3 *HPSG Analysis and Implementation*

Chapter 4

THE LINKER

The linker morpheme in Nuuchahnulth $-(q)h$, like serial verb constructions (§3, is a method by which the language can combine multiple verbs into a single clause. In this section I will examine how this construction behaves and its differences from serialization.

4.1 *Data*

In this section I give my collected data on the linker morpheme. I present how the construction is used and draw some conclusions about how it behaves. Like with serial verbs, I will try to keep this section fairly theory-neutral, saving the specifics of an HPSG analysis for §4.3.

The morpheme $-(q)h$ is the last possible suffix on a word. It is typically pronounced as the sequence qh following a vowel or nasal, and otherwise as h . The Central Ahousaht elder *tupaat* Julia Lucas almost always pronounces the linker as the full qh regardless of the phonological environment, with the exception of certain light verbs. I do not know if this reflects a sub-dialect of Ahousaht, or if this pronunciation is unique to her, but I transcribe her speech faithfully.

The suffix is translated as ‘meanwhile’ in Sapir & Swadesh (1939), and was first dubbed the “linker” by Adam Werle (*p.c.*), on the understanding that it “links” two predicates together. In some sense, it is coordinating two elements with each other, below the syntactic scope of the second position clitics. I will first look at the morphological attachment properties of this special coordinator (§4.1.2), followed by its syntactic properties (§4.1.3–4.1.8).

4.1.1 *Comparison with other coordination*

The linker differs from the other coordinators in the language. Various types of ‘and’ coordination are done with the word $?ah?aa?a\lambda$ and participant coordination with $?uh?i(i)\$$. These words coordinate

clauses, VPs, and participant phrases, while I will claim that the linker coordinates predicates.

Much like English *and*, the coordinator *ʔahʔaaʔaλ* may occur at the beginning or middle of a sentence. I distinguish sentence-initial and sentence-medial *ʔahʔaaʔaλ* by prosody, pause, and the presence of clausal clitics.

In its most common use at the beginning of a sentence, *ʔahʔaaʔaλ* can host the clausal clitics (118, 119) or that can be deferred to the predicate (120).

(118) *ʔahʔaaʔaλitweʔinʔaala wiinapi haʔukwitasin waaʔat, naʔiiʔakaλquuč tiqsčiil haʔumʔi.*

ʔahʔaaʔaλ=(m)it=weʔin=ʔaala wiinapi haʔuk-witas=(m)in waa=!at naʔiiʔak=!aλ=quu=č
and=PST=HRSY.3=HABIT stop eat-going.to=STRG.1PL say=PASS immediately=NOW=PSSB.3=HRSY
tiq-sčił haʔum=ʔi
sit-beside.DR food=ART

‘Then he would stop and wait for someone to say “We are going to eat,” and immediately he would sit down by the food.’ (B, Marjorie Touchie)

(119) *ʔahʔaaʔaλsa huʔaas ʔaacsiičiλ naani ʔuuhwafʔat naaniilq̣h.*

ʔahʔaaʔaλ=sa huʔaas ʔaacs-^oi-čiλ naani ʔu-L.hwaf=!at naani-(č)iil-(q)h
and=NEUT.1SG again see-INCEP grizzly.bear x-use=PASS grizzly.bear-make-LINK

‘And then I also saw a grizzly bear used, grizzly-bear-made.’ (C, *tupaat* Julia Lucas)

(120) *ʔahʔaaʔaλ ʔukʷičapaλsuuk ʔiih ciyapuxs.*

ʔahʔaaʔaλ ʔu-kʷič=!ap=!aλ=suuk ʔiih ciyapuxs
and x-wear=CAUS=NOW=NEUT.2SG big hat

‘And you wear a big hat.’ (C, *tupaat* Julia Lucas)

Sentence-intermediate *ʔahʔaaʔaλ* can coordinate two VPs, which share the clitic subjects (121, 122).

- (121) ?aa nunuukšišniš?aa? ?ah?aa?a? huufhuufa huuuu tuupkšie?quu.

?aa nunuuk-šiš=niš=?aa? ?ah?aa?a? huuf-LR2L.a huuuu tupk-šiš-LS=!aš=quu
oh sing.DR-MO=STRG.1PL=HABIT and dance-RP whoa.long.time dark-MO-GR=NOW=PSSB.3
'Oh, we sing and dance, hey for a long time, when it gets dark.' (C, *tupaat* Julia Lucas)

- (122) ?a?a čakupiih čaani?iš?aa?at? taaqyii? ?ah?aa?a? šapkšiš ?uukwi?.

?a?a čakup-L.iih čaani=?iš=?aa?=?at? taaqyii? ?ah?aa?a? šapk-šiš
two man-PL little.while=STRG.3=HABIT=PL stand.inside.DR and grapple-MO
?u-L.(č)i? x-do.to

'Two men stand inside for a little while and try to grapple each other [in wrestling games].' (C, *tupaat* Julia Lucas)

As with English *and*, *?ah?aa?a?* can be used in this way to imply order (123).

- (123) ?utwii?aaq?in nanuuk ?ah?aa?a? ha?ukšiš.

?u-(t)wii=?aaq?=(y)in nanuuk ?ah?aa?a? ha?uk-šiš
x-first=FUT=WEAK.1PL sing.DR and eat.DR-MO
'First we will sing and then eat.' (C, *tupaat* Julia Lucas)

Though less common, *?ah?aa?a?* can also be used to coordinate participants (124).

- (124) ?a?amit?iš?aa?at? šaahuus?ath? ?ah?aa?a? hiškwi?ath.

?a?a=(m)it=?iš=?aa?=?at? šaahuus?ath? ?ah?aa?a? hiškwi?ath
two=PST=STRG.3=HABIT=PL Ahousaht and Hesquiaht
'There were two, the Ahousahts and the Hesquiahts.' (C, *tupaat* Julia Lucas)

The coordinator *?uh?i(i)š* is more constrained. It only coordinates participants (125).

- (125) ʔuh̥intin ʔukʷiil̥ n̥uʷiiqsknaqs ʔuuḥwāl̥ ḥumiis ʔuh̥ʔiis̥ čistuup..

ʔuh̥=int=in ʔu-(č)iil̥ n̥uʷiiqsu=ʔak=naqs ʔu-L.ḥwāl̥ ḥumiis ʔuh̥ʔiis̥ čistuup
be=PST=WEAK.1PL X-make father=POSS=PST.DEFN.1SG X-use red.cedar and rope

‘It was my dad that made it using red cedar and rope.’ (Q, Sophie Billy)

ʔahʔaaʔaλ coordinates clauses (which differ in subject), VPs (which share a subject), and participants. *ʔuh̥ʔi(i)š* coordinates only participants. The linker, as I will argue below, coordinates a different syntactic category: predicates. As a suffix, it has a greater degree of freedom in its sites of attachment, and its scope of coordination differs from the free morpheme coordinators.

4.1.2 Attachment properties

The linker shows considerable flexibility in the stems it attaches to, attaching to nouns (126), adjectives (127), verbs (128), and adverbs (129).

- (126) huucmaqḥitqačaʔaał̥ taakšiλ̥ ʔiišmita.

huucma-(q)ḥ=(m)it=qača=ʔaał̥ taakšiλ̥ ʔiišmit-a·
woman-LINK=PST=INFR=HABIT always gossip-DR

‘There was a woman who kept gossiping.’ (C, *tupaat* Julia Lucas)

- (127) tikʷaamitwaʔiš čims ḥaaʔakqḥ.

tikʷ-a·=mit=waʔiš čims ḥaaʔak-(q)ḥ
dig-DR=PST=HRSY.3 bear strong-LINK

‘The bear was digging and strong.’ (C, *tupaat* Julia Lucas)

- (128) ciqinkaλ̥na λ̥iḥaaqḥ.

ciq-(č)ink=!aλ̥=na· λ̥iḥ-a·-(q)ḥ
speak-with=NOW=NEUT.1PL drive-DR-LINK

‘We talked while driving.’ (C, *tupaat* Julia Lucas)

(129) *ʔuuq^waaqhs ʔasqii ʔaanaḥi wik hinʔaʃiʃ.*

ʔuuq^waa-(q)ḥ=s ʔasqii ʔaanaḥi wik hinʔaʃiʃ
 also-LINK=STRG.1SG bald only NEG realize-MO

‘I’m also bald but I don’t know it.’ (C, *tupaat* Julia Lucas)

[Context: My friend is going bald. I’m also going bald but I don’t look in the mirror much and haven’t noticed.¹]

However, the linker cannot attach complementizers (130, 131).

(130) *ʔuušcukʔisit ʔani ʔunaḥʔisitqa.*

ʔuušcuk=ʔis=(m)it ʔani ʔunaḥ=ʔis=(m)it=qaʔ
 hard=DIMIN=PST COMP small=DIMIN=PST=SUB

‘It’s a little hard (to do) because it’s small.’ (B, Bob Mundy)

(131) **ʔuušcukʔisit ʔaniqḥ ʔunaḥʔisitqa.*

ʔuušcuk=ʔis=(m)it ʔani-(q)ḥ ʔunaḥ=ʔis=(m)it=qaʔ
 hard=DIMIN=PST COMP-LINK small=DIMIN=PST=SUB

Intended: ‘It’s a little hard (to do) because it’s small.’ (B, Bob Mundy)

From only this data, the linker appears to distinguish morphologically between content and function categories. Another way of expressing this content/function division is by appealing to what can serve as a syntactic predicate in Nuuchahnulth (see ??). Nouns, adjectives, and verbs may all be predicative, and while adverbs are not syntactic predicates themselves, they along with their verb create a main predicate. I will return to the matter of adverbs in §4.1.7. Complementizers, on the other hand, are only connective material and cannot be the main predicate of a clause, nor can they be part of the predicative phrase. In following sections, I will refer to the predicate in linker constructions that hosts the linker as the “linked predicate” and the predicate that lacks it as the “unlinked” or “non-linked” predicate.

¹This scenario was constructed to mirror an example present in Sapir & Swadesh (1939).

4.1.3 Clause Heading

A predicate with a linker attached may not head a matrix or dependent clause. I first give some evidence on the flexibility of the relative ordering of the linker, and then examine when they are and are not allowed in matrix and dependent clauses.

In a sentence with two predicates, one with the linker and one without, the ordering does not typically make a difference.² It is possible for either predicate in an utterance to host the linker, as in (132, 133).

- (132) hitaashitaḥ ciiqciqa.
 hitaas-(q)ḥ=(m)it=(m)aḥ ciq-LR2L.a
 be.outside-LINK=PST=REAL.ISG speak-RP
 ‘I was speaking outside.’ (B, Bob Mundy)

- (133) ciiqciqaḥ hitaas.
 ciq-LR2L.a-(q)ḥ=(m)it=(m)aḥ hitaas
 speak-RP-LINK=PST=REAL.ISG be.outside
 ‘I was speaking outside.’ (B, Bob Mundy)

Just as either predicate in a construction may take the linker, the linker may occur either on the first (134) or second (135) predicate in the utterance.

- (134) ʔaaʔaashintniš ciiqciqa.
 ʔaaʔaas-(q)ḥ=int=niš ciq-LR2L.a
 be.outside-LINK=PST=STRG.1PL speak-RP
 ‘We were speaking outside.’ (N, Fidelia Haiyupis)

²There are some cases where altering the ordering affects grammaticality judgments. I believe this has to do with a preference for the predicate with the linker attached to come first and, between two predicates, for certain semantic classes to host the linker over others. I address these in §4.1.9.

- (135) *ciiqciiqamitniš ʔaaʔaash.*
ciq-LR2L.a=mit=niš ʔaaʔaas-(q)h
speak-RP=PST=STRG.1PL be.outside-LINK
 ‘We were speaking outside.’ (N, Fidelia Haiyupis)

Although there is flexibility as to which predicate takes the linker, clauses may not be headed by a single predicate with a linker. This can be seen for main clauses in (136, 137) below.

- (136) *qiiʔiʔs ʔupkaaʔh.*
qii-ʔiʔ=s ʔupk-aʔ-(q)h
long.time-indoors=STRG.1SG awake-DR-LINK
 ‘I lay awake inside for a long time.’ (N, *yuutnaak* Simon Lucas)

- (137) **ʔupkaaʔhs qii.*
ʔupk-aʔ-(q)h=s qii
awake-DR-LINK=STRG.1SG long.time
 Intended: ‘I lay awake for a long time.’ (N, *yuutnaak* Simon Lucas)

(137) has undergone two changes relative to (136): (i) the words have been rearranged, and (ii) the ending *-ʔiʔ*, a predicative location (Davidson, *forthcoming*) has been taken off the adverb *qii*. The former change should not affect the grammaticality of the sentence, as demonstrated in (134, 135). But the latter change creates an utterance with “linked” predicate followed by the syntactically non-predicative adverb *qii* (137). In contrast, (136) contains two full predicates. Because the adverb *qii* cannot be a syntactic predicate, (137) only has one predicative word with a linker morpheme, and no further predicate for that linker to coordinate with.

Like main clauses, a dependent clause may not be headed by a single predicate with a linker morpheme, as shown in (138, 139).

(138) ʔuuʔaqstuʔah ʔanik hiʔ ʔahkuu.

ʔuuʔaqstuʔ=(m)aʔh ʔani=k hiʔ ʔahkuu

be.happy.MO=REAL.1SG COMP=2SG be.at D1

'I'm happy you're here.' (B, Bob Mundy)

(139) *ʔuuʔaqstuʔah ʔanik hiʔh ʔahkuu.

ʔuuʔaqstuʔ=(m)aʔh ʔani=k hiʔ-(q)h ʔahkuu

be.happy.MO=REAL.1SG COMP=2SG be.at-LINK D1

Intended: 'I'm happy you're here.' (B, Bob Mundy)

Although the word *hiʔ* 'be at' frequently takes the linker in texts, it is ungrammatical in (139), where it is the sole predicate of the dependent clause. I was able to replicate a similar example with a Checklescht speaker from the other end of the dialect continuum (140, 141).

(140) ʔaacsiičʔintiis ʔin hiʔ čimsʔii maʔteeʔakʔitk.

ʔaacs-ʔiičʔ=int=(y)iis ʔin hiʔ čims=ʔiʔ maʔtii=ʔak=ʔiʔtk

see-IN=PST=WEAK.1SG COMP be.at bear=ART house=POSS=DEFN.2SG

'I saw there was a bear at your house.' (Q, Sophie Billy)

(141) *ʔaacsiičʔintiis ʔin hiʔh čimsʔii maʔteeʔakʔitk.

ʔaacs-ʔiičʔ=int=(y)iis ʔin hiʔ-(q)h čims=ʔiʔ maʔtii=ʔak=ʔiʔtk

see-IN=PST=WEAK.1SG COMP be.at-LINK bear=ART house=POSS=DEFN.2SG

Intended: 'I saw there was a bear at your house.' (Q, Sophie Billy)

From these examples, I conclude that the linker requires two predicates to coordinate. This means that the syntactic head of a clause cannot be a predicate with linker morphology. The head must either be the linker itself, or the predicate without linker morphology.

4.1.4 Sharing second position suffixes and clitics

Nuuchahnulth has a series of clausal second-position enclitics, which include tense and subject-mood portmanteaus. In a linker construction, both predicates share the same subject, mood, and tense.

(142) hiłhʔum maḥtiʔakqs wiinapuł.

hił-(q)h=ʔum maḥtiʔak=qs wiinapuł

be.at-LINK=CMMD.FUT.2SG house=POSS=DEF.1SG stop.MO

‘Stop at my house.’ (N, Fidelia Haiyupis)

The command portmanteau =ʔum in (142) syntactically scopes³ over both predicates. My consultant did not accept this as possibly meaning that someone else was stopping. If these clitics belong to the clause as a whole, which there is good independent reason to believe (Rose 1981:35–36, Woo 2007:42–50), the linker coordinates predicates below the level of the clause.

In addition to the clausal second-positions, there are some suffixes which I claim appear in a predicative second position (Inman 2018). [[TODO: Regurgitate a summary of the “predicate position” argument in the clause chapter!]] These include modals and, importantly, the linker itself. The modals in this predicative second position seem to be shared across linked predicates, in a similar fashion to the clitics.

Context for (143): I am taking a friend home and we are leaving a gathering.

(143) wałšiłwitasniš ʔihaaqh.

wał-šił-LS-witas=niš ʔih-a-qh

go.home-MO-GRAD-going.to=STRG.1PL drive-DR-LINK

‘We’re going to drive home.’ (C, tupaat Julia Lucas)

Both verbs in (143) share the semantics of the modal suffix -witas, because both the driving and the going home are intentional, not-yet-occurred events. I confirmed the sharing of the subject portmanteau

³Because of the utility of the concept of scoping in this discussion, I will use the word “scope” from here on to refer to a syntactic element that has an effect over another syntactic element. This should not be confused with scopal semantics.

=*ni's* by asking if it were possible to say (143) to mean that we were going to walk home but someone else was driving elsewhere. My consultant said no: (143) must mean that it is we who are going to go home and we who are doing it driving in a car.

(144) and (145) provide a situation where the obligatory subject sharing creates an odd interpretation. I was asking about different activities depending on the weather. The felicitous expression without the linker is in (144). My rephrase in (145) with the linker was met with an immediate laugh.

- (144) *načaałah?aała miłaa?ałquu.*
 načaał=(m)a·h=?aała mił-a·=!ał=quu
 read=REAL.1PL=HABIT rain-DR=NOW=PSSB.3
 ‘I read whenever it rains.’ (B, Bob Mundy)

- (145) *#načaałah?aała miłaaqh.*
 načaał=(m)a·h=?aała mił-a·-(q)h
 read=REAL.1PL=HABIT rain-LINK
 # ‘I read and I am raining.’ (B, Bob Mundy)

Both predicates in a linker construction share the semantics of the second-position clitics, which importantly means they share a subject. They also share at least modal suffixes from what I term the second-position predicate position.

4.1.5 *Linkers on non-verbs*

The examples so far have focused on linkers attached to verbs. For English speakers, verbal coordination is perhaps the easiest example of syntactic predicates sharing inflectional properties. However, as detailed in §4.1.2, it is possible for the linker to attach to a wide variety of non-verbs. The properties of the linker are identical on non-verbs, but it is worthwhile to look at how this works.

Perhaps the most common type of non-verbal predicate that receives the linker is quantificational adjectives (henceforth, quantifiers). The presence or absence of the linker on a quantifier significantly

changes the possible interpretations for the sentence. With a bare (non-linked) quantifier, the quantifier may be interpreted as a syntactic object (146) and may not come before the verb (147). When a linker is attached, the quantifier must be interpreted as the subject and may either come before (148) or after the verb (149).

Context for (146–149): My family and I are looking for a Christmas present for my sister.

(146) ʔuuwaʔaʔ ʔuuʂ.

ʔu-L.waʔ=!aʔ ʔuuʂ

x-find=NOW some

‘He/she found something.’ (*? Someone found it) (C, *tupaat* Julia Lucas)

(147) *ʔuuʂ ʔuuwaʔaʔ.

ʔuuʂ ʔu-L.waʔ=!aʔ

some x-find=NOW

Intended: ‘He/she found something.’ (C, *tupaat* Julia Lucas)

(148) ʔuuwaʔaʔ ʔuuʂqh.

ʔu-L.waʔ=!aʔ ʔuuʂ-qh

x-find=NOW some-LINK

‘Someone found it.’ (*He/she found something) (C, *tupaat* Julia Lucas)

(149) ʔuuʂqhʔaʔ ʔuuwaʔ.

ʔuuʂ-qh=!aʔ ʔu-L.waʔ

some-LINK=NOW x-find

‘Someone found it.’ (*He/she found something) (C, *tupaat* Julia Lucas)

In (148, 149), the two predicates being linked are *some* and *find*. Because quantifiers are possible predicates in Nuuchahnulth, the same analysis applied to two linked verbs can apply here: These are two predicates that share a subject. That is, there is a (null) third-person subject that is shared between

the predicates *some* and *find*: “There exists an x such that $some(x)$ and $find(x,y)$.” This subject sharing makes the objective reading impossible in (148, 149).

Julia rejected an interpretation of (146) where non-linked *ʔuuš* ‘some’ was interpreted as the subject. However, in another context she produced (150), where *ʔuuš* ‘some’ is in fact given a subjective interpretation.

(150) ʔuušʔiišʔaaʔ wićik, ʔuuš ʕaćik, ʔuuš ʔuṁaaqʕ ʔuuʔip.

ʔuuš=ʔi·š=ʔaaʔ wićik, ʔuuš ʕaćik, ʔuuš ʔuṁaaqʕ ʔu-i·ʔip

some=STRG.3=HABIT not.talented, some talented, some able.to x-get

‘Some are not talented, some are talented, some are able to get (the challenge).’ (C, *tupaat* Julia Lucas)

In (150), the first two verbs are intransitive, so there is no other syntactic interpretation for *ʔuuš* ‘some’ other than the subjective one. The final verb is transitive, but the parallelism with the first two clauses primes the listener to interpret *ʔuuš* as subjective. The fact that Julia did not add a linker in (150) shows that a subjective interpretation is possible for non-linked quantifiers.

This observation about quantifiers holds true for other adjectives and also nouns, as seen in (151–153). The initial sentence puts two clauses together with a complementizer (151), but can be rephrased without a complementizer by using the linker (152, 153).

Context for (151–153): I arrived on the beach in a canoe. I left my canoe and went into town. While I’m inside, my canoe is carried out on the tide and capsizes. One person left behind on the beach sees it. (151) was suggested by my consultant, and we worked to rephrase it as (152) and (153). My consultant was adamant that (151) and (152) meant exactly the same thing. If this is true, then the linker is not adding any deep semantic content.⁴

⁴My analysis ends up putting in a predication AND. While this may not be totally meaningless, it is extremely semantically bleached.

- (151) *ćawaakitwaʔiš ńaacsá niiʔatu ćapac.*
ćawaak=it=waʔiš ńaacsá niiʔatu ćapac
 one=PST=HRSY.3 see.DR sink canoe
 ‘I hear that he or she saw the canoe sink.’ (C, *tupaat* Julia Lucas)
- (152) *ćawaakhitwaʔiš ńaacsá niiʔatu ćapac.*
ćawaak-(q)h=it=waʔiš ńaacsá.DR niiʔatu ćapac
 one-LINK=PST=HRSY.3 see.DR sink canoe
 ‘I hear that one (person) saw the canoe sink.’ (C, *tupaat* Julia Lucas)
- (153) *quuʔasqhitwaʔiš ńaacsá niiʔatu ćapacʔi.*
quuʔas-(q)h=it=waʔiš ńaacsá niiʔatu ćapac=ʔi
 person-LINK=PST=HRSY.3 see sink canoe=ART
 ‘I hear that a person saw the canoe sink.’ (C, *tupaat* Julia Lucas)

Using the same setup as (151–153), I elicited sentences from another speaker. This consultant initially proposed the sentence in (154). I proposed (155) by removing the linker, which he rejected, and then (156), which he accepted.

- (154) *ńaacsiičĩłweʔin ćawaakh niiʔatu ćapac.*
ńaacs-°iʔčĩł=weʔin ćawaak-(q)h niiʔatu ćapac
 see-IN=HRSY.3 one-LINK sink canoe
 ‘I hear that one (person) saw the canoe sink.’ (B, Bob Mundy)
- (155) **ńaacsiičĩłweʔin ćawaak niiʔatu ćapac.*
ńaacs-°iʔčĩł=weʔin ćawaak niiʔatu ćapac
 see-IN=HRSY.3 one sink canoe
 Intended: ‘I hear that one sees the canoe sink.’ (B, Bob Mundy)

- (156) *ñaacsiičĩłweʔin cawaakḥ quuʔas niiʔatu čapac.*
ñaacs-^oi·čĩł=weʔin cawaak-(q)ḥ quuʔas niiʔatu čapac
 see-IN=HRSY.3 one-LINK person sink canoe
 ‘I hear that one person sees the canoe sink.’ (B, Bob Mundy)

Bob’s response to removing the linker in (155) was to say, “It’s not complete. One what? What did one see?” Following the basic structure of the Nuuchahnulth clause (§??), the participants of the syntactic predicate *ñaacsiičĩł* ‘see’ should be *cawaak* ‘one’ and *niiʔatu čapac* ‘sink canoe’. But *cawaak*, as an adjective, cannot be a full NP participant without an article (Wojdak 2001). So it is stranded and the utterance (155) is nonsensical. The presence of the linker in my consultant’s initial proposed sentence (154) forces ‘one’ to be coreferenced with the subject of ‘see’, as already shown for the quantifiers in (146–149). The other participant of the seeing act (what is seen) is the dependent clause ‘sink canoe’.

Example (156) shows that the linked clause not headed by a verb can include more than one word. Here *cawaak* ‘one’ is a predicate with a subject *quuʔas* ‘person’. This dependent clause also interrupts the matrix predicate *ñaacsiičĩł* ‘see’ and its clausal object *niiʔatu čapac* ‘the canoe sink.’ In §4.1.3 I argued that linker constructions were either headed by the predicate lacking linker morphology or the linker itself. The syntax of (156), where a predicate, linker, and its participant can all interrupt another predicate with and its participant is evidence in favor of an analysis where the non-linked predicate is the sentential head, and the linker forms a dependent clause. A rough bracketing of (156) based on this preliminary analysis is given in (157).

- (157) [*ñaacs-^oi·čĩł=weʔin* [*cawaak-(q)ḥ quuʔas*]_{linked_clause} [*niiʔatu čapac*]_{participant_of_see}]
 see-IN=HRSY.3 one-LINK person sink canoe

[[TODO: track down subscript rendering problem above]]

4.1.6 Ordering in linker constructions

I have already demonstrated that the non-linked predicate may be separated from its complement by an intervening linked predicate (154, 156, 157). The reverse ordering is also possible. The linked predicate

may be separated from its direct object by the non-linked predicate. In (158) the verb *hit* ‘be at’ and its object ‘my house’ are contiguous, but in (159) they are separated by the non-linked predicate *mamuuk* ‘work’.

(158) *hiłhitin mahtiiʔakqas mamuuk.*

hił-(q)h=(m)it=(m)in mahtii=ʔak=qas mamuuk
 be.at-LINK=PST=REAL.1PL house=POSS=DEFN.1SG work

‘We worked at my house.’ (B, Bob Mundy)

(159) *hiłhitin mamuuk mahtiiʔakqas.*

hił-(q)h=(m)it=(m)in mamuuk mahtii=ʔak=qas
 be.at-LINK=PST=REAL.1PL work house=POSS=DEFN.1SG

‘We worked at my house.’ (B, Bob Mundy)

Not only is (159) grammatical but this is often the structure speakers prefer. For one of my consultants, Northern dialect speaker Fidelia Haiyupis, this kind of object separation was acceptable when the linked predicate was separated from its object (160) but not when the non-linked predicate was separated from its object (161, 162). I can only note that this may be a feature of Northern dialects, but it is unclear from the small amount of data that I have.

(160) *hiłhsiiš ʔukʷiił čupčupšumł mahtiiʔakʔik.*

hił-(q)h=siʃ ʔu-(č)iił čupčupšumł mahtii=ʔak=ʔik
 be.at-LINK=STRG.1SG x-make sweater house=POSS=DEFN.2SG

‘I am making a sweater at your house.’ (N, Fidelia Haiyupis)

(161) *ʔuuctiiłs Queens Cove λiħaaqł.*

ʔuuctiił=s Queens Cove λiħ-aʼ-(q)h
 go.to.DR=STRG.1SG Queens Cove drive-DR-LINK

‘I am driving to Queens Cove.’ (N, Fidelia Haiyupis)

(162) *ʔuuctiiḥs ʔiḥaaqḥ Queens Cove.

ʔuuctiiḥ=s ʔiḥ-a·-(q)ḥ Queens Cove

go.to.DR=STRG.1SG drive-DR-LINK Queens Cove

Intended: 'I am driving to Queens Cove.' (N, Fidelia Haiyupis)

For most speakers, however, both types of "interruption" are possible.

4.1.7 *The linker and the predicate complex*

Like many bound morphemes in Nuuchahnulth, the linker appears to attach to the first word in some clause. This has already been seen in (129), repeated as (163) below.

(163) ʔuuqʷaaqḥs ʔasqii ʔaanaḥi wik hinʔaʔšiḷ.

ʔuuqʷaa-qḥ=s ʔasqii ʔaanaḥi wik hinʔaʔ-šiḷ

also-LINK=STRG.1SG bald only NEG realize-MO

'I'm also bald but I don't know it.' (C, *tupaat* Julia Lucas)

The two predicates being tied together in (163) sentence are 'also bald' and 'only not know (it)'. The linker appears on the preposed adverb *ʔuuqʷaa* of the first predicate. Examples like this are difficult to gather directly as they require special context and it is possible to express the same meaning without the linker, but a few examples occur in the Nootka Texts. In (164) the linker also attaches to the preceding adverb of its linked predicate 'still at war', and links that to the still later predicate 'grab their guns.'

(164) ʔeʔimqḥʔaḷquuweʔin hitaḥtačiḷ sukʷiʔaḷ puuʔakʔiʔaḷ.

ʔeʔim-(q)ḥ=!aḷ=quu=we·ʔin hitaḥta-čiḷ su-kʷiḷ=!aḷ puu=ʔak=ʔi·=ʔaḷ

first-LINK=NOW=PSSB.3=HRYS.3 go.out.to.sea-MO hold-MO=NOW gun=POSS=ART=PL

'As soon as they left the land, they would take their guns.' (B, Sapir & Swadesh 1955:395)

In (165), the linker again attaches to an adverb *ʔiiqḥii* 'still', and links the entire predicate 'still doing war' to the earlier predicate *qʷis* 'do thus.'

- (165) qiiḥṣṇaakckin ʔaḥ qʷiyiič [[qʷis] [ʔiiqḥii**qḥ** hitačink]] maatmaasʔi qahṣaapʰaḷquuweʔin čamuʔaʔaḷquu
 yuuḥuʔiʔatḥ⁵huuṣiiʔatḥuʔaʔaḷquu.
 qiiḥṣṇaak-ckin ʔaḥ qʷiyii=č [[qʷis] [ʔiiqḥii-(**q**)ḥ hitačink maatmaas=ʔi]]
 long.time-DIMIN DDYN when=HRSY do.thus still-link war tribe.PL=ART
 qah-sa·p=!aḷ=quu=we·ʔin čam-uʔaʔ=!aḷ=quu yuuḥuʔiʔatḥ huuṣiiʔatḥ-uʔaʔ=!aḷ=quu.
 kill-MO.CAUS=NOW=PSSB.3=HRSY.3 vessel-see=NOW=PSSB.3 Ucluelet Huuayaht-see=PSSB.3=HRSY.3
 ‘For a little longer after this happened, while the tribes were still at war, the Ucluelets would kill
 Huu-ay-ahts when they saw their canoes.’ (B, Sapir & Swadesh 1955:392)

These examples, as well the case of modal suffix scoping have led me to believe there is a phrasal unit between the clause (where the second position clitics scope) and the main predicate. I have dubbed this the “predicate phrase.” This phrase consists maximally of the predicate word and preceding adverbs. The predicate linker will attach to the first word in the predicate phrase, whether that is the predicate word itself or a preceding adverb. [[TODO: Move the main arguments up to the clause section]]

4.1.8 Dangling linkers

There is one case I know of where the linker does not appear to be linking its predicate to anything. I believe that the interpretation shows that there is an elided phrase (166).

- (166) ʔuʔaaḥukḥʔiʔaʔ.
 ʔu-!aaḥuk-(q)ḥ=li·ʔaʔ
 x-look.after-LINK=CMMD.2SG=HABIT
 ‘Take care!’ (N, Fidelia Haiyupis)

The meaning of (166) is “Farewell, look after yourself in whatever you’re doing.” But “whatever you’re doing” is dropped from the sentence. I think that the linker is a leftover from the elided phrase.

⁵Corrected from *yuuḥuʔiʔatqḥ*.

4.1.9 Semantic and ordering preferences

Despite the relative flexibility of which predicate in a construction gets the linker (§4.1.3), there are some cases where speakers strongly prefer the linker to go on one or the other predicate.

In a sentence expressing action at a location, speakers I worked with preferred to put the linker on the location word, and not on the action word. Sometimes speakers rejected other orderings, as in (167–169).

- (167) $\acute{\lambda}aa\acute{\lambda}aash\acute{\imath}is\ ciiqma\acute{\lambda}ap.$
 $\acute{\lambda}aa\acute{\lambda}aas-(q)h=(y)iis\ \ ciiqma\acute{\lambda}ap$
 outside-LINK=WEAK.1SG speak.publicly
 ‘I’m speaking outside.’ (Q, Sophie Billy)
- (168) $ciiqma\acute{\lambda}apiis\ hi\acute{\imath}h\ \acute{\lambda}aa\acute{\lambda}aas.$
 $ciiqma\acute{\lambda}ap=(y)iis\ \ hi\acute{\imath}-(q)h\ \ \acute{\lambda}aa\acute{\lambda}aas$
 speak.publicly=WEAK.1SG be.at-LINK outside
 ‘I’m speaking outside.’ (Q, Sophie Billy)
- (169) $*ciiqma\acute{\lambda}aph\acute{\imath}is\ \acute{\lambda}aa\acute{\lambda}aas.$
 $ciiqma\acute{\lambda}ap-(q)h=(y)iis\ \ hi\acute{\imath}-(q)h\ \ \acute{\lambda}aa\acute{\lambda}aas$
 speak.publicly-LINK=WEAK.1SG be.at-LINK outside
 Intended: ‘I’m speaking outside.’ (Q, Sophie Billy)

[[TODO: ? $\acute{\lambda}aa\acute{\lambda}aash\acute{\imath}is\ ciiqma\acute{\lambda}ap$]]

I was unable to find a case where Sophie would use a linker in such cases on any word other than the location word, and in the (small) corpus of speech I have from her, there are no instances of her doing so. Sophie uses the linker construction much less than all other language consultants I worked with, and rejected many constructions that other speakers used. She is the youngest known fluent speaker, and her speech represents a very innovative Checkleseht dialect. In the data I collected, she most readily attached the linker to quantificational adjectives and location words, and rarely used it elsewhere.

With other consultants who used the linker more widely, they would sometimes reject reorderings or sample sentences that occurred within a set. The following series is from Bob Mundy, a Ucluelet elder, who preferred linked predicates to be the first predicate in the sentence. (170) and (171) are repeated from (133) and (132) respectively.

(170) ciiqciiaqḥitaḥ hitaas.

ciq-LR2L.a-(q)ḥ=(m)it=(m)aḥ hitaas

speak-RP-LINK=PST=REAL.1SG be.outside

'I'm speaking outside.' (B, Bob Mundy)

(171) hitaashitaḥ ciiqciia.

hitaas-(q)ḥ=(m)it=(m)aḥ ciiq-LR2L.a

be.outside-LINK=PST=REAL.1SG speak-RP

'I'm speaking outside.' (B, Bob Mundy)

(172) *hitaasitaḥ ciiqciiaqḥ.

hitaas=(m)it=(m)aḥ ciiq-LR2L.a-(q)ḥ

be.outside=PST=REAL.1SG speak-RP-LINK

Intended: 'I'm speaking outside.' (B, Bob Mundy)

[[TODO?: Repeat with 4th option in mix, ciiqciiamitaḥ hitaash]]

While Bob was adamant about his ungrammatical judgment, I think the context of rephrasing is important, as this transforms the grammaticality question into something like a ranked choice task. I do not think (172) is truly ungrammatical, as Bob would still generate this kind of ordering in fluent speech. Despite his judgment about here, in another context Bob unprompted produced sentences with the second-predicate linked, as in (154) and (??).

Both the rephrasing data from Bob and the restricted use of the linker by Sophie suggests some general preferences: all else being equal, a location word should not be the one linked, and the first word

should be the one with the linker. [[TODO: Get some numbers over the example sentences collected so far]]

4.1.10 *Data Summary*

The data presented so far leads to the following conclusions:

1. The linker may attach to any content word of Nuuchahnulth. This includes nouns, adjectives (including quantifiers), verbs, and adverbs, and excludes complementizers.⁶ (§4.1.2)
2. A clause may not consist of only a linked predicate. (§4.1.3)
3. Both predicates in a linker construction shares the second-position inflectional information, including subject. (§4.1.4)
4. The linker does not add semantic content to a predicate. (§4.1.4)
5. The properties of the linker do not alter depending on whether it attaches to a verb or other part of speech. (§4.1.5)
6. It is possible for either predicate in a linker construction to be separated from their complement by the other predicate. (§4.1.6)
7. The linker attaches to the first word in its predicate complex, even if that first word is an adverb that precedes the predicate. (§4.1.7)
8. In certain pragmatically restricted environments, the linker can be used without attaching to a matrix clause. A plausible interpretation in this context is of an elided predicate. (§4.1.8)
9. There seems to be a preference for linked predicates to occur first and on location words (§4.1.9).

⁶There is more to say about a possible class of adpositions. This is addressed in §4.2.3.

4.2 Application of the linker to categoricity questions

There are some words in Nuuchahnulth whose part of speech properties are not entirely clear. Woo (2007) examines Nuuchahnulth's large (but closed) set of adpositive-like words, and ends up categorizing them as special types of verbs (some of them little-*v*, from a Minimalist perspective). There are other words whose status is somewhat unclear, such as *ʔuunuuλ/ʔunwiiλ* 'because of an event', *ʔuusaʔi* 'because of a thing', and *ʔuyi* 'at a time'. Some of these words accept the linker and others do not. Recall that the linker typically occurs freely on content words such as verbs (4.1.2), so if these words are verbs, or at least normal verbs, the linker should be able to attach.

Briefly, I show here that *ʔuunuuλ/ʔunwiiλ* 'because of an event' do accept the linker, while *ʔuusaʔi* 'because of a thing' may not (4.2.1). Similarly, *ʔuyi* 'at the time' only accepts the linker marginally (4.2.2). Most of the adpositive-like verbs can also accept the linker (4.2.3), but not the special non-subject marking⁷ adpositives *ʔuukʷil* and *ʔuhta*. This aligns with Woo's findings, where these words are functional and non-predicative.

The marginal cases of *ʔuusaʔi* and *ʔuyi* suggest words moving from a simple verb to another category, either a restricted verb type or an incipient category of prepositions. On the other hand, evidence from the linker suggests that *ʔuukʷil* and *ʔuhta* are members of a special syntactic category, either a very small class of prepositions or little-*v*, depending on one's syntactic framework.

4.2.1 'Because' words

There are three words in Nuuchahnulth that roughly translate to English 'because': *ʔuusaʔi* (all dialects), *ʔuunuuλ*⁸ (Barkley and Central, recognized but rare in Northern and Kyuquot-Checlesht) and *ʔunwiiλ* (Northern and Kyuquot-Checlesht only).

To lay some terminological groundwork, I will be using the technical terms *protasis* and *apodosis*. The

⁷The marking properties of these words and are somewhat more complex than this simple story. [[TODO: Put this in the clause section – It's just non-ARG1, cite Woo.]]

⁸Elder *tupaat* Julia Lucas, who is an Ahousaht speaker, consistently pronounces this word as *ʔunʔuuλ*. I do not know whether this is a feature of her particular idiolect or a sub-Ahousaht dialect feature of which she is the only known (to me) speaker. I transcribe the word as she pronounces it.

protasis is the part of the sentence describing the condition, and the *apodosis* is the part of the sentence describing the consequence or result. I will call the words relating these propositions *because* *because* *because*.

ʔuunuũł and *ʔunwiił* appear to be dialectal variants with the same meaning and use patterns. The most straightforward way to use the words is as the first word, or main predicate of the sentence (173, 174), where they take the second position clitic complex, including the subject portmanteau. It is hard to conceive of the relation *BECAUSE* having a subject, and indeed the subject agreement marks the subject of the apodosis. Argument-dropping is common for Nuuchahnulth verbs, and these constructions can often drop the apodosis and realize it in a later clause (173), if at all.

(173) ʔuunuũłitaḥ wik ʔuł weʔič. ʔihakita naʔaqak.

ʔuunuũł=(m)it=(m)aḥ wik ʔuł weʔič. ʔihak=(m)it=maḥ naʔaqak
because=PST=REAL.1SG NEG good sleep. cry=PST=REAL.3 baby
'I didn't sleep well because (of it); the baby was crying.' (B, Bob Mundy)

(174) ʔunwiiłiis mačiił ʔin miiłaa.

ʔunwiił=(y)iis mačiił ʔin miił-aḥ
because=WEAK.1SG inside.DR COMP rain-DR
'I'm inside because it is raining.' (Q, Sophie Billy)

The apodosis can be introduced with a complementizer, as in (174) above and (175) below. The complementizer may not be used to introduce the protasis (176, 177).

(175) ʔuunuũłs hiniiʔił ʔin miiłaa.

ʔuunuũł=s hiniiʔił ʔin miił-aḥ
because=STRG.1SG inside.MO COMP rain-DR
'I came inside because it is raining.' (N, Fidelia Haiyupis)

Context for (176, 177): There are two teams playing tug-of-war. One has access to supernatural medicine and they are the winners.

- (176) ʔunʔuuʔhitqačaʔaʔ hitaʔap ʔin ʔuyinak.
 ʔunʔuuʔ-(q)h=(m)it=qača=ʔaʔ hitaʔap ʔin ʔuyi-naʔk
 because-LINK=PST=INFR=PL win COMP medicine-have
 ‘They won because they had medicine.’ (C, *tupaat* Julia Lucas)

- (177) # ʔunʔuuʔhitqačaʔaʔ ʔuyinak ʔin hitaʔap.
 ʔunʔuuʔhitqačaʔaʔ ʔuyinak ʔin hitaʔap
 because-LINK=PST=INFR=PL medicine-have COMP win
 Intended: ‘They won because they had medicine.’⁹(C, *tupaat* Julia Lucas)

As demonstrated in (176, 177), the becausative can have a linker attached, in which case the linker must be linking the becausative to the following apodosis, since the protasis is explicitly subordinated by the complementizer. The complementizer is optional in this linker construction, and the order of becausative and apodosis is flexible (178).

- (178) hiniʔiʔs ʔunwiiʔh miʔšiʔ.
 hiniʔiʔs=ʔ ʔunwiiʔ-(q)h miʔ-šiʔ
 inside.MO=REAL.ISG because-LINK rain-MO
 ‘I am inside because it started raining.’ (N, Fidelia Haiyupis)

One of my consultants, Bob Mundy (Ucluelet), translated the linker attachment in this way: *ʔuunuuʔ* is ‘because’ and *ʔuunuuʔh* is ‘that’s why.’ This is a fairly succinct way of translating the presence of the linker.

So far, the evidence suggests that these becausatives have at least one argument, the protasis, which can optionally be introduced with a complementizer. The apodosis is more complicated since it is the argument that the linker morpheme “links” the becausative to (178). If the linker is behaving here as it has in other constructions, that would mean that the apodosis is not an argument of the becausative in

⁹The actual meaning of (177), ‘they had medicine because they won’ would be the opposite of what makes sense in the story. ‘It’s backwards,’ in my consultant’s words.

those constructions. So is the apodosis an argument in the because constructions without the linker in (173–175)?

I believe the answer is no: The apodosis is never an argument of the becausative. (173–175) have the same argument ordering as in (178), but without a linker attached. The protasis is also explicitly subordinated with a subordinate subject-mood portmanteau (the definite and the weak moods, respectively). The apodosis is the main predicate of the sentence and takes the main clause's subject-mood portmanteau. If the becausative is a verb, the structure in (173–175) is very like the SVCs of adpositive-like verbs (§3.2).

Context for (179, 180): Two teams are playing tug of war. Our team is strongest and we won.

(179) hiteʔitapin ʔuunuuʔ naʂukqin.

hiteʔitap=(m)in ʔuunuuʔ naʂuk=qin

win=REAL.1PL because strong=DEFN.1PL

‘We won because we are strong.’ (B, Marjorie Touchie)

(180) tunuomitniʂ ʔunwiiʔ ʔaaʔakin.

tunuomit=niʂ ʔunwiiʔ ʔaaʔak=(y)in

win=STRG.1PL because strong=WEAK.1PL

‘We won because we are strong.’ (N, Fidelia Haiyupis)

Examples like (179) and (180) are in some ways the rarest form of the because construction. My consultant Marjorie Touchie (Ucluelet) freely and frequently produced constructions like this, but Fidelia Haiyupis (Ehatesaht) and Julia Lucas (Ahousaht) rejected examples like this, insisting that these cases needed to contain a linker. However, both Fidelia and Julia produced such a sentence in fluent speech. If I had to make a guess about why these sentences sounded strange out of the blue, it would be that the becausative-first construction is the older and more conservative pattern, while the apodosis-first construction is newer, possibly under the influence of the English word order. However, this is speculation.

Finally, ʔuunuuʔ/ʔunwiiʔ must take a protasis that is verbal, not nominal (181, which is from the

same context as 173) or adjectival (182). This is somewhat unusual, given the language's flexibility around predication (§??).

(181) *wikitaḥ ḥuḥ weʔiç ʔuunuuḥ naʔaqakʔisʔi.

wik=(m)it=(m)aʔḥ ḥuḥ weʔiç ʔuunuuḥ naʔaqak=ʔis=ʔiʔ

NEG=PST=REAL.1SG good sleep because baby=DIMIN=ART

Intended: 'I didn't sleep well because of the baby.' (B, Bob Mundy)

(182) *hitaʔapweʔin kaatkimsuptaḥ taḥaʔisʔi ʔuunuuḥ naʔuk.

hitaʔap=weʔin kaatkimsuptaḥ taḥa=ʔis=ʔiʔ ʔuunuuḥ naʔuk

win=HRSY.3 race child=DIMIN=ART because strong

Intended: 'The kid won the race because he is strong.' (B, Bob Mundy)

The evidence suggests something like the following for ʔuunuuḥ and ʔunwiiḥ. These words are verbs that take a single clausal complement, a protasis, which must be verbal and may be optionally introduced by a complementizer. The way the BECAUSE relation is syntactically related to its apodosis is either through a SVC, which behaves much like the adpositive-like SVCs, or via a linker construction which links the apodosis and becausative.

Where ʔuunuuḥ and ʔunwiiḥ behave as verbs with a verbal complement representing the protasis, ʔuusaḥi requires its nominal complement protasis. Examples (183, 184) below are a rephrasing of (173), demonstrating that, opposite from ʔuunuuḥ/ʔunwiiḥ, ʔuusaḥi must take a noun phrase protasis and not a verbal clause.

(183) ʔuusaḥimta naʔaqakʔi. wikitaḥ ḥuḥ weʔiç.

ʔuusaḥi=imt=(m)aʔ naʔaqak=ʔiʔ. wik=(m)it=(m)aʔḥ ḥuḥ weʔiç

because.of=PST=REAL.3 baby=ART NEG=PST=REAL.1SG good sleep

'It was because of the baby; I didn't sleep well.' (B, Bob Mundy)

- (184) *ʔuusaḥimta fiḥak naʔaqakʔi. wikitaḥ ʔuʔ weʔič.

ʔuusaḥi=imt=(m)aʔ fiḥak naʔaqak=ʔiʔ. wik=(m)it=(m)aʔḥ ʔuʔ weʔič

because.of=PST=REAL.3 cry.DR baby NEG=PST=REAL.1SG good sleep

Intended: 'It was because of the crying baby; I didn't sleep well.' (B, Bob Mundy)

The noun phrase protasis must also occur immediately following *ʔuusaḥi*, as shown in (185, 186).

- (185) ʔuusaḥi ʔuʔi hitaʔap.

ʔuusaḥi ʔuʔi hitaʔap

because.of medicine win

'They won because of the medicine.' (C, *tupaat* Julia Lucas)

- (186) *ʔuusaḥi hitaʔap ʔuʔi.

ʔuusaḥi hitaʔap ʔuʔi

because.of win medicine

Intended: 'They won because of the medicine.' (C, *tupaat* Julia Lucas)

ʔuusaḥi may only take a clausal protasis if the protasis is preceded by the complementizer (187, 188).

- (187) ʔuusaḥi hitaʔap ʔin ʔuʔinak.

ʔuusaḥi hitaʔap ʔin ʔuʔi-naʔk

because.of win COMP medicine-have

'They won because they had medicine.' (C, *tupaat* Julia Lucas)

- (188) ʔuusaḥis wik ʔuʔ waʔič ʔin wawaʔwiqa ʔiniiʔ.

ʔuusaḥi=s wik ʔuʔ waʔič ʔin wawaʔwiqa ʔiniiʔ

because.of=STRG.1SG NEG good sleep COMP bark dog

'I didn't sleep well because of the dog.' (C, *tupaat* Julia Lucas)

ʔuusaʔhi is able to take the linker, although like the use of the complementizer, this changes the syntactic category of its complement, from a noun or participant to a clause.

(189) ʔuusaqtumtʔiʃ ʔuusaʔhiqʰ wikaʔukʷint.

ʔuusaqta=umt=ʔiʃ ʔuusaʔhi-(q)ʰ wik-!aʔuk=int

hurt=PST=STRG.3 because-LINK NEG-look.after=PST

‘He got hurt because he wasn’t paying attention.’ (N, Fidelia Haiyupis)

Like *ʔuunuuʔ/ʔunwiiʔ*, *ʔuusaʔhi* appears to be a verb taking a single argument, a protasis. This is associated with the apodosis of the BECAUSE relation via either a serial verb construction with the clausal apodosis, or with a linker. Unlike *ʔuunuuʔ/ʔunwiiʔ*, *ʔuusaʔhi* takes a nominal protasis, but this can be changed into a verbal protasis with either the introduction of the complementizer or by attaching the linker to *ʔuusaʔhi*.

4.2.2 *ʔuyi*

Of the possibly-verbal, possibly-adpositional words in Nuuchahnulth, *ʔuyi* and *ʔuukʷit* are perhaps the most ambiguous cases (Adam Werle, *p.c.*). The meaning of *ʔuyi* is ‘at (a time)’ and it typically cooccurs with another predicative word in a sentence. In this case, the clausal clitics scope over both predicates (190–194). The temporal complement of *ʔuyi* can be a nominal either occurring after (190) or before (191) *ʔuyi* itself, it can be expressed in a clause with a dependent mood such as the possible mood (192) or the definite mood (193), or it can be dropped from the clause entirely (194).

(190) ʔuyiwitsiis saantii ʔucičʔ ciqʷwli.

ʔuyi-wits=(y)iis saantii ʔu-ci-čʔ ciq-uwʔ=ʔiʰ

at.a.time-going.to=WEAK.1SG Sunday x-go.to-MO pray-building=ART

‘I’m going to church on Sunday.’ (Q, Sophie Billy)

- (191) *waʔaʔakin yuuʔuʔiʔaʔh kuʔaʔ ʔuyi.*
waʔaʔak-LS=(m)in yuuʔuʔiʔaʔh kuʔaʔ ʔuyi
walk-GR=REAL.1PL Ucluelet morning at.a.time
 ‘We’re going to Ucluelet in the morning.’ (B, Bob Mundy)
- (192) *ʔuyimaʔaʔa ʔaʔa ʔaʔaʔiʔ kuʔaʔ-ʔiʔiʔaʔquu.*
ʔuyi=maʔh=ʔaʔa ʔaʔaʔiʔ kuʔaʔ-ʔiʔiʔaʔ=ʔaʔ=quu
at.a.time=REAL.1SG=HABIT read morning-IN=NOW=PSSB.3
 ‘I read in the mornings.’ (B, Bob Mundy)
- (193) *ʔuyimtaʔ ʔimtnaakʔiʔ ʔakupʔiʔeʔqas.*
ʔuyi=imt=(m)aʔh ʔimt-naʔk-ʔiʔ ʔakup-ʔiʔ=ʔaʔ=qaʔs
at.a.time=PST=REAL.1SG name-have-MO man-MO=NOW=DEFN.1SG
 ‘I was a full man when I got my name.’ (B, Bob Mundy)
- (194) *ʔuyiʔum kithʔiʔ siiiʔ.*
ʔuyi=ʔum kith-ʔiʔ si-L.(ʔ)iʔ
at.a.time=CMMD.FUT.1PL ring-MO 1SG-do.to
 ‘Call me then.’ (C, *tupaat* Julia Lucas)

ʔuyi has a tendency to double in fluent speech: as the first predicate of a two-utterance, then later following its object (195, 196). This could be described grammatically as the first *ʔuyi* occurring with a dropped argument and the second with its object. Note that the sentence in (196) is grammatical without the doubling (197).

- (195) *ʔuyimtinʔaʔa waʔaʔak May ʔuyiʔeʔ.*
ʔuyi=imt=(m)in=ʔaʔa waʔaʔak May ʔuyi=ʔaʔ
at.a.time=PST=REAL.1PL=HABIT go May at.a.time=NOW
 ‘We would go (there) in May.’ (B, Bob Mundy)

(196) ʔuyisʔaʔ yaacuk kuʔaʔ ʔuyi.

ʔuyi=s=ʔaʔ yaacuk kuʔaʔ ʔuyi
at.a.time=STRG.ISG=HABIT walk morning at.a.time
'I walk in the morning.' (C, *tupaat* Julia Lucas)

(197) ʔuyisʔaʔ yaacuk kuʔaʔ.

ʔuyi=s=ʔaʔ yaacuk kuʔaʔ
at.a.time=STRG.ISG=HABIT walk morning
'I walk in the morning.' (C, *tupaat* Julia Lucas)

The features of *ʔuyi* so far are in line with other verbs. The clitic-sharing across predicates and the structure of (197) in particular is identical to other serial verb constructions (see TODO serial verb section). However, the doubling in (195, 196) is unique. One point of differentiation is that *ʔuyi* only marginally accepts the linker. After attempting to elicit and construct examples of linked *ʔuyiqh*, Barkley speakers Bob Mundy and Marjorie Touchie said that *ʔuyiqh* was not a word. They rejected a construction that added a linker to an expression for 'tomorrow' (198), as did Central speaker Julia Lucas when I presented her with the same construction (199). Marjorie Touchie immediately corrected (198) by telling me that the way to say this would be with *ʔuyi ʔamii*.

(198) *ʔuyiqhʔaʔaʔ ʔamii mamuuk hiʔ makuuʔ.

ʔuyi-(q)h=ʔaʔ=(m)aʔ ʔamii mamuuk hiʔ makuuʔ
at.a.time-LINK=NOW=REAL.ISG one.day.away work at.a.location store

Intended: 'I will go to work at the store tomorrow.' (B, Bob Mundy & Marjorie Touchie)

(199) *ʔuyiqhʔaʔs ʔamii mamuuk hiʔ makuwiʔ.

ʔuyi-(q)h=ʔaʔ=s ʔamii mamuuk hiʔ makuuʔ
at.a.time-LINK=NOW=STRG.ISG one.day.away work at.a.location store

Intended: 'I will go to work at the store tomorrow.' (C, *tupaat* Julia Lucas)

Unlike Bob and Marjorie, Julia did believe that *ʔuyiqh* was a possible word and offered up this sentence as an example case:

- (200) ʔuyiqh-wítass ʔaʔpit tinʔaʔ huʔacačĩʔ.
 ʔuyi-(q)h-wítas=s ʔaʔ-pit tin-ʔaʔ huʔa-ca-čĩʔ
 at.a.time-LINK-going.to=STRG.1SG two-times bell-sound.of back-go-MO
 ‘I will come back at two o’clock.’ (C, *tupaat* Julia Lucas)

I am unable to explain why (200) is grammatical and (199) is not. In all of the Nootka Texts, there is only one example of linked *ʔuyiqh*, out of approximately 746 instances of *ʔuyi*.

- (201) minkšiʔaʔquu činaaqhčik nunuuk ʔuʔuyiqh ʔuʔuuštaqyuqʷaʔšyakukʔi.
 mink-šiʔ=ʔaʔ=quu čin-aʔ-(q)hčik nunuuk R-ʔuyi-(q)h
 around-MO-NOW=PSSB.3 pull.hair-DR-along.the.way sing.DR PL-at.the.time.of-LINK
 R-ʔuuštaqyu-qalš-ʔak=uk=ʔi
 PL-doctor-take.action.on-for.the.purpose.of=POSS=ART
 ‘As they make the circuit, dragging them along by the hair, they sing his doctoring songs.’ (Sapir & Swadesh 1939:105)

The marginality of linkers on *ʔuyi* – and its capacity for grammatical doubling – suggests that there is something special about this word, although it behaves in most other ways like a verb entering into a serial verb construction. Like *ʔuusahi* (§4.2.1), *ʔuyi* may be a change-in-progress, from a verb to something preposition-like.

4.2.3 *Adpositive-like words*

In her dissertation, Woo (2007) examines the syntax of what she terms “prepositional predicates” and, ultimately, agrees with previous researchers that these words are verbs. The words she considers are: (1) *ʔuuʔwaʔ* ‘using’, (2) *ʔuuʔink* ‘using’, (3) *ʔuuchin* benefactive, (4) *ʔuʔatup* benefactive/recipient, (5)

ʔuukčamatčiqh ‘do together with someone’, (6) *ʔuk^wink* ‘go with’, (7) *ʔuuk^wil* ‘do to’, (8) *ʔuhta* ‘do to’, and (9) *ʔuh* subject marker.

Woo separates out the last three of the list from the rest. The first six of these prepositional predicates introduce an extra argument into the clause, and using the Minimal Framework, Woo categorizes them as full verbs (V) which, when working in concert with a main verb, coordinate at the level of *ν*P. This is supported in part by the first set of words can occur as the sole predicate of a sentence.

However, the latter three words (*ʔuuk^wil*, *ʔuhta*, and *ʔuh*) optionally mark arguments already inherent in the main verb. They require a main predicate to form a grammatical sentence (or may only be used alone in special circumstances, like question-answering). These Woo categorizes as flavors of *ν*.

Although I approach my analysis from within a different framework, I agree with Woo’s broad categorization. I checked speaker’s intuitions about attaching the linker *-(q)h* to these adpositive-like words and the judgments I received support Woo’s bifurcation into two categories, and importantly that the first category are in fact verbs. Not all speakers recognize or use all of these adpositive-like words, so I was only able to test a subset. There is also a morphophonological problem testing *ʔuh* (which would be a **ʔuhh* with the linker). However, I have collected data on (1) *ʔuuḥwāt*, (3) *ʔuuchin*, (4) *ʔuḡatup*, (not in Woo’s list) *ʔuupaat*, (7) *ʔuuk^wil*, and (8) *ʔuhta*. In short, the words Woo’s calls verbs mostly accept the linker, while all of her “little-*ν*” words do not.

4.2.3.0.1 *ʔuuḥwāt* The adpositive verb *ʔuuḥwāt* ‘using’ can accept the linker in a sentence without any change of meaning.

(202) *wikcuk^wapʔic ʔiisʔiisa ʔuuḥwāt ʔiisćuuýak.*

wikcuk=lap=ʔic ʔis-LR2L.a ʔuuḥwāt ʔiisćuuýak

easy=CAUS=STRG.2SG write-RP using computer

‘It’s easy for you to write using a computer.’ (N, Fidelia Haiyupis)

- (203) wikcuk^wapʔic ʔiisʔiisa ʔuuḥwəḥ ʔiiscuuʔak.
 wikcuk=!ap=ʔic ʔis-LR2L.a ʔuuḥwəḥ-(q)ḥ ʔiiscuuʔak
 easy=CAUS=STRG.2SG write-RP using-LINK computer
 ‘It’s easy for you to write using a computer.’ (N, Fidelia Haiyupis)

4.2.3.0.2 ʔuuchin The adpositive verb *ʔuuchin* ‘for, on the behalf of’ can also accept the linker, although my consultant was less sure about it. She said that I could “get away with” (205) but thought it was unnecessary.

- (204) ʔuuchins mamuuk ʔuušḥyumsukqs.
 ʔuuchin=s mamuuk ʔuuš-ḥyums=uk=qs
 BENEF=STRG.1SG work some-related.or.friend=POSS=DEFN.1SG
 ‘I’m working for my friend.’ (N, Fidelia Haiyupis)

- (205) ʔuuchinqḥʔaʔs mamuuk ʔuušḥyumsukqs.
 ʔuuchin-(q)ḥ=!aʔ=s mamuuk ʔuuš-ḥyums=uk=qs
 BENEF-LINK=NOW=STRG.1SG work some-related.or.friend=POSS=DEFN.1SG
 ‘I’m working for my friend.’ (N, Fidelia Haiyupis)

4.2.3.0.3 ʔuʔatup There is speaker disagreement on whether the adpositive verb *ʔuʔatup* ‘on the behalf of, for the benefit of’ freely accepts the linker. My consultant *tupaat* Julia Lucas, a Central speaker, accepted it (206, 207) but my Barkley Sound consultants Bob Mundy and Marjorie Touchie did not (208, 209). This may be another case of a change in progress, where for my Barkley consultants, *ʔuʔatup* is coming to more closely resemble *ʔuuk^wit* grammatically (§4.2.3.0.5), something approaching a true adposition.

- (206) ʔakuulis suwa ɰiyaɰi ʕapac ʔuʔatup ɰaak^waaʔukʔitk.
 ʔakuuli=s suwa ɰiyaɰi ʕapac ʔuʔatup ɰaak^waaʔ=uk=ʔitk.
 loan=STRG.1SG 2SG D3 canoe BENEF daughter=POSS=DEFN.2SG
 ‘I’ m loaning you that canoe for your daughter.’ (C, *tupaat* Julia Lucas)
- (207) ʔakuulis suwa ɰiyaɰi ʕapac ʔuʔatupɰ ɰaak^waaʔukʔitk.
 ʔakuuli=s suwa ɰiyaɰi ʕapac ʔuʔatup-(q)ɰ ɰaak^waaʔ=uk=ʔitk.
 loan=STRG.1SG 2SG D3 canoe BENEF-LINK daughter=POSS=DEFN.2SG
 ‘I’ m loaning you that canoe for your daughter.’ (C, *tupaat* Julia Lucas)
- (208) huyaalaɰ ʔuʔatup ʔaatɰeʔis.
 huyaal=(m)aʔɰ ʔuʔatup ʔaatɰa=ʔis.
 dance=REAL.1SG BENEF child.PL=DIM
 ‘I dance for the children.’ (B, Bob Mundy, Marjorie Touchie)
- (209) *huyaalaɰ ʔuʔatupɰ ʔaatɰeʔis.
 huyaal=(m)aʔɰ ʔuʔatup-(q)ɰ ʔaatɰa=ʔis
 dance=REAL.1SG BENEF-LINK child.PL=DIM
 Intended: ‘I dance for the children.’ (B, Bob Mundy, Marjorie Touchie)

4.2.3.0.4 ʔuupaal Though this does not appear in Woo (2007), it is another adpositive-like verb that appears to have the same meaning as ʔuk^wink ‘with’. My consultants familiar with the word used it both with and without the linker.

- (210) ciiqmaɰapiwitasniʂ ʔuupaal ʔuk^wiisakqs.
 ciq-maɰ-api-LS-witas=niʂ ʔuupaal ʔuk^wiisq=ʔak=qs.
 speak-move.DR-above-GRAD-going.to=STRG.1PL with younger.sibling=POSS=DEFN.1SG
 ‘I am going to speak with my younger sister.’ (C, *tupaat* Julia Lucas)

- (211) *ciiqmałapiwitasniš ʔuupaalq̣h ʔukʷiiqsakqs.*

ciq-mał-api-LS-witas=niš ʔuupaal-(q)h ʔukʷiiqsu=ʔak=qs.
 speak-move.DR-above-GRAD-going.to=STRG.1PL with-LINK younger.sibling=POSS=DEFN.1SG
 ‘I am going to speak with my younger sister.’ (C, *tupaat* Julia Lucas)

- (212) *ʔuupaalwitasah yaqsčafinukqas ḳaniswitas.*

ʔuupaal-witas=(m)aʔh yaq-sčafin=uk=qas ḳanis-witas.
 with-going.to=REAL.1SG who-be.friend=POSS=DEFN.1SG camp-going.to
 ‘I’m going camping with my friends.’ (B, Marjorie Touchie)

- (213) *wałakah namint ʔuupaalh yaqsčafinukqas ḳaniswitas.*

walaak-LS=(m)aʔh namint ʔuupaal-(q)h yaq-sčafin=uk=qas ḳanis-witas.
 go.MO-GRAD=REAL.1PL Namint with-LINK who-be.friend=POSS=DEFN.1SG camp-going.to
 ‘I am going to go with my friends to camp at Namint.’ (B, Bob Mundy)

4.2.3.0.5 ʔuukʷil Unlike the fully predicative verbs above, *ʔuukʷil* ‘do to’ does not accept the linker.

- (214) *haliilintʔiš ʔiiḥatisʔath ʔuukʷil čisaaʔath čicsṭalwitas.*

haliil=int=ʔiš ʔiiḥatisʔath ʔu-L.(č)il čisaaʔath čicsṭal-witas
 ask=PST=STRG.3 Ehattisaht DO.TO Tseshaht do.tug.of.war-going.to
 ‘The Ehattesahts invited the Tseshahts to play tug of war.’ (N, Fidelia Haiyupis)

- (215) **haliilintʔiš ʔiiḥatisʔath ʔuukʷilḥ čisaaʔath čicsṭalwitas.*

haliil=int=ʔiš ʔiiḥatisʔath ʔu-L.(č)ilḥ čisaaʔath čicsṭal-witas
 ask=PST=STRG.3 Ehattisaht DO.TO-LINK Tseshaht do.tug.of.war-going.to
 Intended: ‘The Ehattesahts invited the Tseshahts to play tug of war.’ (N, Fidelia Haiyupis)

4.2.3.0.6 *ʔuhta* Like the more common object marker *ʔuukʷil*, *ʔuhta* ‘do to’ also does not accept the linker.

Context for (216, 217), discussing family relations.

(216) *ʔuhta* Jane *ʔuʔukʷil* Alexandra *ʔuukʷiiqsu*.

ʔuhta Jane *ʔuʔukʷil* Alexandra *ʔuukʷiiqsu*

DO.TO Jane call Alexandra younger.sibling

‘Only Jane can call Alexandra youngest.’ (C, *tupaat* Julia Lucas)

(217) **ʔuhtaqh* Jane *ʔuʔukʷil* Alexandra *ʔuukʷiiqsu*.

ʔuhta-(q)h Jane *ʔuʔukʷil* Alexandra *ʔuukʷiiqsu*

DO.TO-LINK Jane call Alexandra younger.sibling

Intended: ‘Only Jane can call Alexandra youngest.’ (C, *tupaat* Julia Lucas)

4.2.4 Summary of the linker and class-ambiguous words

I believe that this data about the attachment of the predicate linker can help shed light on the categoricity of these words. *ʔuunuuλ* and *ʔunwiiλ* ‘because’ behave like verbs, and I believe they should be treated as such. *ʔuyi* appears verbal but more marginally so, and is possibly in the process of transitioning to a preposition. The adpositive-like words that can accept the linker seem to be clearly verbal, which agrees with Woo (2007)’s categorization. However the argument-marking words *ʔuukʷil* and *ʔuhta* behave differently, as befitting non-predicative words belonging to a different category.

4.3 HPSG Analysis and Implementation

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Appendix A

ORTHOGRAPHY

Nuuchahnulth orthography is phonemically transparent. The writing system is fairly recent and is loosely Americanist phonetic notation or APA, with a few alterations.

Nuuchahnulth has five vowel qualities, /a, e, i, o, u/ with a short/long distinction. Mid-vowels typically only occur long, although the Barkley dialect has an ablaut rule that derives short /e/ from /a/. The consonant inventory is quite large and shown in Table A.1.

Table A.1: Nuuchahnulth consonants

plain	p	t	ḷ	c	č	k	k ^w	q	q ^w		
plosives											
glottalized	ᵀ	ᵀ	ḷ̥	c̥	č̥	k̥	k̥ ^w			ʔ	ʔ
plosives											
fricatives			ɬ	s	š	x	x ^w	ɣ	ɣ ^w	h	h
resonants	m	n			y	w					
glottalized	m̥	n̥			y̥	w̥					
resonants											

APA is not the world standard in phonetic representation, so I list below the cases where the Nuuchahnulth symbols have a value other than their expected IPA interpretation:

- ɬ is the voiceless lateral fricative, ɬ
- ḷ is the voiceless lateral affricate, tɬ̥
- ḷ̥ is the corresponding ejective, tɬ̥'
- c is the voiceless alveolar sibilant affricate, ts̥

- ɕ is the corresponding ejective, $\widehat{ts'}$
- ʃ is the voiceless postalveolar sibilant
- ʧ is the voiceless postalveolar sibilant affricate $\widehat{tʃ}$
- ɕ̥ is the corresponding ejective, $\widehat{tʃ'}$
- x is the voiceless uvular fricative, χ
- x^w is the corresponding labialized fricative, χ^w
- ʕ is the voiceless pharyngeal fricative, ħ
- y is the voiced palatal glide, j
- m̥, n̥, ɟ̥, w̥ are preglottalized: $\text{ʔm}, \text{ʔn}, \text{ʔy}, \text{ʔw}$
- ʕ̥ is the so-called pharyngeal stop, which has been claimed to be a pre-glottalized pharyngeal $[\text{ʔʕ}]$ (Shank & Wilson 2000), or in the most complete study, an epiglottal stop with a pharyngeal off-glide $[\text{ʔ}^{\text{ʕ}}]$ (Carlson et al. 2001; Esling et al. 2005). To my ears it has multiple realizations, and I find it difficult to distinguish from ʔ before /a/. It patterns in the phonology with the ejective series,¹ thus its placement in the chart.

¹In places where the grammar would generate ɕ̥ or ɕ̥^w, ʕ̥ is always found instead. ʕ̥ also occurs where cognate Makah words have either ɕ̥ or ɕ̥^w.

Appendix B

GLOSSING CONVENTIONS

Many of the glossing conventions I use are non-standard and adapted particularly to the challenges of Nuuchahnulth. I will first address some of the special notations in the gloss line, and then give the grams I use.

B.1 Segmentation symbols

There are four parts of Nuuchahnulth phonology that require special symbols in the morpheme segmentation: two types of consonant mutations, variable-length vowels, and segments that only appear after a vowel or nasal.

Consonant mutation is triggered by certain affixes, following patterns called “hardening” and “softening” (Werle 2010). A “hardening” suffix causes the preceding segment to become glottalized, resulting in an ejective in the case of stops and affricates, and otherwise inserts a glottal stop. The hardening pattern for fricatives differs between hardening suffixes and hardening clitics. Suffix hardening typically converts the fricative into a glottalized glide, whereas clitic hardening inserts a glottal stop.

A “softening” suffix causes the preceding segment to become deglottalized, converting ejectives to plain stops, weakens fricatives to glides, and otherwise inserts a glottal stop. Nuuchahnulth only has suffix (and not clitic) softening.

Following Werle (2010), I use ! to represent hardening, and ° to represent softening, across both clitics and suffixes. The ! notation was first introduced by Boas (1947), and ° by Jacobsen (1996). Like Werle, I abandon Sapir’s use of ’ and ‘ for mutations, and use the same symbols for both suffix and clitic mutations. Examples of all three types of suffix and clitic hardening and softening are shown in (218–220).

(218) wiinapasʔaʔi

wiinapi-aʔs=!aʔ=!iʔ

stop-outside.DR=CAUS=CMMD.2SG

‘Stop (the car or driver of the car).’ (C, *tupaat* Julia Lucas)

(219) čiyiił

čis-!iʔł

line.up-outside.MO

‘line up outside’ (N, Fidelia Haiyupis)

(220) hišumyilʔaaqłniš hawiiʔałquu ʔapwín náas.

hišumł-°ilʔaaqł=niʔš

hawiił=!ał=quu

ʔapwín náas

gather.together-indoors.DR=FUT=STRG.1PL finish=NOW=PSSB.3 half day

‘Let’s get together at midday.’ (N, Fidelia Haiyupis)

Nuuchahnulth also has vowels that may be long or short depending on where they fall in the word. These vowels are long in the first two syllables of a word, and short in the third syllable or later. Following the established system in Wakashan studies, I represent these syllables in the morpheme line as the vowel followed by a ˙.¹ Both long and short realizations of variable-length vowels are shown for the ending =maʔ in (221, 222).

(221) ʔałiičiiʔałma ʔašii.

ʔał-°iʔčiił=!ał=maʔ ʔašii

two-IN=NOW=REAL.3 road

‘There are two roads (now).’ (B, Bob Mundy)

¹This innovation is thanks to Rose 1981, who amended Sapir & Swadesh 1939’s more cumbersome ˘

(222) ʔuɫmaa ʕuʂukʔi.

ʔuɫ=maʔ ʕuʂuk=ʔiʔ

good=REAL.3 new=ART

‘The new one is nice.’ (B, Bob Mundy)

Many affixes in Nuuchahnulth have a leading consonant that regularly disappears under certain phonological conditions. Again, following the established literature in South Wakashan and first introduced by Sapir, I write these disappearing consonants in parentheses. Both realizations for the suffix *-L.(č)it* are shown in (223, 224).

(223) ʔaaqačilk ʔaacsɑ.

ʔaqa-L.(č)it=k ʔaacsɑ

what-DO.TO=QUES.2SG see.CT

‘What are you watching?’ (C, *tupaat* Julia Lucas)

(224) ʔuʔik^{wi}ʔs suutiɫ.

ʔuʔi-k^{wi}ʔ³=s sut-L.(č)it

medicine-MO=STRG.1SG 2SG-do.to

‘I’m giving you medicine.’ (C, *tupaat* Julia Lucas)

Which consonants of an affix are disappearing may change dialect-to-dialect. I have attempted to segment disappearing consonants as appropriate for each dialect.⁴

³The momentaneous ending is typically *-k^{wi}ʔ* after *u*, *-čʔ* after other vowels and nasals, and *-šʔ* after other consonants. This is a rare instance of *-k^{wi}ʔ* occurring after something other than a *u*, and might be an indication that there was a *u* here in an earlier stage of the language.

⁴It is notable that my consultant Julia Lucas fairly consistently pronounces the /q/ in the linker suffix *-(q)h*. I still transcribe the suffix in the segmentation line with the parentheses, as she sometimes fails to pronounce the /q/ when attached to quantifiers.

B.2 *Template notation*

Nuuchahnulth has a set of vowel length and reduplication templates, typically triggered by a suffix containing segmental phonology. These templates specify reduplication and vowel length of up to the first two syllables of the word. I gloss these templates with the symbols *L*, *S*, *R*, and *R*₂, attached to the suffix which triggers the template.⁵

L and *S* indicate *Long* and *Short* vowels, and are ordered with respect to their occurrence (*LS* for a long first vowel and a short second vowel, *SS* for two short vowels, and so on). *R* indicates an onset-nucleus reduplication pattern, and *R*₂ a pattern that is onset-nucleus for polysyllabic roots, and full reduplication for monosyllabic roots. *R*₂ is a pattern that only occurs with the iterative and repetitive aspects, and a limited number of plurals. Vowel length is specified prior to reduplication. *LR* means a long reduplicant (followed by a vowel whose length is unaltered), and *RL* means a reduplicant followed by a lengthened base. Table B.1 gives a list of most types of templates found in the language, including an example of the two patterns for the *R*₂ template.

⁵There are two exceptions to the general rule that templatic morphology is associated with segmental phonology. The first is the gradative aspect, which I gloss as though it were an aspect suffix consisting only of the template. The other is certain kinds of plurals, which may consist of only reduplication or lengthening. I gloss these as prefixes consisting of the templatic information.

Table B.1: List of Lexical Suffix Templates

template	gloss	surface form
L	ču-L.ʔatu dive-sink.into.water	čuʔatu dive down into water
LS	hašił-LS.sa have.news-AUG1	haašiłsa interesting
SS	ʔaya- ^o i-čił-SS.(q)aq many-IN-AUG2	ʔayičiłaq became very many
R	ʔuc-R.liiḥ sea.urchin-go.after.food	ʔuʔuciiḥ getting sea urchins
LR	kuḥ ^w -LR.inqil hole-at.ribs	kuukuḥinqil hole at the ribs
LRS	q ^w i-LRS.it ^o ak what-fear	q ^w iiq ^w it ^o ak whatever one fears
LRL	LRL-mamaḥni PL-white.person	maamaamaḥni white people
RL	ʔu-RL.čiyał empty-pursue	ʔuʔuuk ^w iyał pursue it
R2	R2-nuuk PL-song	nuuknuuk songs
LR2L	ʔapat-LR2L.a think-RP	ʔaataapata consider
LR2L	huuł-LR2L.a dance-RP	huułhuuła dance

B.3 Grams

B.3.1 Aspect

The aspect system of South Wakashan is likely in the process of transition (Matthew Davidson, *personal communication*). In my glosses, I use the older and more conservative categorization taken from Sapir & Swadesh 1939, although in the modern system some of these distinctions appear to be collapsing. The table below is adapted from Werle (*forthcoming*). I use his grams for the conservative names of the aspects. There is a straightforward collapse from the conservative aspect system to the (hypothesized) modern aspect system (labeled “practical name” in the table). By using the most conservative glossing I

avoid losing information.

Table B.2: Aspects in Nuuchahnulth

practical name	conservative name	gram	forms
complete	momentaneous	MO	-čič̣, -šič̣, -k ^w ič̣, -uč̣
	inceptive	IN	- ^o ačič̣, -iičič̣
continuous	durative	DR	-(ʔ)ak, -(ʔ)uk, -ḥii
	continuative	CT	-(y)a [·]
ongoing	gradulative	GR	-LS
repetitive	repetitive	RP	-LRL.(y)a
off-and-on	iterative	IT	-RL.č̣, -RL.ṣ̌

As discussed in (§??), these aspects can be divided in perfective and imperfective categories. Verbs ending in momentaneous or inceptive (or “complete”) aspect are perfective, while the rest are imperfective. For more on this system, see the diagram in (62).

B.3.2 Mood

The category traditionally called “Mood” in Nuuchahnulth is not the same as “mood” as usually used by linguists, which stands in opposition to aspect and tense. Instead, Nuuchahnulth “mood” is a morphological category that fuses evidential information with subject person and number, as well as some syntactic information (such as question-marking). These moods can be split into matrix clause moods, dependent clause moods, and commands. Commands are special matrix clause moods that contain object agreement (all other moods only contain subject agreement). Appendix B.3.2 gives a list of the moods, their abbreviations, and their third person forms. For commands, I list second person singular forms without an object, or a third person object, as third person agreement is null.

The meanings of these moods are fairly consistent across dialects. The strong mood and real mood

⁶Although the third person neutral is null-marked, the first and second person neutral mood forms are non-null. In the IGT, I do not actually gloss third-person neutral with a \emptyset , out of an aversion to inserting unpronounced items into an analysis, and due to the fact that my implemented grammar does not make use of null-marked elements in the gloss line.

⁷The article in Nuuchahnulth is also part of the mood complex, occupying the same morphological position and complementary with the other moods. More on this can be found in Inman (2018).

Mood Enclitics		
name	gram	third person
Matrix Moods		
real	REAL	= <i>ma'</i>
strong	STRG	= <i>ʔi's</i>
neutral	NEUT	= <i>∅</i> ⁶
question	QUES	= <i>ha'</i>
hearsay	HRSY	= <i>weʔin</i> , = <i>waʔi's</i>
inferential	INFR	= <i>ča'ʔas</i>
dubitative	DUBT	= <i>qa'ča</i>
Dependent Moods		
weak	WEAK	=(<i>y</i>) <i>ii</i>
definite	DEFN	= <i>ʔi'tq</i>
possible	PSSB	= <i>quu</i>
dubitative formative	UNK1	=(<i>w</i>) <i>uus</i>
dubitative relative	UNK2	=(<i>w</i>) <i>uusi</i>
embedded	EMBD	= <i>qa'</i>
purposive	PURP	= <i>leeʔita</i> , = <i>aaʔi</i>
article ⁷	ARTL	= <i>ʔi'</i>
hearsay article	ARTH	= <i>ča</i>
Command Moods		
command	CMMD	= <i>li'</i>
'go' command	CMGO	= <i>či'</i>
'come' command	CMCM	= <i>li'k</i>
future command	CMFU	= <i>im</i>

have the same meaning: a strong claim to reality, with the real mood used in the Barkley Sound dialect and the strong mood used in the Central and Northern dialects. The strong mood has been lost in the Kyuquot-Checleset dialect, and the weak mood has replaced it as a matrix clause mood.

Typically a clause can have only one mood ending, although there are some exceptions: the possible mood in the third person can be followed by the hearsay, yielding a matrix mood meaning something like 'what is typically done, so I hear', and the hearsay mood can be followed by the dubitative.

B.3.3 Other Clause-Bound Morphemes

Other clause-bound morphemes that occur in the second-position clitic complex include tense (and some related notions) and valence-changing morphemes.

Table B.3: Tense, Valence-Changing, and Other Clause-Bound Morphemes

meaning	gram	morph
now	NOW	=!a λ
future	FUT	=?aaq λ , =!aaq λ
past	PST	=mit
habitual	HAB	=?aata
plural ⁸	PL	=?at
causative	CAUS	=!ap
passive ⁹	PASS	=!at
possessive	POSS	=?ak, =uk

The “now” morpheme (NOW) should not be understood as a simple present, as it is often used in conjunction with the past and future tense, and can occur in a sentence that takes place at any time. It indicates that an event is occurring in a sequence, or that the current clause is the next event in a progression.

B.3.4 Predicate-Bound Morphemes

The linker, and what I call the root-maker are suffixes bound to the predicate. The linker is described in detail in Chapter 4. The root-maker *-q* (ROOT) is used to create a bound root from a free word so that certain affixes can attach. Examples from my corpus are *saantiquwil* ‘church’, from the word *saanti* ‘Sunday’ + *-uwil* ‘indoor room’. There is also *himwićaqyak* ‘myth’, from *himwića* ‘myth telling’ + *-yak* ‘instrument, device for’.

⁸This plural is separate from the plural that occurs as part of the mood portmanteaus, and may refer to the plurality of the subject or object of the verb. It is the only way to express the plurality of a pro-dropped third person subject. More research is needed on this morpheme.

⁹The passive morpheme is also used for inalienable possession and generic statements. I do not gloss it differently according to its use.

Although it is restricted to verbs (unlike the linker and the root-maker), I include the reflexive *-stat* in this category.

Table B.4: Predicate-Bound Morphemes

meaning	gram	morph
linker	LINK	-(<i>q</i>) <i>h</i>
root-maker	ROOT	- <i>q</i>
reflexive	REFL	- <i>stat</i>

B.3.5 Augmentative and Diminutive

Nuuchahnulth has two augmentatives and at least two diminutives. The *-(q)aq* augmentative more straightforwardly means ‘big’ while the *-sa* augmentative has a broader augmentative meaning, including ‘real’, ‘true’, and ‘very’. I give the more common *-sa* the AUG1 label. The diminutives have no appreciable difference in meaning, so I gloss both as DIM.

Table B.5: Augmentative and Diminutive

meaning	gram	morph
augmentative (“real”)	AUG1	- <i>LS.sa</i>
augmentative (“big”)	AUG2	- <i>SS.(q)aq</i>
diminutive	DIM	⟨ <i>čk</i> ⟩, - <i>ʔis</i>

B.3.6 Semantically Empty Roots

Many suffixes in Nuuchahnulth contain complex semantic content, and often attach to semantically light or meaningless roots. Two semantically contentless roots are used in such cases: *hita/hina* and *ʔu*.

The roots *hita/hina*,¹⁰ are semantically and syntactically empty. They are used when the semantic and syntactic content of a word is fully expressed in the suffix(es), as in (225, 226). I gloss this root as

¹⁰There appears to be no way to predict whether *hita* or *hina* is used for a particular word, although there is a clear phonological resemblance.

EMPTY.

- (225) *hitaqsił*
 hita-qsił
 EMPTY-in.a.vessel.MO
 ‘enter into a vessel’

- (226) *hinułta*
 hina-ułta
 EMPTY-out.of.canoe
 ‘get out of the canoe’

The root *ʔu* is used as a dummy object for transitive suffixes to attach to. Many transitive verbs in Nuuchahnulth are suffixes that may attach to the first syntactic word of their direct object. In lieu of attaching to their object, these suffixes may attach to semantically empty *ʔu* instead. After attaching to *ʔu*, the direct object of the verb may be expressed as a separate word, or dropped altogether. *ʔu* is thus a “placeholder” for a syntactic object, to be filled in later or not at all. Because of its nature as a “placeholder” I chose x as the gloss for this morpheme.

- (227) *ʕumtnaak*
 ʕumt-naʔk
 name-have
 ‘having a name’

- (228) *ʔunaak ʕumt-ii*
 ʔu-naʔk ʕumt-ii
 x-have name-NMLZ
 ‘having a name’

To summarize, although both these roots are semantically contentless, I assign different grams because they have very different syntactic distributions.

Table B.6: Semantically Empty Roots

meaning	gram	morph
—	EMPTY	<i>hita, hina</i>
—	X	<i>ʔu</i>

B.3.7 Deictics

Nuuchahnulth dialects each have a set of deictics. In the Central, Northern, and Qyuquot-Checlesheht dialects there are six: four locative deictics and two topical deictics. The Barkley dialect only has the one topical deictic, and so has five altogether. For the locative deictics I use a numbering scheme 1-4, with 1 being the closest and 4 the furthest away. For the shared topical deictic I use D_{TOP}, and D_{DYN} for the topical ‘this.’ I use the Central deictics to demonstrate my glossing schema:

Table B.7: Deictics, Central Dialect

meaning	gram	morph
this	D ₁	<i>ʔaḥkuu</i>
that by you	D ₂	<i>ʔaḥḥii</i>
that	D ₃	<i>ḥaaʔaḥi</i>
that (far)	D ₄	<i>ḥuuʔaḥi</i>
this (dynamic)	D _{DYN}	<i>ḥiʔaḥi</i>
that (topical)	D _{TOP}	<i>ʔaḥʔaa</i>