# The representation of predicates at the syntactic-semantic boundary in Nuuchahnulth

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**Abstract:** In this paper I show that verbs, adjectives, and common nouns in Nuuchahnulth are all syntactic *predicates* and minimally one-place semantic *predications* (semantic units with at least one semantic argument). I demonstrate that proper nouns are zero-place predications, or semantic units with no arguments. This analysis is counter an analysis that would add a copula relation to account for predicate-flexibility in the language. I use evidence from sentential predication, the distribution of the article, and a predicate coordinator called the linker to make this case.

**Keywords:** predicates, coordination, semantics, Nuuchahnulth

## 1 Introduction

Nuuchahnulth (ISO 639-3 nuk) is a Wakashan language spoken along the west coast of Vancouver Island. I follow Werle's (2013) division of Nuuchahnulth into four broad dialect groups. From north to south the dialects are Kyuquot-Checleseht (**Q**), Northern (**N**), Central (**C**), and Barkley (**B**). The data here is taken from my own work with speakers of the language, and I examine aspects of semantic modeling of words, particularly of nouns. Motivated by approaches to meaning that are based in set theory, semanticists have long given common nouns like *dog* an inherent argument in their semantic models. Whether these arguments are available or meaningful at the syntax-semantics boundary is not immediately apparent from the usefulness of semantic models themselves. However, I argue in this paper that the inherent argument of common nouns is directly observable in the syntax of Nuuchahnulth. Certain facts of the language can only be explained by a syntactic-semantic model that considers common nouns such as *dog* something like DOG($x$) directly in the lexicon. This overt semantic argument functions in tandem with Nuuchahnulth's flexibility around syntactic predicates, a feature that has been noticed since linguistic description began on the language, and is part of the reason why it took so long for linguists to determine whether the language even differentiated between nouns and verbs (Swadesh 1938).

To show that this analysis is necessary, I will be considering evidence from the basic structure of the Nuuchahnulth clause (§2), the article *=ʔiˑ* (§3), and the predicate linker *-(q)ḥ* (§4) to examine the argument structure of lexical categories in the language. I will conclude with some thoughts for future directions, and the extensibility of this semantic representation (§5).

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Before moving on to the semantic issues brought up in this paper, it is important to define some terms and my approach. I am taking a somewhat minimal and ecumenical view with my semantic representations. The basics of all systems of compositional semantics that I know of are a series of functions and variables. To associate variables from different functions with one another, some form of scoping is required. Whether this is represented via lambda calculus (Heim and Kratzer 1998), Minimal Recursion Semantics (Copestake et al. 2005), or any other schema, all these representations relate elementary predications to variables, and correlate variables through scoping. That is, the meaning of "go" is GO($x$, $y$), where $x$ and $y$ are the yet-to-be-determined participants of the going event, placed in some conventional order (for example, *goer* first and then *destination*). If the *goer* is also running, one needs some way of variable coreferencing, often done through a quantifier of some variety; for example, $\exists x$, GO($x$, $y$) & RUN($x$).

These meaning representations can be elaborated on in important and meaningful ways. We could add an event variable, GO($e$, $x$, $y$), and then add tense, aspect, mood, and other special properties to the event variable $e$ (Davidson 1967). Rather than relying on order, we could represent arguments as property-value pairs, GO($e$, GOER=$x$, DESTINATION=$y$), or separate out the participants from the event label altogether (Parsons 1990). While all of these different ways of modeling are important, for the purposes of this paper I will leave out these and other elaborations of the semantics and only worry about the highest-level representation: the names of the atomic relations and the number of their semantic arguments, excluding the event itself.

To make a clean separation between syntactic and semantic discussions, I will use the term *predicate* to refer to the position in the syntax where a word can undergo valence-filling, and *predication* to refer to the atomic semantic unit. For instance, in example (1) below, the *predicate* is the word *ʼnaacsiičiƛ* 'see', while there are at least two semantic *predications*, the predication SEE from *ʼnaacsiičiƛ*, and the predication MAN from *čaakupiiḥ*.[1] When referring to the syntactic arguments of a predicate, I will use the term *participant*. For example, Nuuchahnulth has predicate-first syntax, followed by a set of syntactically-optional participants. When referring to semantic arguments of a predication, I will use the term *argument*.

## 2 Non-verbal predicates in Nuuchahnulth

Like many languages of the Pacific Northwest, Nuuchahnulth is very permissive about what words can be used predicatively. Predicates are sentence-initial, and followed by their (syntactically optional) participants. While verbs are the most

[1] I could represent the predication provided by *čaakupiiḥ* 'men' somewhat more precisely by indicating the plural, e.g. MAN[PL], but I will again keep my model as simple as possible, and so simply use MAN. I will omit modeling pluralization, mood, and other details. I will also represent predications with rough English glosses, rather than the (more accurate) Nuuchahnulth form. These should be understood only as conveniences, and not a deep commitment.

common type of predicate (1), it is also possible to get adjective (2) and noun (3) predicates. I use specialized IGT throughout the paper, and elaborate on the non-standard symbols and abbreviations in Appendix A.

(1) ṅaacsiičiƛʔiš hałmiiḥa quuʔas.

ṅaacs-i·čiƛ=ʔi·š hałmiiḥa quuʔas
see-IN=STRG.3SG drowning person
'He sees a drowning person.' (**N**, Fidelia Haiyupis)

(2) qʷaċałʔiš ḥaakʷaaƛʔi.

qʷaċał=ʔi·š ḥaakʷaaƛ=ʔi·
beautiful=STRG.3 young.girl=ART
'The young girl is beautiful.' (**C**, *tupaat* Julia Lucas)

(3) pisatuwiłma ʔaanaḥi.

pisatuwił=ma· ʔaanaḥi
gym=REAL.3 only
'It's only a gym.' (**B**, Marjorie Touchie)

When modeling the predicate flexibility seen in (1–3), there are two broad ways to define the representation at the semantics-syntax interface. The representation of (1) is (somewhat) straightforward. The word *ṅaacsiičiƛ* 'see' presumably is a two-place predication, relating a *seer* and a *seen-thing*. The semantic representation for the verbal predicate *ṅaacsiičiƛ* would then look something like (4), waiting for its *seer* and *seen-thing* arguments to be filled.

(4) SEE($x$, $y$)

But the syntactic-semantic interface for the predicates of (2) and (3) are more troublesome. We could represent adjectives and nouns as zero-place predications at the interface (regardless of their fully-worked out set-theoretic semantics), awaiting a higher-order predication to relate them to other predications. That is, we might have BEAUTIFUL for *qʷaċał* and GYM for *pisatuwił*. In cases like (2, 3), we would then need to insert a copula, essentially serving as a wrapper around the adjective or noun. In this schema, the syntax-semantics interface for the predicates in (2, 3) would look like (5, 6) below.

(5) BE(BEAUTIFUL, $x$)

(6) BE(GYM, $x$)

The second option is to model either both nouns and adjectives, or perhaps only adjectives, as multi-place predications with their own arguments, and no need for the copula. In this version, the adjective *qʷaċał* would directly be modeled as BEAUTIFUL($x$), and the noun *pisatuwił* would be GYM($x$). The semantics interface for the predicates in (2, 3) would look like (7, 8).

(7) BEAUTIFUL($x$)

(8) GYM($x$)

It's not immediately clear which of these models is a better model of the syntax-semantics interface in Nuuchahnulth, or indeed if choosing one over the other says anything at all about the language outside of semantic modeling. If the model in (5, 6) is chosen, the inherent argument can always be added back in the full set-theoretic semantics, even if that argument is not visible to the syntax. But I will show that only the second option seen in (7, 8), where both noun and adjective predications have an explicit argument accessible to the syntax, can model the facts of the language.

## 3 The article

One clue to the semantic modeling of nouns and adjectives is the use of the article *=ʔiˑ*. The article does not have any semantic definiteness attached, and is a second-position clitic with respect to a syntactic participant. When nouns or noun phrases are used as syntactic participants, they may optionally have an article attached. However, when verbs and adjectives are used as syntactic participants, the article is obligatory (Jacobsen 1979; Wojdak 2001). The way that the article discriminates between verbs, adjectives, common nouns, and proper nouns gives us evidence about the semantic arguments of these parts of speech.

### 3.1 Verbs, adjectives, and common nouns

It is relatively straightforward to replicate the work of Jacobsen (1979) and Wojdak (2001) showing the optionality of article attachment on nouns (9, 10), and its obligatory attachment on adjectives (11, 12) and verbs (13, 14).[2]

(9) ƛ̓amaasiƛintʔiš ḥaaẇiłaƛʔi **kiwitaana**.

ƛ̓amaas-iƛ=int=ʔiˑš ḥaaẇiłaƛ=ʔiˑ **kiwitaana**
climb-MO=PST=STRG.3 young.man=ART horse
'The young man climbed up onto the horse.' (**N**, Fidelia Haiyupis)

(10) ƛ̓amaasiƛintʔiš ḥaaẇiłaƛʔi **kiwitaanaʔi**.

ƛ̓amaas-iƛ=int=ʔiˑš ḥaaẇiłaƛ=ʔiˑ **kiwitaana=ʔi**
climb-MO=PST=STRG.3 young.man=ART horse=ART
'The young man climbed up onto the horse.' (**N**, Fidelia Haiyupis)

[2] I suspect there is a statistical difference between the use of the article on subject NPs and object NPs. However, it is grammatically optional and the statistical study has yet to be done.

Context for (11, 12): There are two roads, a new one and an old one.

(11) ƛułmaa c̓ušukʔi.

ƛuł=ma· c̓ušuk=ʔi·
good=REAL.3 new=ART
'The new one is nice.' (**B**, Bob Mundy)

(12) *ƛułmaa c̓ušuk.

ƛuł=ma· c̓ušuk
good=REAL.3 new
Intended: 'The new one is nice.' (**B**, Bob Mundy)

Context for (13, 14): There are two children. One is playing and the other is running.

(13) ʔuḥʔiiš[3] ʕiḥak kamatqukʔi.

ʔuḥ=ʔi·š ʕiḥak kamatquk=ʔi·
be=STRG.3 cry.DR run.DR=ART
'The running one is crying.' (**C**, *tupaat* Julia Lucas)

(14) *ʔuḥ ʕiḥak kamatquk.

ʔuḥ(=∅) ʕiḥak kamatquk
be(=NEUT.3) cry.DR run.DR
Intended: 'The running one is crying.' (**C**, *tupaat* Julia Lucas)

The obligatory presence of the article on verb and adjective participants says that there is something special about verbs and adjectives that separate them as a group from nouns. Since it is clear that verbs are semantic predications (they take arguments), it is possible that adjectives are predications as well. This would not be unique, as linguists have argued that in some languages adjectives are simply intransitive verbs (Li and Thompson 1981). A possible analysis is that the article, when applied to adjectives and verbs, is exposing an embedded semantic argument to the syntax. That is, the semantics of (11) and (13) look something like (15, 16).

(15) $\exists x$ NEW($x$) & GOOD($x$)

(16) $\exists x$ RUN($x$) & CRY($x$)

The article is then the syntactic element that supplies the existential operator around the verb or adjective, making the arguments of NEW and RUN available to

[3] The use of the verb *ʔuḥ* 'be' in both (13) and (14) is not providing the meaning of a copula, but gives focus to the following word, exactly like a clefted sentence in English. I will be omitting this focus operation in the later semantic representation of this sentence in (16).

be coindexed with the sentential predicates GOOD and CRY. Without the article present, there is no way in (11) to affiliate the *x* of NEW(*x*) with the *x* of GOOD(*x*).

However, the optionality of the argument on common nouns is a challenge for their semantic modeling. If they have a semantic argument, it must be exposable to the semantics with or without an article present. However if common nouns do not have a semantic argument, then the article is behaving differently when attached to nouns, as opposed to verbs and adjectives. I now turn to the difference between common and proper nouns to distinguish between the analyses.

### 3.2 Proper nouns

Proper nouns bear a special place in Nuuchahnulth grammar. Names and proper nouns are morphologically fixed: they may not, for the most part, be morphologically altered.[4] Neither a personal name (17, 18) nor a place name may take the article (19, 20).

(17) kiṯ̓šiƛ̓ints ƚuučm̓uupukqs Chelsea.[5]

kiṯ̓-šiƛ̓=int=s ƚuučm̓uup=uk=qs Chelsea
ring-MO=PST=STRG.1SG sister=POSS=DEF.1SG NAME
'I phoned my sister Chelsea.' (**N**, Fidelia Haiyupis)

(18) *kiṯ̓šiƛ̓ints ƚuučm̓uupukqs Chelsea-ʔi.

kiṯ̓-šiƛ̓=int=s ƚuučm̓uup=uk=qs Chelsea=ʔi
ring-MO=PST=STRG.1SG sister=POSS=DEF.1SG NAME=ART
Intended: 'I phoned my sister Chelsea.' (**N**, Fidelia Haiyupis)

(19) yaċasẇiċass mituuni.

yaċas-ẇiċas=s mituuni
step.foot-going.to=STRG.1SG Victoria
'I'm going to step foot in Victoria.' (**N**, Fidelia Haiyupis)

(20) *yaċasẇiċass mituuniʔi.

yaċas-ẇiċas=s mituuni=ʔiˑ
step.foot-going.to=STRG.1SG Victoria=ART
Intended: 'I'm going to step foot in Victoria.' (**N**, Fidelia Haiyupis)

This is exactly opposite from the data seen in §3.1. There, the article was required on verbs and adjectives. Here, names may not take the article. If the

[4] I have seen on a few occasions proper names take a past tense morpheme to mark that the person is deceased. This is the only morphological operation I have ever seen on a name, and an analysis of it lies beyond this paper.

[5] Example (17) was elicited by me directly in conversation but I had my consultant repeat it.

article is exposing a bound variable in the semantics, then this phenomenon begins to make sense if we extend the model of one-place predications to common nouns, but not to proper nouns.

If the semantics of a Nuuchahnulth common noun like 'sister' is actually SISTER($x$), then exposing that argument via the article makes semantic sense. However, proper nouns are not like this. "Victoria" does not mean anything like 'there is some $x$ such that IS-VICTORIA is true of $x$.' No, Victoria is that city over on the southern tip of Vancouver Island, and we all know exactly which place is being referred to with no possible variation. The same is true for names. So the semantic representation of words like *mituuni* 'Victoria' and *Chelsea* are proper zero-place predications, VICTORIA and CHELSEA. This has an interesting effect on introductions, where a helper verb is always required to introduce a name, as in (21).

(21) siy̓aaqaḥ ʔaʔasmacy̓ak.
siy̓aaq=(m)a·ḥ ʔaʔasmacy̓ak
be.1SG=REAL.1SG Marjorie.Touchie
'It's me, Marjorie Touchie.' (**B**, Marjorie Touchie)

This analysis of proper nouns as zero-place predications properly models the very strong rejection every speaker I've worked with has toward sentences like (18, 20). Proper nouns are direct referents without an internal semantic argument. On the other hand, common nouns do have a semantic argument, and speakers will regularly vary whether they use an article, as in (9, 10).

### 3.3 Summary

While Nuuchahnulth is flexible with respect to syntactic predicates, it separates verbs and adjectives from nouns by requiring verbs and adjectives (but not nouns) to be marked with the article in order to be used as a syntactic participant. Proper nouns, however, may never use the article. Only common nouns and NPs headed by a common noun are optionally marked with an article.

The cleanest explanation for this is that verbs, adjectives, and common nouns are all semantically one-place (or more) semantic predications, e.g., RUN($x$), NEW($x$), SISTER($x$). Common nouns alone may have their internal argument exposed for access in the syntax with or without the article, but verbs and adjectives require an article in order for their semantic argument to be made available. This makes the Nuuchahnulth "article" look more like a traditional relativizer.

Proper nouns, on the other hand, have *no* internal argument. They are true referents and zero-place predications, e.g., VICTORIA. Because of this, the use of the article on a proper noun is ungrammatical. Proper nouns have no semantic argument to expose. I show in §4 that this analysis of predications is required to model another phenomenon in the language, the predicate linker.

## 4 The predicate linker *-(q)ḥ*

The predicate linker *-(q)ḥ* provides additional evidence that nouns in Nuuchah-nulth are semantically one-place predicates. The categorization of this morpheme as a "predicate linker" to my knowledge was first proposed by Adam Werle (*p.c.*), although the recognition of it as some kind of coordinator dates to Sapir and Swadesh (1939), where it is given in the dictionary as 'meanwhile.' As this section will demonstrate, 'meanwhile' is not quite sufficient to explain the semantics of *-(q)ḥ*.

I believe the linker morpheme links two predicates together with the semantics of AND. While it is commonly attached to verbs, it can be attached to anything that can be a predicate. In cases where the linker appears not to be attached to a predicate, I will claim it is actually attaching in a predicative second position.

### 4.1 Verbs

A canonical example of the quantifier linking two predicates is in an utterance describing motion and manner.

(22) waałšiƛẇi̓tasniš ƛiḥaaqḥ.

wał-šiƛ-LS-ẇi̓tas=niˑš ƛiḥ-aˑ-(q)ḥ
go.home-MO-GRAD-going.to=STRG.1PL drive-DR-LINK
'We're going to drive home.' (**C**, *tupaat* Julia Lucas)

It's important that both of the verbs in (22) share the same subject, which is expressed in the clausal second-position clitic complex and scopes over both predicates. It is not possible to interpret (22) in such a way that we are going home but someone else is driving unrelatedly. The rough semantics look like:

(23) $\exists x$ 1PL($x$) & GO-HOME($x$) & DRIVE($x$)

The predicate linker scopes over both verbs and identifies the first argument of each as being identical with whatever the subject is. That is, the predicate linker has a semantics (roughly) like:

(24) $\exists x$ PRED1($x$, …) & PRED2($x$, …)

This pattern can be seen again with the verb *hił* 'be at a location', which frequently takes the linker.

(25) hiłḥʔii ḥuu wiinapuƛ.

hił-(q)ḥ=!iˑ ḥuu wiinapuƛ
be.at-LINK=CMMD.2SG D4 stop.MO
'Stop there.' (**N**, Fidelia Haiyupis)

The force of the command scopes over both predicates. (25) cannot mean you be there, and someone else is stopping. The rough semantics of (25) are below in (26).

(26) $\exists x$ 2SG($x$) & BE-AT($x$, THERE) & STOP($x$)

### 4.2 Quantifiers

There is reason to believe that quantifiers are a sub-class of adjective in Nuuchahnulth, but they are common enough and it is illuminating enough to treat them separately from non-quantificational adjectives (see §4.3). Quantifiers often take the linker, perhaps more frequently than any other part of speech. With a linker attached, quantifiers always refer to the subject of a clause, and can only have the objective reading without a linker (27, 28).

Context: I and my family are looking for a gift for my sister's birthday.

(27) ʔuušqḥ ʔuuwaʔaƛ.

ʔuuš-qḥ ʔu-L.waƛ=!aƛ
some-LINK x-find=NOW
'Someone found it.' **He/she/they found something.* (**C**, *tupaat* Julia Lucas)

(28) ʔuuwaʔaƛ ʔuuš.

ʔu-L.waƛ=!aƛ ʔuuš
x-find=NOW some
'They found something.' *?? Someone found it.* (**C**, *tupaat* Julia Lucas)

It is extremely difficult to force (28) to have an interpretation where the quantifier is the subject, and Julia Lucas rejected it.[6] However, speakers will occasionally produce sentences like (28) that have a subjective interpretation. On another occasion, Julia Lucas produced (29), when talking about people's ability to perform traditional challenges.

(29) ʔuušʔiišʔaał wiċik, ʔuuš ʕaċik, ʔuuš ʔuṁaaqƛ ʔuuẏip.

ʔuuš=ʔiːš=ʔaał wiċik, ʔuuš ʕaċik, ʔuuš ʔuṁaaqƛ
some=STRG.3=HABIT not.talented, some talented, some able.to
ʔu-iːẏip
x-get
'Some are not talented, some are talented, some are able to get (the challenge).'

[6] The order of the quantifier with respect to the main predicate is less important in (27, 28) than it may appear. Quantifiers in Nuuchahnulth frequently (but optionally) front. I do not have a good understanding of when quantifiers front and when they fail to do so, but in all of (27, 28, 29) the quantifiers are semantically identified with an argument of the main predicate, regardless of whether they front.

In (29), the quantifier *ʔuuš* 'some' is still interpreted as the subject of all the verbs, including the final transitive verb, which is very similar to the structure in (28). Clearly the syntactic parallelism in (29) is important in providing the right interpretation. This demonstrates two important things. First, that the objective interpretation of *ʔuuš* in (28) is a pragmatically preferred one, not an absolute grammatical requirement. And second, since *only* the subjective interpretation is possible with the linker, the linker is coordinating predicates below the scope of the clausal clitics, which means below the subject. So the semantics for (27) look like (30).

(30) $\exists x$ SOME($x$) & FIND($x$,$y$)

And the semantics of (28) are in (31).

(31) SOME($x$) & FIND($y$, $z$) & ($x = y$ OR $x = z$)

Because *ʔuuš* is in participant position in (28), it must be the subject or the object, thus the $x = y$ or $x = z$. But Since *ʔuuwaƛ̓* 'find' is transitive, it's not syntactically clear which argument is dropped. Pragmatically, speakers choose the objective interpretation, because if the speaker had wanted to make *ʔuuš* a subject, the sentence (27) is available and is unambiguous.

The presence or absence of the linker in the right context can affect the grammaticality of a sentence, as in (32, 33).

Context: I have landed on the beach in a canoe. While I am visiting, a wave carries it out and it sinks. One person sees it happen and I hear about it from him.

(32) *ṅaacsiičiƛ̓weʔin c̓awaakḥ niiʔatu č̓apac.*

*ṅaacs-iˑčiƛ̓=weˑʔin c̓awaak-ḥ niiʔatu č̓apac*
see-IN=HRSY.3 one-LINK sink canoe
'One person saw the canoe sink.' (**B**, Bob Mundy)

(33) **ṅaacsiičiƛ̓weʔin c̓awaak niiʔatu č̓apac.*

*ṅaacs-iˑčiƛ̓=weˑʔin c̓awaak niiʔatu č̓apac*
see-IN=HRSY.3 one sink canoe
Intended: 'One person saw the canoe sink.' (**B**, Bob Mundy)

When presented with (33), Bob said, "It sounds incomplete. One what? Which one?" The numeral *c̓awaak* cannot be a participant without an article (see §3), so the article-less *c̓awaak* 'one' cannot be a participant subject of 'see' in (33) and the sentence is ungrammatical. However, if it is linked as a co-predicate with 'see' (32), then both predicates share the third-person subject clitic and the sentence works with the semantics of (34).

(34) $\exists x$ 3RD($x$) & ONE($x$) & SEE($x$, $\exists y$ SINK(CANOE($y$)))

### 4.3 Non-quantificational Adjectives

The linker can also attach to non-quantificational adjectives, as in (35) and its semantic interpretation (36).

(35) ṫikʷaamitweʔiš čims ḥaaʔakqḥ.

ṫikʷ-a·=mit=weʔiš čims ḥaaʔak-qḥ
dig-DR=PST=HRSY3 bear strong-LINK
'The bear was digging and strong.' (**C**, *tupaat* Julia Lucas)

(36) $\exists x\ 3(x)\ \&\ \textsc{dig}(x, y)\ \&\ \textsc{bear}(x)\ \&\ \textsc{strong}(x)$

### 4.4 Nouns

We have already seen the predicate linker on an adjective coordinating with a later noun predicate (35), but it is much rarer to get the linker occurring on the noun itself. This can be forced in linguist-created sentences, but I was fortunate enough for my consultant Julia Lucas to provide a few examples in running texts. (37) is from the start of a traditional myth. I provide the semantics in (38).

(37) ɬuucmaqḥitqaa̓čaʔaał taakšiƛ̓ p̓iišmita.

ɬuucma-qḥ=(m)it=qaa̓ča=ʔaał taakšiƛ̓ p̓iišmita
woman-LINK=PST=INFR=HABIT always gossip
'There was a woman who kept gossiping.' (**C**, *tupaat* Julia Lucas)

(38) $\exists x\ \textsc{3rd}(x)\ \&\ \textsc{woman}(x)\ \&\ \textsc{always}(\textsc{gossip}(x))$

On another occasion, Julia Lucas began another story with the same construction as (37). When Adam Werle asked her why she did it this way, Julia said, "Because it is the start of a story." This is not much to go on, but it may be the case that the kind of structure seen in (37) is considered poetic or fancy Nuuchahnulth. This is not outlandish. English sentences can take on a literary air the more conjunctions they hold (sentences of a certain genre or style, such as Virginia Woolfe or William Faulkner). Ancient Greek was considered more literary the more participial phrases one could add to the sentence, thus the awkwardly long sentences in some English translations. Perhaps adding predicates to a clause has a similar effect in Nuuchahnulth.

There seems to be a stylistic choice behind sentences like (37). The grammaticality of it, however, fits with the understanding of nouns as one-place predication. In fact, (37) should not be a possible sentence if 'woman' were a zero-place predication.

### 4.5 Adverbs: A counterexample?

Somewhat surprisingly, the linker can be added to adverbs in certain contexts.[7] This is present in the Nootka Texts (Sapir and Swadesh 1939), although it is rare.[8] I was able to replicate one example (39) with the right context, and prompted (40) by asking if the word *qiiqḥ* could be used when reviewing the story that began with (37).

Context for (39): My friend is going bald. I'm also going bald but I don't look in the mirror much and haven't noticed.

(39) ẏuuqʷaaqḥs ʕasqii ʔaanaḥi wik hinʔałšiƛ.

ẏuuqʷaa-qḥ=s ʕasqii ʔaanaḥi wik hinʔał-šiƛ
also-LINK=STRG.1SG bald only NEG realize-MO
'I'm also bald but I don't know it.' (**C**, *tupaat* Julia Lucas)

(40) qiiqḥʔaƛqaǩa ṗiišmita yacmaas.

qii-qḥ=!aƛ=qaǩa ṗiišmita yac-maas
long.time-LINK=NOW=INFR.3 gossip walk-in.the.village
'She must've been walking around the village gossiping for a long time.' (**C**, *tupaat* Julia Lucas)

The linkers in both (39) and (40) aren't attaching directly to predicates. Instead they are attaching to modifying adverbs. But in each case, the entire predicate complex of adverb + predicate is in turn coordinated with a further predicate. This is evidence that the predicate linker may actually be in second position of a predicate complex. So the linker in (39) is still linking two predicates, 'also bald' and 'only not realize' (as in 41), and the linker in (40) is linking 'a long time gossip' with 'walk around the village' (as in 42).

(41) $\exists x$ 1SG($x$) & ALSO(BALD($x$)) & ONLY(NOT(REALIZE($x$)))

(42) $\exists x$ 3RD($x$) & A-LONG-TIME(GOSSIP($x$)) & WALK-AROUND-VILLAGE($x$)

So cases where the linker attaches to adverbs are not in fact an example of the linker performing a different role than predicate coordination. Rather, they demonstrate that there is a predicate phrase consisting of the predicate plus any accompanying adverbs, and the predicate linker is in the second position of that phrase.

[7] This is surprising because adverbs are not predicates as verbs, nouns, and adjectives are. I have kept my semantic sketches simple in this paper, but there is a sharp distinction between an argument that is an entity–such as the arguments of GO-HOME($x$), SOME($x$), CANOE($x$)–and an argument that is an event–such as the argument of ALSO($e$). A further discussion of the event/entity distinction in Nuuchahnulth must be left for another paper.

[8] I would like to acknowledge Matthew Davidson for providing a searchable database of the Nootka Texts, and Adam Werle for putting this into a convenient spreadsheet format.

### 4.6 "Dangling" Linkers

There are a few examples where the linker does not appear to be linking its predicate to anything. These look like counterexamples to the analysis so far, but I believe that the interpretation of these cases shows that there is an elided phrase. When discussing doing various things for a long time, a consultant produced (43).

(43) qiiqḥʔaƛs mamuuk.

qii-qḥ=!aƛ=s mamuuk
long.time-LINK=NOW=STRG.1SG work
'I've been working a long time.' (**N**, Fidelia Haiyupis)

There is no second syntactic predicate in (43), only the solitary from *mamuuk* 'work.' My consultant also accepted the same sentence without the linker.[9] Since this sentence occurred specifically in a discourse context of performing various tasks for a long time, I believe (43) is similar to beginning a sentence with "and" in English. "And here is another thing I've been doing a long time: working." However, this kind of "dangling" linker in Nuuchahnulth is in my experience far rarer than a dangling, sentence-initial "and" in English.

There is also a formulaic farewell (44) that contains a "dangling" linker.

(44) ʔuʔaałukḥʔiʔał.

ʔu-!aałuk-(q)ḥ=!iˑ=ʔał
x-look.after-LINK=CMMD.2SG=HABIT
'Take care!' (**N**, Fidelia Haiyupis)

I believe that there is a canonical, elided phrase in (44). The meaning is clear in context: "Good-bye, look after yourself, whatever it is you are doing." However, "whatever it is you are doing" is dropped from the sentence, and we are left with "look after (yourself)," complete with a linker, and the rest is understood.

As mentioned, these "dangling" linkers are rare in Nuuchahnulth, and in my experience speakers won't accept them out of the blue, unless it is formulaic as in (44).

### 4.7 Summary

The predicate linker *-(q)ḥ* coordinates two predicates beneath the scope of the second-position clausal clitics, which crucially includes the clause's subject. Because verbs, nouns, and adjectives (including quantifiers) are all predicative, all

[9] She felt there was a difference though and struggled to explain it. She suggested it may have to do with time, with (43) (with the linker) indicating working for a relatively longer period, but then became unsure. I suspect there is something to do with the context here. We were already speaking about performing various tasks, using the word *qii* 'long time' quite a lot, and the linker in (43) may simply indicate that this utterance is connected to the previous discussion.

are potential sites of attachment for the predicate linker, which is free to coordinate with mix-matched syntactic categories. Importantly, the subject-sharing requirement of linked predicates could only work with nouns if those nouns have at least one semantic argument that can be identified with the subject in the clausal clitic complex. A zero-place predication could not function in this way.

The predicate linker can also attach to adverbs. However, in this case it is coordinating the entire adverb + predicate with a still-later predicate. This allows for an analysis where adverbs are not syntactically predicative, and also provides evidence for a predicate phrase below the level of the clause, with its own second position, which I have termed the predicate second position.

## 5 Conclusion

I have shown that verbs, adjectives, and common nouns in Nuuchahnulth are all syntactic *predicates* and are also at least one-place semantic *predications*. These parts of speech may all be put into syntactic predicate position, directly accepting syntactic participants which fill a semantic argument. The semantic arguments of verbs and adjectives are not accessible as syntactic participants outside their predication without the use of the article, while proper nouns are zero-place predications which do not have any semantic arguments and may not have an article attached. Common nouns alone may have their argument accessed by other predications without the article present, suggesting that common nouns may have their argument type-raised without an overt marker in the syntax. The predicate linker is able to overtly connect any two predicates—verbs, adjectives, and nouns—in the syntax. The scoping of the predicate linker requires that the two predicates' first semantic arguments are identified with each other and the subject of the clausal clitic complex.

The combined evidence from the article and predicate linker provides a good reason to consider this semantic analysis for Nuuchahnulth. It also means that there is no need for a separate copula predication (BE or COP) when modeling non-verbal predicates, as in (2, 3).

It remains an open question if this model for nouns is beneficial when looking at other languages. While we may want to scope nouns when doing set-theoretic modeling, it's not clear that this is something the language itself is providing, or if it is something we are adding to make our mathematical semantics behave properly. I've demonstrated that, at least for Nuuchahnulth, there are language-internal reasons to model common nouns with a semantic argument. I am not eager to assume that this extends to all languages. To put it generously, linguistic work in the Pacific Northwest challenges assumptions about linguistic universality. What would it mean to assume that nouns are *lexically* specified as having arguments in other languages? Would such an analysis make particular predictions about syntactic phenomena in those languages? Are those predictions borne out in the data? A good place to start looking for this kind of behavior is in other languages of the Pacific Northwest sprachbunde. Many of the features present in Nuuchahnulth (predicate-initial, predicate-flexible) are also true of neighboring Salish languages.

It would be valuable to see if the analysis presented here translates to languages in Salishan and beyond.

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## A IGT Conventions

Table 1 gives a list of non-standard abbreviations used in the IGT of this paper.

In addition to these abbreviations, there are certain other conventions in the representation of underlying forms. A consonant in parentheses () is typically only realized after a vowel or nasal. An exclamation point ! means that the preceding segment is hardened if possible (+glottalic), and otherwise inserts a glottal stop. Similarly a degree symbol ° indicates that the preceding segment is softened if possible (-glottalic), and otherwise inserts a glottal stop. These hardening and softening rules differ slightly between suffixes and clitics (Werle 2010).

**Table 1:** Non-standard abbreviations

| Abbreviation | Full Name | Description |
|---|---|---|
| IN | inceptive | the inceptive aspect |
| MO | momentaneous | the momentaneous aspect, similar to perfective but may indicate the start of an event rather than its completion |
| DR | durative | the durative aspect |
| GRAD | graduative | the graduative aspect, similar to English progressive |
| NOW | now | indicates the beginning of the next event in a sequence |
| STRG | strong mood | strong claim to factual status, non-Barkley sound |
| REAL | real mood | strong claim to factual status, Barkley sound only |
| NEUT | neutral mood | no claim to factual status or a continuation of previous factual claim |
| HRSY | hearsay mood | the status of the event is based on hearsay |
| INFR | inferential | the status of the event is inferred from other information |
| X | — | a semantically empty object (*ʔu*) that certain suffixes must attach to |
| ART | article | the article |
| D1, D2, D3, D4 | deictic (1, 2, 3, 4) | a demonstrative deictic, with 1 being closest to the speaker and 4 furthest away |

There are other morphemes that have effect on the realization of vowel lengths. I represent variable-length vowels with the Nuuchahnulth standard symbol ˙. These vowels are long if they occur in the first two syllables of a word and otherwise short. Other segments affect the lengths of the first one or two syllables in a word. These segments represented with capital L and S. For instance, the graduative morpheme is simply a long-short vowel template, and represented in the segmentation line as LS. The suffix meaning 'find' contains the segment *-waƛ* and lengthens the first vowel in the word. It is represented in the segmentation as *-L.waƛ*.