Orbital Clitics in Nxaʔamxčín

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Abstract: This paper presents a description and theoretical account of linearization and orientation for a subset of Nxaʔamxčín (a.k.a. Moses-Columbian) clitics. Parallels are drawn with sister-language Nsyilxcn (a.k.a. Okanagan), building on previous descriptive accounts of clitics and particles in these two languages (Kinkade 1974, 1982; Czaykowska-Higgins 2019; Lyon 2019). Lyon (2019) proposes two main phonological domains at which Nsyilxcn clitics are parsed: core and pivotal inner clitics which are parsed with the main predicate as a prosodic word or phonological phrase, and outer clitics which need not be. We expand and extend this general analysis to Nxaʔamxčín, which unlike Nsyilxcn exhibits an interesting clitic ‘mirroring’ effect, whereby a given clitic may either precede or follow a prosodic host in a defined ‘orbit’. We propose two families of alignment constraints which linearize clitics based on the phonological level at which they are parsed: a family of stay constraints (Agbayani & Golston 2010) tailored to specific phonological units (i.e. prosodic word (ω), phonological phrase (φ), or intonational phrase (ι)) assure linear correspondence is satisfied, unless outranked by a corresponding set of strong-start constraints (Selkirk 2011) which will derive the mirror image. Restricted partial constraint orderings (Antilla 2001) are formally expressed by implicational relations between individual members of the stay and strong-start constraint families, deriving the attested linearizations, while also allowing for flexibility in clitic orientation and limited orbital independence.

Keywords: Nxaʔamxčín, Nsyilxcn, clitics, Southern Interior Salish, prosody

1 Introduction

This paper examines a subset of clitics in Nxaʔamxčín and Nsyilxcn. Our primary goal for the paper is to provide a detailed description of the distribution of these clitics, and our secondary goal is to lay the foundations for a theoretical analysis of clitics within and across these two languages. The primary focus of our theoretical analysis is on clitic linearization in Nxaʔamxčín: in other words, predicting where clitics will occur within a string of words. Our approach also makes certain predictions regarding clitic orientation, for example whether a clitic will be attracted towards the right or the left, though orientation is addressed only secondarily.

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1.1 Language Information

Nxaʔamxčín (a.k.a. Moses-Columbian) and Nsyilxcn (a.k.a. Okanagan) are related sister languages of the Southern Interior sub-branch of the Salish language family. Both are extremely endangered: Nxaʔamxčín is spoken in west-central Washington, with only two first-language speakers working with the Language Program. Nsyilxcn is spoken in north-central Washington and south-central British Columbia, and has approximately 132 elder speakers remaining (FPCC 2018). There are successful language revitalization efforts occurring on both sides of the international border.

1.2 Particles or Clitics?

Nespor and Vogel (1986) define clitics as elements with relative freedom of movement, which are able to attach to a variety of hosts, exhibit less phonological integration than affixes, and are not inherently stressed. Together, these properties should allow us to distinguish a class of clitics from predicates, adverbs, and other particles in Nxaʔamxčín and Nsyilxcn. In this paper, we use the word particle to refer to a stress-bearing, prosodic word which can host other clitics, yet which may not undergo inflection (Kinkade 1982).

Nxaʔamxčín and Nsyilxcn share a high number of lexical-class and functional-class cognates (Kinkade 1976, 1982), as well as regular vowel correspondences. Table 1 is a non-exhaustive list of functional-class elements from these two languages which are cognate and/or functionally equivalent. Many of the Nsyilxcn items have been analyzed as clitics (Mattina 1973, Lyon 2019), and at least some of the Nxaʔamxčín items have clitic-like properties (Czaykowska-Higgins 2019).

<table>
<thead>
<tr>
<th>Gloss</th>
<th>Nxaʔamxčín</th>
<th>Nsyilxcn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st SG. intransitive subject</td>
<td>kn</td>
<td>kn</td>
</tr>
<tr>
<td>2nd SG. intransitive subject</td>
<td>kʷ</td>
<td>kʷ</td>
</tr>
<tr>
<td>1st PL. intransitive subject</td>
<td>kt</td>
<td>kʷu</td>
</tr>
<tr>
<td>2nd PL. intransitive subject</td>
<td>kp</td>
<td>p</td>
</tr>
<tr>
<td>3rd PL. intransitive subject</td>
<td>lx</td>
<td>lx</td>
</tr>
<tr>
<td>future</td>
<td>naʔ / našʔ?</td>
<td>mi</td>
</tr>
<tr>
<td>past</td>
<td>(ʔ)jaʔ / λǎm</td>
<td>λǎm</td>
</tr>
<tr>
<td>yes/no question marker</td>
<td>ša / a</td>
<td>ha / (h)a</td>
</tr>
<tr>
<td>imperative</td>
<td>taʔ</td>
<td>-</td>
</tr>
<tr>
<td>temporal complementizer</td>
<td>luʔ</td>
<td>l(aʔ)</td>
</tr>
<tr>
<td>adjunct complementizer</td>
<td>či</td>
<td>kiʔ</td>
</tr>
<tr>
<td>conjunction</td>
<td>kʷaʔ</td>
<td>ul</td>
</tr>
<tr>
<td>absolutive case marker</td>
<td>wa</td>
<td>-</td>
</tr>
<tr>
<td>oblique / prepositions</td>
<td>t, tl, ɬl, l</td>
<td>t, tl, ɬl, l</td>
</tr>
<tr>
<td>modal, epistemic</td>
<td>šaᵢ, čmaʔ</td>
<td>cəᵢ, cmay</td>
</tr>
<tr>
<td>modal, epistemic</td>
<td>mᵢʔ, maxʷ</td>
<td>mat</td>
</tr>
<tr>
<td>modal, bouletic</td>
<td>šak</td>
<td>cakʷ</td>
</tr>
</tbody>
</table>

In this paper, we will focus on intransitive subject pronouns, future and past tense markers, and yes/no question markers (all bolded in Table 1 above) since there is ample enough data for these

1 3rd singular intransitive subjects are null in both languages. The hyphen in Table 1 indicates that there is no corresponding cognate or functionally equivalent morpheme.
elements in Nxaʔamxčín to inform our analysis. Additionally, this subset of elements presumably falls, inclusively, between the C and T projections in the clausal syntax, and an understanding of the distribution of these clitics may allow us to make interesting predictions regarding clitic syntax. Distributional facts, cross-linguistic evidence, and the limited phonetic evidence we currently have available suggest that all of the bolded items above are clitics, with the exception of Nxaʔamxčín sá which is always a particle, and (ʔ)ay which may sometimes be a particle (Czaykowska-Higgins 2019) under circumstances to be discussed. Detailed phonetic studies will eventually need to be carried out in order to confirm the status of these elements as clitics.

Nxaʔamxčín and Nsyilxcn intransitive pronouns (Table 1) lack full vowels (with the exception of Nsyilxcn 1st plural kʷu), and so under the assumption that schwa does not carry primary stress, these pronouns will be inherently non-stressed, supporting a clitic analysis. These pronouns also exhibit a relatively high freedom of movement, though this is realized differently in the two languages. In Nsyilxcn for example, an intransitive subject pronoun can occur to the left (1a) or the right (1b) of complementizer la?, which itself patterns as a clitic (Lyon 2019).

(1) a. cákʷ lut kʷ laʔ? itx skákšlaxʷ, lut aksqít ŋapnáʔ.
   cákʷ lut kʷ laʔ? itx skákšlaxʷ lut a-qs-qít ŋapnáʔ.
   BOUL NEG 2SG.INTR COMP sleep last.night NEG 2SG.POSS-PROS-wake now
   ‘If you didn’t sleep last night, you wouldn’t be awake this morning.’
   (LL, VF) (Nsyilxcn)

b. kn ṭakʰ-neqút laʔ? kn sʔayxʷt.
   kn ṭakʰ-neqút laʔ? kn sʔ-ayxʷt
   1SG.INTR lay.down-REFL COMP 1SG.INTR NMLZ-tired
   ‘I laid down when I was tired.’
   (LL, VF) (Nsyilxcn)

A similar linear variation can be found for the determiner iʔ and the prepositions (cf. Table 1). Such linear variation is never allowed for clear cases of prefixes or suffixes.

In Nxaʔamxčín (unlike Nsyilxcn), pronoun clitics can occur in many different places, including before negation (2a), before the main predicate (2b), and before another clitic such as ay (2c).

(2) a. šac’kám̓ ax kʷaʔ? kʷ lút núxʷt ayʔ?
   šac’kám̓ ax kʷaʔ? kʷ= lút √núxʷt= ayʔ
   why CONJ 2SG.INTR=NEG go= PAST
   ‘Why didn’t you go home?’
   (Y29.184) (Nxaʔamxčín)

   naʔ č̓ -hlúy- mn-č ?aʔkʷáast luʔ? kʷ √núxʷt kɬ Spokane
   FUT CISL-go-RLT-1SG.OBJ+3ERG tomorrow COMP 2SG.INTR go to Spokane
   ‘He will be visiting me tomorrow while you go to Spokane.’ (EP4.44.7) (Nxaʔamxčín)

2 Though variation in the relative ordering of determiners and prepositions in Nsyilxcn may differ primarily along dialectal lines. More work is needed here. It is also worth noting that in neither Nxaʔamxčín nor Nsyilxcn do determiners exhibit the mirroring effect, at least in an obvious manner. In Nxaʔamxčín, however, the DP-internal genitive marker l does exhibit a considerable freedom of movement (N. Mattina 2002).

3 We use the symbol ‘=’ in Nxaʔamxčín to indicate a morphological boundary involving a clitic that was transcribed as being attached to an adjacent morpheme. These transcriptions correspond to a prediction that the clitic will orientate towards the prosodic host as indicated.
c. \( \text{lut } k^* \text{ a'y } náw-əlx. } \\
   \text{lut } k^*=\text{a'y } \sqrt{\text{náw-əlx}} \\
   \text{NEG } 2\text{SG.INTR=PAST } \text{run-AUT} \\
   \text{‘You didn’t run.’} \) (W2.88) (Nxa?amxčín)

This freedom of movement supports the analysis of pronouns as clitics in both languages.

Intransitive subject pronouns also show a fair degree of phonological integration. In Nxa?amxčín, for example, they syllabify with their hosts and other adjacent clitics. Syllabification for the bolded clitics and their hosts in (3a) is [šaikʷ], and for (3b) [naʔ.súkʷ].

\[ \text{(3) a. } xʷús {\text{ṭa? naqʷiċṭn Šaikʷ }?álm wixän txa?....} \]
\[ xʷús {\text{ ṭa? na-ʔiċṭn } Şa{i=}=kʷ} \ ?álm wixän txa? \]
\[ \text{hurry IMP LOC-? Q=PAST=2SG.INTR very see here} \]
\[ {\text{hurry have you seen here....’}} \] (ECH.ED.90.CD) (Nxa?amxčín)

b. \( \text{naʔšukʷ lút nwənaxʷánaʔ. ...} \)
\[ \text{naʔšu=kʷ lút } \sqrt{\text{vn-wənaxʷ-ánaʔ}} \]
\[ \text{FUT=2SG.INTR NEG LOC-true-ear} \]
\[ \text{‘If you don’t listen to me....’} \] (ECH.ED.90.CD.121) (Nxa?amxčín)

Regarding the remaining bolded clitics in Table 1, the phonological shape of Nxa?amxčín a'y (PAST) and a (YES/NO QUESTION) marker (in final position) as lacking onsets strongly supports the idea of treating them as clitics, though naʔ (FUTURE) appears less clitic-like. Given, however, that intransitive pronouns in both languages are clitics, all other bolded items in Table 1, including naʔ, will be shown to occur linearly to the outside of the pronoun and its prosodic host in regular distributional patterns which are distinctive to clitics, as opposed to particles.

### 1.3 Outline of Paper

In Section 2, we describe clitic linearization and orientation patterns in Nxa?amxčín, and an interesting ‘mirroring effect’ whereby at least some clitics appear to be distributed in regular, defined ‘orbits’ around their prosodic host. We also discuss certain exceptions to this mirroring, e.g. (ʔ)ay (PAST). At many points we compare and contrast the linearization and orientation of Nxa?amxčín clitics with Nsyilxen, which is almost entirely pro-cliticizing.

In Section 3, we extend the idea of inner and outer clitic domains from Nsyilxen (Lyon 2019) to Nxa?amxčín. Inner clitics must form a prosodic word or a phonological phrase with the main predicate in both languages and show phonetic evidence of being phonologically more integrated with their host. Outer clitics may linearize before a host that is not a main predicate, and do not show the same kind of phonological interaction with their host, indicating that they may be phonologically parsed at a higher level of the prosodic hierarchy.

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4 More work is required to determine to what extent constraints on syllabification and metrical structure may play a role in clitic placement.

5 In Nsyilxen, pronoun clitics also syllabify with their hosts, but the requirement that the pronoun linearize before the predicate outweighs any possible requirement on syllabification.

6 Nxa?amxčín naʔ should be distinguished from naʔšúʔ which is also a future morpheme but has the distribution and shape of a particle or adverb, rather than a clitic.
In Section 4, we present a theoretical analysis of the patterns observed in the two languages. We follow Gerdts and Werle (2014) in assuming that clitics may be parsed at different levels of a prosodic hierarchy (Selkirk 1995). We then propose two families of alignment constraints which linearize clitics based on the phonological level at which they are parsed: a family of STAY constraints (Agbayani & Golston 2010) tailored to specific phonological units, i.e. prosodic word (ω), phonological phrase (φ), or intonational phrase (ι) (Selkirk 1995), assure linear correspondence is satisfied, unless outranked by a corresponding set of STRONG-START constraints (Selkirk 2011), which will derive the mirror image. Restricted partial constraint orderings (Antilla 2001) are formally expressed by implicational relations between individual members of the STAY and STRONG-START constraint families, deriving the correct linearizations while allowing for flexibility in clitic orientation and limited orbital independence. We then revisit the case of (ʔ)ay’ (PAST), which on the surface appears to linearize outside of its expected orbit in certain cases. Such exceptional distributions can be explained if (ʔ)ay’ undergoes limited promotion to prosodic word.

In Section 5, we discuss implications and limitations of our analysis, as well as future directions. In Section 6, we conclude.

2 Clitic Orientation and Linearization in Nxaʔamxčín and Nsyilxcn

This section focuses on basic orientation and linearization patterns found in Nxaʔamxčín and Nsyilxcn clitics (Section 2.1), a notable exception to the linearization pattern in Nxaʔamxčín (ay’ PAST) (Section 2.2), how clitic linearization patterns change in the context of more than one potential prosodic host (Section 2.3), and probable syntactic constraints on clitic placement (Section 2.4). The overall focus will be on Nxaʔamxčín. See Lyon (2019) for additional data on Nsyilxcn clitics.

2.1 Basic Linearization Patterns


(4) a. kn qʷńń̕ayáʔqn.
   kn  [qʷńń̕ayáʔ-qn
   1SG.INTR big-top.of-head
   ‘My head is big.’  (MLW.AB.25.4) (Nxaʔamxčín)

b. qʷńń̕ayáʔqn kn.
   [qʷńń̕ayáʔ-qn kn
   big-top.of-head 1SG.INTR
   ‘My head is big.’  (MLW.AB.25.4) (Nxaʔamxčín)

7 The variation shown in (4–5) on the surface resembles the apparent free ordering of intransitive predicate and DP subjects in Nsyilxcn (Lyon 2018). Assuming however that the subject clitics in (4–5) are agreement (likely in Tense, cf. Baier 2020 for Montana Salish) and not syntactic arguments, the variation above could only be explained syntactically by assuming optional head-raising, which we assume is a non-starter, based partially on evidence that verbs in closely-related Nsyilxcn do not raise as high as or higher than T.

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This apparent optionality has not been hitherto described in detail, and is puzzling from the Salish viewpoint, given that most other Salish languages do not allow such variation for any given clitic, instead following a strictly procliticizing (e.g. Nsyilxcn) or encliticizing (e.g. St’át’imcets) strategy.

The variable placement of clitics shown in (4–5) extends beyond just pronominal clitics in Nxaʔamxčín, also involving tense clitics and the yes/no question marker. For example, a future morpheme naʔ in (6) precedes an intransitive pronoun clitic and the main predicate, while in (7) it follows both.

There is no data to indicate that the future marker and pronoun can be reversed with respect to one another in examples like (6) and (7). Unfortunately, it is not currently possible to conduct fieldwork with fluent speakers of Nxaʔamxčín, so we cannot say for sure that a sentence like šúlt naʔ kʷ (cf 7b) is ungrammatical. While this is a major limitation to our study, given the large size of the corpus, we believe that the absence of such data is suggestive.

Since Nxaʔamxčín and Nsyilxen are sister languages, we might assume their syntax and prosody to be similar also. However, the two languages seem to exhibit a major split with respect to clitic behaviour: As shown above in (4–7), the same clitic in Nxaʔamxčín can precede a prosodic
host as a proclitic, or it can follow the same prosodic host as an enclitic. In contrast, for Nsyilxcn, intransitive pronoun and tense clitics must precede their host (8), never follow (9).

(8) a. kn ncāʔqrín.
   kn n-cā<?>r=qín
   1SG.INTR LOC-ache<INCH>=head
   'I have a headache.' (Mattina 1987) (Nsyilxcn)

   b. mi kʷu xʷúy.
   mi kʷu √xʷúy
   FUT 1PL.INTR go.PL
   'Let’s go.' (LL, VF; SM, VF) (Nsyilxcn)

(9) a. *ncāʔqrín kn.
   *n-cā<?>r=qín kn
   LOC-ache<INCH>=head 1SG.INTR
   'I have a headache.' (SM) (Nsyilxcn)

   b. *xʷúy kʷu mi.
   *√xʷúy kʷu mi
   go.PL 1PL.INTR FUT
   'Let’s go.' (SM) (Nsyilxcn)

The Nxaʔamxčín clitic ‘mirroring’ pattern shown in (4–7) appears also to apply to the yes/no question marker, though this marker is realized as a stress-bearing particle šá in initial position, and as the clitic a in final position. To be clear, we do not consider šá in (10a) to be a clitic, since it affects the linearization of other clitics similar to other non-clitic particles, to be discussed below. Nevertheless, the linearization of šá in (10a) mirrors that of the clitic form a in (10b).

(10) a. šá kʷp kpqʷqʷána??
   šá=kʷp k-pqʷqʷ-ána?
   Q=2PL.INTR DRY-spill-FRED-ear
   ‘Did it spill on you folks?’ (W1.58) (Nxaʔamxčín)

   b. ščəwiyimix kʷp á?
   š-cčəwiyimix kʷp=á
   NMLZ-IPFV-work-CONT 2PL.INTR=Q
   ‘Are you folks working?’ (JM3.107.3) (Nxaʔamxčín)

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8 Or, the same clitic can precede a prosodic host as a proclitic or follow a different prosodic host as an enclitic.
9 The Nsyilxcn yes/no question marker ha sometimes acts as a 2nd position enclitic.
10 Nsyilxcn yes/no question marker ha optionally loses the [h], becoming a, when it occurs after its host.
11 Bell (2003) states that Nxaʔamxčín a always carries stress. This appears to be a right-edge stress associated with an intonation phrase. In support of this, stressed particles which occur before á sometimes lose their stress (ibid). Bell summarizes the observation noting that “only the right-most particle will receive stress in some strings of particles and clitics.” (p. 15)
Just as there is no data to indicate that future naʔ can intervene linearly between an intransitive pronoun and the prosodic host, under either ordering, there is also no data to indicate that a yes/no question marker can intervene linearly between an intransitive pronoun and the prosodic host. We predict linearizations like those in (11) to be ungrammatical.12

(11) a. \(^p\star\) kn naʔ lêkičx. ‘I will be back.’ (cf. 6a)
b. \(^p\star\) k’áni naʔ kn. ‘I will stay.’ (cf. 6a)
c. \(^p\star\) kʷp (š)á k-paqʷ-qʷ-ánaʔ? ‘Did it spill on you folks?’ (cf. 10a)
d. \(^p\star\) šchawiymix a kʷp? ‘Are you folks working?’ (cf. 10b)

What emerges from Nxaʔamxčin examples like (4–7) and (10) above is a ‘mirroring effect’, whereby clitics are not restricted to linearizing on one specific side of their prosodic host: Instead, so long as they maintain a specific relative distance from their prosodic host, their position in absolute terms is variable. In other words, Nxaʔamxčin clitics appear to move in defined ‘orbits’. The Nxaʔamxčin clitics discussed in this paper appear to fall into three orbits (12a). This is in stark contrast to the (more-or-less) strict ordering observed in Nsyilxcn (12b).

(12) a. [yes/no question [tense [pronoun [host] pronoun] tense] yes/no question]
b. [yes/no question [tense [pronoun [host]]] (yes/no question)]

In support of this general picture, existing data show that the yes/no question particle šá will always precede future naʔ in pre-predicative position (13a). We have no data showing the post-predicative order naʔ a (FUT Q), though based on the pattern shown above we do predict this to be a possible order (13b). Other possible orders we predict to be ungrammatical are shown in (13c,d).13

(13) a. šá naʔ qʷúln ?aći ḡanānik.
   šá naʔ \(^q\prime\)qʷšl-n ?aći ḡanānik
   Q FUT roast+DIR-1SG.ERG that jack.rabbit
   ‘Can I roast that jack rabbit?’ (JM3.121.4) (Nxaʔamxčin)

   b. \(^p\) \(^q\prime\)qʷšl-n naʔ a ?aći ḡanānik. (cf. 13a)
   c. \(^p\) naʔ šá \(^q\prime\)qʷšl-n ?aći ḡanānik. (cf. 13a)
   d. \(^p\star\) \(^q\prime\)šl-n a naʔ ?aći ḡanānik. (cf. 13a)

Interestingly, clitic orbits seem to operate independently of one another. In (14a) below, the pronoun kʷ precedes its prosodic host, while future naʔ follows. In (14b), future naʔ (ambiguously) precedes škʷuš and follows lút, while a clearly follows its host.

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12 We use the combined symbol ‘\(^p\star\)’ before examples which we predict to be ungrammatical and the symbol ‘\(^p\)’ before examples we predict to be grammatical, but which have not been documented as having been judged ungrammatical or grammatical by a fluent speaker. Examples marked as ‘\(^p\)’ are based on directly parallel, attested grammatical examples. We hope that examples like these can eventually be checked with fluent speakers.

13 There are other possible orderings to the clitics in (13) following the DP ?aći ḡanānik ‘that jackrabbit’, but we abstract away from these for the purposes of this paper, partially because verbal domain clitics interact with nominal hosts somewhat differently.
Orbital independence may have limits, however: There is no data to indicate that in such cases, a tense clitic may precede the host, and the pronoun follow the host (14c),\(^4\) or that a yes/no question marker can precede the host while a tense clitic follows (14d). We tentatively predict these linearizations to be ungrammatical.

As a preview of our analysis (Section 4), the independence of clitic orbits shown in examples like (14a,b) follows from our proposal that pronouns like \(k^w\), future \(na^\prime\), and yes/no question marker \(a\) are parsed at different levels of the prosodic hierarchy, and subject to different alignment constraints. Additionally, the absence in our corpus of certain ‘independent’ orderings (e.g. 14c,d) suggests an implicational relationship between alignment constraints operating at different orbital levels. While stress and syllabification may play a role in the placement of some clitics (Sections 2.2 and 2.3),\(^5\) the major point to remember is that minimal pair examples like (4) show that some level of prosodic optionality must be present in Nxa?amxcín grammar.

### 2.2 The case of \(a\y^\prime\) PAST

The tense-related clitic \(a\y^\prime\) PAST exhibits a more flexible distributional pattern than \(na^?\) FUTURE, as discussed above. When \(a\y^\prime\) cooccurrent with a subject clitic in the context of one potential prosodic host,\(^6\) it always follows the pronoun, regardless of the orientation of other clitics towards the predicate (15–16). (Note additionally that when \(a\y^\prime\) occurs before a prosodic host, as in (15a), it is often transcribed as \(\tilde{a}\y^\prime\).) This ordering shows that the mirroring effect has limitations and that \(a\y^\prime\) represents a different class of clitic, and/or other phonological or syntactic considerations are also important.

\(^4\) Apparent counterexamples such as (i) below almost certainly involve two hosts, for reasons discussed below: \(a\y\) is encliticizing to \(\tilde{\text{swát}}\), and \(k^w\) is either encliticizing to \(\tilde{\text{ání}}\) or procliticizing to \(\tilde{\text{ćiút}}\.

\(^5\) Bell (2003) discusses Nxa?amxcín clitics as elements that “do not normally participate in the stress-bearing patterns of a phonological phrase and can surface as either proclitics or enclitics to the prosodic nucleus. Particles, on the other hand, participate in the stress patterns of the phonological phrase and always precede the prosodic nucleus.” The effect of stress on clitics remains unclear, however.

\(^6\) With a secondary potential stress-bearing host in initial position (e.g. 16a), \(a\y^\prime\) optionally behaves as a second-position enclitic, ‘jumping over’ a pronoun (see Section 2.3).
Given that ay and na? are both semantically tense-related, we hypothesize that both occupy a syntactic position somewhere in the neighbourhood of T(ense). Assuming also that intransitive proclitics are agreement markers occupying T(ense) (cf. Davis 2018 for St’át’imcets, and Baier 2020 for Montana Salish), then pronoun clitics are close to ay and na? not only prosodically, but also syntactically. It is therefore surprising that ay linearizes differently than na?, and hints at a prosodic difference between the two markers. We return to the topic of ay in the next section.

2.3 Linearization Patterns in the Context of Multiple Potential Hosts

Clitic linearization patterns in the context of one potential prosodic host are fairly straightforward (Sections 2.1 and 2.2). There is good evidence, however, that in the presence of multiple potential prosodic hosts, some Nxa?amxčín clitics will in many cases gravitate towards the first prosodic host in the clause as enclitics. In the case of (17a–c), the initial hosts are particles, and in (17d) the host is a quantifier. Note that the clitics in (17) follow the predicted orbits as given in (12), the only difference being that the prosodic host in these cases is not the main predicate.

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17 Past ay and future na? can co-occur in ‘future-in-the-past’ sentences. In (i) below, ay and na? appear to be in separate clauses, though in (ii) they seem to be in the same clause, suggesting that although they are both tense-related, they may be in different syntactic positions. (Alternatively, na in (ii) may be an allomorph of the locative prefix n-.)

(i)  мужьмаи ay na? светлый.
    мужьмаи-9 ay na? светлый-9
    want-(DIR)-3ERG=PAST FUT NMLZ-hit-3POS
    ‘He wanted to hit him.’
    (Y29.169) (Nxa?amxčín)

(ii)  лу шак ay na? увидеть к’а шак ay киенец.
    лу шак ay na? увидеть к’а шак ay киенец
    COMP POT PAST FUT say[?] CONJ POT PAST arrive-DIR-2SG.OBJ+1SG.ERG
    ‘He could visit me if he really wanted to.’
    (EP4.47.6) (Nxa?amxčín)
Distributionally speaking, there is no evidence to suggest that anything besides a stress-bearing particle or word can attract a clitic string in this manner. In other words, these environments provide a diagnostic for distinguishing particles from clitics.

For similar cases involving a subject pronoun and ay, the pronoun usually precedes ay following the pattern established in Section 2.2 above.18

(18) a. šá lx ay ̓ ašyaštú x̓ ašyaštó̱xʷ?
   [šá lx ay] ̓ ašyaštú x̓ ašyaštó̱xʷ
   Q 3PL PAST all scold-CAUS-3SG.ERG
   ‘Did you scold every one of them?’ (MLW.AB.26.6) (Nxa?amxcín)

b. ša kʷ ay táwam t šta̱m?
   [ša kʷ ay] táwam t šta̱m
   Q 2SG.INTR PAST buy-MID OBL what
   ‘Did you buy anything?’ (MLW.AB.52.2) (Nxa?amxcín)

However, the presence of an initial, secondary potential host affects the linearization possibilities of ay: ay may optionally precede a pronoun (19) in such cases.19 In (19b, cf. 18b), ay becomes contracted, syllabifying with the host šá as a diphthong vowel within the syllable nucleus [saikʷ].

(19) a. šáwnč ay kn kašʔilnxʷ.
   šáwnč=ay kn=kaš-ʔiln-oxʷ
   ask-DIR-1SG.OBJ+3ERG=PAST 1SG.INTR=PROS-eat-CONT
   ‘He asked me to eat.’ (Y29.188) (Nxa?amxcín)

18. Contrasting (17d) and (18a) shows that ay is optional in past tense contexts.

b. xʷús taʔ naqʷˈiqčtn ᵃikʷ ᾽ałm wixən txʔaʔ....
xʷús taʔ na-qiˈiqčtn ᵃi=ikʷ ᾽ałm wixən txʔaʔ  
hurry IMP LOC? Q=PAST=2SG.INTR very see here  
‘Hurry have you seen here....’ (ECH.ED.90.CD) (Nxaʔamxčín)

Examples like (20–21) below reinforce an argument that the relative ordering of ay’ and pronoun clitics is optional in the context of multiple possible prosodic hosts, especially the minimal pair shown below as (20a, 21a).

(20) a. pláqəl ay’ kn nkwəlwaš.  
pláqəl a’y kn nkwəlwaš  
yesterday PAST 1SG.INTR lonely  
‘Yesterday I was lonely.’ (ECH.AB.91.56) (Nxaʔamxčín)

b. lút ay’ kʷ čxaxakʷənaʔ.  
lút=a’y kʷ č-x+ '/xák’=ənaʔ  
NEG=PAST 2SG.INTR IFVF-RED+ listen=ear  
‘You weren’t listening.’ (W8.231) (Nxaʔamxčín)

(21) a. pláqəl kn a’y nkwəlwaš.  
pláqəl kn a’y nkwəlwaš  
yesterday 1SG.INTR PAST lonely  
‘Yesterday I was lonely.’ (ECH.AB.91.56) (Nxaʔamxčín)

b. lút kʷ a’y nəwəlx.  
lút kʷ=a’y nəw-əlx  
NEG 2SG.INTR=PAST run-AUT  
‘You didn’t run.’ (W2.88) (Nxaʔamxčín)

Comparing the distributions of tense morphemes naʔ and ay’, it seems clear that naʔ operates orbitally like intransitive pronouns and the yes/no question marker, and yet while it is also clear that orbits are relevant to ay’, which seems always to follow a pronoun to a post-host position, the linearization of ay’ seems to be dependent on additional considerations.

Multiples possible linearizations for ay’ in the context of multiple potential hosts could be attributed to a tension between its preference for second-position (Czaykowska-Higgins 2019) (e.g. 20a),20 and its preference for remaining in orbit (e.g. 21a).21 Alternatively, and more simply, given that pronouns can either precede or follow their hosts, when ay’ occurs in second position before a pronoun as in (20), it is because the pronoun must be procliticizing to the following host. In support of this alternative, recall that in the presence of a single possible prosodic host, the pronoun will always precede ay’ (15). The post-host distribution of ay’ in similar cases (22) is always that

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20 Other post-host items discussed in Czaykowska-Higgins (2019) are imperative taʔ, 3rd plural marker lx, and yes/no question marker a. The apparent ordering of these four items are taʔ lx ay’ a, though these do not all co-occur for semantic reasons.

21 An additional consideration is that pronoun clitics nearly always consist only of consonants, and hence are ideal onset providers, which may feed into an explanation why the pronoun clitic optionally ‘attracts’ ay’ away from second-position.
predicted by the tense orbit as established by the regular distribution of naʔ (23), rather than the alternative ordering shown above in (20). We predict that the orderings shown in (24) are not possible for naʔ or ay̓ in contexts with only one potential prosodic host.22

(22) a. šúlt kʷ ay̓ á?
   \[kʷ=ay̓=á\]
   cold-STAT 2SG.INTR=PAST=Q
   ‘Were you cold?’
   (Y25.36) (Nxaʔamxčín)

b. naʔal kn ay̓
   \[kn=ay̓\]
   LOC-afraid 1SG.INTR=PAST
   ‘I was scared.’
   (W3.10) (Nxaʔamxčín)

(23) šúlt kʷ naʔ.
   \[kʷ=naʔ\]
   cold-STAT 2SG.INTR=FUT
   ‘You will get cold.’
   (Y25.36) (Nxaʔamxčín)

(24) a. p* na-\[\text{ńx̑l}\] ay̓ kn.
    ‘I was scared.’ (cf. 24b)
   b. p* k’ám naʔ kn.
    ‘I will stay.’ (cf. 11b, 6a,b)

The preceding discussion describes the distribution of the vast majority of documented cases of pronoun clitics with respect to the tense clitics ay̓ and naʔ, and the yes-no question clitic a. In general, clitics have been shown to move in three basic orbits, though the distribution of ay̓ introduces complications, as shown by the fact that in environments involving multiple potential hosts, there is more than one possible linearization (20–21). Importantly, second-position is attested for neither naʔ nor ay̓ when they co-occur with a pronoun in a post-predicative single-host environment (24). We argue that cases such as (24) are unattested, and likely ungrammatical, because in lieu of an additional prosodic host for the pronoun clitic to procliticize to (20), the linearization is orbit-violating.

There are several additional distributions of ay̓ which require attention, and which must be accounted for under any analysis. First, ay̓ is not attracted by the initial stressed adverb in (25), which supports the idea that although ay̓ prefers to follow a prosodic host, this host need not be the first prosodic word in a clause.

(25) t’unáxʷ naʔaln ay̓.
   t’unáxʷ na-\[\text{n̓x̑l}\] n=ay̓
   a.little.bit LOC-afraid-(DIR)-1SG.ERG=PAST
   ‘I scared him a little bit.’
   (W3.14) (Nxaʔamxčín)

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22 Possible linearizations like (24) are revisited in detail in Section 4.4. They are predicted to be ungrammatical because a tense clitic, which must be parsed as a part of a phonological phrase, cannot linearly intervene between the prosodic word host and a subject clitic, which must be parsed as part of the host’s prosodic word. This is achieved by BINARITY(φ) (Elfner 2012).
In support of this, consider (26a) where ay’ assumes second-position after the initial stress-bearing exclusive particle tìl, but in similar (26b), ay’ instead attaches to the main predicate.\footnote{The failure of ay’ to attach to the conjunction k=aʔ in (26a) may be syntactic: k=aʔ is too high in the clause. Modal particles also seem to block ay’ from moving into second-position, as discussed in Section 2.4. Alternatively, Bell (2003) analyzes k=aʔ as an “extrametrical unit” which does not carry stress, thus accounting for its exceptional behaviour, though Bell’s analysis does not explain the modal data in (32–33), where a clearly stressed šà or potentially stress-bearing tìl also does not attract a clitic.}

(26) a. čnaqinam k=aʔ tìl a’y laʔ.
   č-naq-in-om k=aʔ [tìl=a’y laʔ] CISL-come.into.house-MID CONJ EXCL=PAST wet ‘He came into the house and he was already wet.’ (W10.10) (Nxa?amxčin)

b. tìl laʔ a’y.
   tìl laʔ a’y EXCL wet PAST ‘It’s already wet.’ (MDK notes; quoted in Bell 2003,7) (Nxa?amxčin)

Note that tìl’ is transcribed as stressed in (26a), while laʔ is transcribed as stressed in (26b), and so for this pair at least, the placement of ay’ plausibly depends on the formation of a trochaic foot. However metrical considerations do not explain the free alternation shown above in (20a, 21a).

Second, there are rare cases where (ʔ)ay’ occurs initially in a clause (27). In these cases, it is transcribed as beginning with a glottal stop.

(27) ?ay ʔačkičšmš yaʔtú sxaɭxält lu a’y pánká ?ani.
   ?ay ʔač-kIč-ʃt-m-ʔ yaʔtú sxaɭxält lu a’y pánká ?ani PAST IPFV-arrive-CAUS-2SG.OBJ-3ERG all day COMP PAST when there ‘He used to visit me every day.’ (EP4.46.2) (Nxa?amxčin)

In pre-predicative single host environments (28-29), (ʔ)ay’ is also sometimes transcribed as beginning with a glottal stop (28), though it is never transcribed as such in post-host environments.

(28) kn ?aʔ nuʔ=tútiʔaʔ.
   kn ?aʔ /nuʔ-tútiʔaʔ 1SG.INTR PAST go-on.foot ‘I went on foot.’ (cf. 15a) (JM3.185.8) (Nxa?amxčin)

(29) kn a’y nkupəlwaʔ pláqəl.
   kn a’y nkupəlwaʔ pláqəl 1SG.INTR PAST lonely yesterday ‘Yesterday I was lonely.’ (cf. 20a, 21a) (ECH.AB.91.56) (Nxa?amxčin)

In our analysis, the main restriction on clitic ay’ is that it not be parsed initially in its phonological phrase (Section 4.4). This allows for considerable freedom of movement within a clause, accounting for examples like (25-26). If ay’ is parsed initially in its phonological phrase, then it must also be promoted to a prosodic word. This accounts not only for the initial glottal stop in such
positions (27, 28), but also the apparent orbit-violating linearization of the pronoun occurring before \(?\)ay’ (28, 29).

### 2.4 Probable Syntactic Limitations on Clitic Placement

There seem to be syntactic factors which limit the placement of certain clitics in the context of multiple potential hosts, which suggests that clitic linearizations are determined, in part, syntactically.

Firstly, there is evidence that at least some clitics are clause-bound. Though data is limited, it seems that ay’ must attach within the clause that it is interpreted. In (30a), for example, it is the making that occurred in the past, not the telling. This is less clear for (30b), but still apparent with the translation of ay’ as ‘already’ in the second clause.

(30)  
\[\begin{align*}
&\text{a. } \text{šak } \text{cúntxʷ } \text{šwą́t ay’ } \text{háwiyš.} \\
&\text{b. } \text{čnaqínam kʷa? tił ay’ } \text{lat’}
\end{align*}\]

\[\begin{align*}
&\text{šak } \text{cų́n-t-xʷ } \text{šwą́t=ay’ } \text{háwiyš} \\
&\text{čnaqínam } \text{kʷa? tił=ay’ } \text{lat’}
\end{align*}\]

POT say-DIR-2SG.ERG who=PAST make(TR)  
‘You can tell him who made it.’ (JM3.120.7) (Nxa’amxčín)

Second, the syntactic status of a potential prosodic host may affect linearization. The proper name argument DP in (31a) is presumably stress-bearing, and therefore a potential host, but ay’ does not attach to the DP.\(^24\) In (31b), the proper name DP is in the focus position of a cleft sentence, as indicated by clefting complementizers luʔ and či, but in this case ay’ does attach to the DP.

(31)  
\[\begin{align*}
&\text{a. } \text{John ščqaqítəxʷ ay’ pláqšl.} \\
&\text{b. } \text{Mary ay’ luʔ/či kxápnč plaqšl.}
\end{align*}\]

\[\begin{align*}
&\text{John } \text{š-čqaqít-oxʷ ay’ pláqš} \\
&\text{Mary ay’ luʔ/či kxápn-n-č plaqš}
\end{align*}\]

NMLZ-IPFV-fishing-CONT PAST yesterday  
‘John went fishing yesterday.’ (Nxa’amxčín)

Third, despite the pattern shown above in examples (17–18), pronoun clitics will never precede a stress-bearing modal particle like máxʷ or sáʔk in favour of an initial prosodic host (32).

(32)  
\[\begin{align*}
&\text{a. } \text{tíl máxʷ } \text{kt sxəšxəstmix.} \\
&\text{b. } \text{ílmíx.}
\end{align*}\]

\[\begin{align*}
&\text{tíl máxʷ=kt sxəšxəstmix} \\
&\text{ílmíx}
\end{align*}\]

EXCL EPIS=1PL.INTR getting.lost  
‘Maybe we’re lost.’ (W9.23) (Nxa’amxčín)

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\(^24\) Alternatively, ay’ in (31a) could be in second-position, and the subject DP has raised post-linearization.
b. íl šáʔ k táxʷp.
  íl šáʔ=k táxʷp
EXCL POT=1PL.INTR quit

‘We’d better quit now.’ (W.6.66) (Nxa’amxčín)

The same pattern is apparent for aʔ and naʔ (33–34). In (33a), yes/no particle šá hosts aʔ as an enclitic, but in the context of a modal such as máxʷ or mat (33b,c), aʔ always follows the modal.26

(33) a. ša aʔ ʔšλʔxэкčín.
  ša aʔ ʔšλʔxэкčín
Q PAST slaughter.animal

‘Did he kill/slaughter an animal?’ (Willett, 2003:320) (Nxa’amxčín)

b. šá máxʷ aʔ kʷáš.
  šá máxʷ aʔ kʷáš
Q EPIS PAST take+DIR+3ERG

‘I wonder if he took it.’ (W4.79) (Nxa’amxčín)

c. íl kʷən mat aʔ kášan.
  íl kʷən mat aʔ kášan
EXCL EVID[?] EPIS PAST give+DIR+SG.ERG

‘I guess I did give it to him.’ (W11.41) (Nxa’amxčín)

(34) a. máxʷ naʔ ʔsəmtən.
  máxʷ naʔ ʔsəmtən
EPIS FUT feed-DIR-1SG.ERG

‘Maybe I will feed him.’ (W11.107) (Nxa’amxčín)

b. máxʷ naʔ k̓n núxʷt.
  máxʷ=naʔ k̓n núxʷt
EPIS=FUT 1SG.INTR go

‘Maybe I will go.’ (W11.85) (Nxa’amxčín)

There is no clear prosodic reason that a pronoun or tense clitic could not in principle precede a modal particle and attach to an initial host, but this is unattested. If modal particles block intransitive pronoun clitics and tense clitics from attaching to an initial prosodic host, it seems likely that this is due to a syntactic restriction, such that these clitics cannot occur higher than the modal.

Assuming that modals act as syntactic barriers to clitic linearization, and that modals are lower in the syntax than yes/no question particles, we additionally predict that intransitive pronoun clitics and tense clitics will neither precede a yes/no question marker before a prosodic host (35a), nor

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25 Although a related, stress-bearing future marker naʔšüʔ can precede a modal (i) and the conjunction kʷaʔ (ii). naʔšüʔ has the phonological shape and distribution of an adverb, rather than a clitic.

(i) …kʷaʔ naʔšüʔ máxʷ ʔitx.
  …kʷaʔ naʔšüʔ máxʷ ʔitx
CONJ FUT EPIS sleep

‘…and then maybe he’ll sleep.’ (CD.64) ‘After you are finished eating…’ (CD)

26 Modal particles never follow the main predicate, unlike tense-related particles.
follow a question particle after a prosodic host (35b), and indeed such data are not found in the corpus.

(35)  
   a.  p* kʷ aʔ šá √x̣ałʔ.p.       (cf. 16a)  
   b.  p* x̣ałʔ.p a kʷ aʔ.       (cf. 16b)  

The implication is that prosodic orbits correspond in some sense to syntactic position, and a clitic which is syntactically lower than a modal cannot escape to a position whose linearization implies a higher position.

(36)  
[yes/no question [modal] [future [pronoun [host] pronoun] future] yes/no question]

Last, consider that both aʔ'y and naʔ are similar in maintaining a tight relationship with subject clitics, such that normally, nothing can intervene between aʔ'y or naʔ and a subject clitic. In the few cases in which they orbit independently, the intervening element is always the main predicate (37a,b), negation (37c,d), or negation plus the main predicate (37e). This indicates that subject and tense clitics are syntactically close not only to one another, but also syntactically closer to their predicate host than other clitics.27 (Recall that in such cases the pronoun will always precede the host, and the tense clitic will always follow the/a host: the reverse order is unattested.)

(37)  
   a.  kʷ nhampátkʷ naʔ.  
       kʷ  nhamp-átkʷ  naʔ  
       2SG.INTR fall.in-water  FUT  
       ‘You will fall in the river.’       (JM3.139.2) (Nxaʔamxčín)

   b.  kn ?ín aʔ'y tél.  
       kn   √?ín=aʔ'y   tél  
       1SG.INTR eat=PAST EXCL  
       ‘I already ate.’       (W3.16) (Nxaʔamxčín)

   c.  šac'kámx kʷaʔ? kʷ lút aʔ'y táw x̣ałʔ'čín n l wənáčiʔ?  
       šac'√'kámx kʷ=ʔaʔ'y  lút=ʔaʔ'y  táw  x̣ałʔ'čín  n  l  wənáči  
       why  CONJ  2SG.INTR=NEG=PAST  buy  horse  [?]  at  Wenatchee  
       ‘Why didn't you buy a horse when you were in Wenatchee?’       (Y29.185) (Nxaʔamxčín)

   d.  kʷaʔ? šac'kámx kʷaʔ? kʷ lút naʔ? klčiʔál núxʷʔt?  
       kʷaʔ?  šac'kámx  kʷaʔ?  kʷ  lút  naʔ?  klčiʔál  √núxʷʔt  
       why  CONJ  2SG.INTR  NEG  FUT  to.there  go  
       ‘Why won't you go there?’       (W11.92) (Nxaʔamxčín)

   e.  šac'kámx kʷaʔ? kʷ lút núxʷʔt aʔ'y?  
       šac'kámx  kʷ=ʔaʔ'y  lút  √núxʷʔt=ʔaʔ'y  
       why  CONJ  2SG.INTR=NEG  go=PAST  
       ‘Why didn't you go home?’       (Y29.184) (Nxaʔamxčín)

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27 This pattern also implies that negation is lower than tense. See Huijsmans (2015) for Northern Straits.
In preparation for our analysis in Section 4, Section 3 reviews the idea of clitic domains as discussed in Lyon (2019), who presented evidence that Nsyilxcn clitics are parsed at different prosodic levels (see Gerdt & Werle 2014 for Halkomelem). Here, we extend this concept to Nxaʔamxčin.

3 Clitic Domains

In Section 3.1, we re-establish three clitic domains for Nsyilxcn based on distributional, phonological, and syntactic criteria (Lyon 2019): core inner, pivotal inner, and outer clitics. In Section 3.2, we extend these domains, which are crucial components in our analysis of clitic linearizations, to Nxaʔamxčin.

3.1 Nsyilxcn Clitic Domains

Lyon (2019) demonstrates that some Nsyilxcn clitics must linearize closer to their predicate host (inner clitics) than other clitic types (outer clitics). Distributional and phonological differences support a further distinction between ‘core’ inner and ‘pivotal’ inner clitics on the one hand, and pivotal inner clitics and outer clitics on the other. In this section, I review the evidence.

Example (38) shows an Nsyilxcn sentence consisting of two stresses, and therefore potentially two separate clitic domains, as shown by the bracketing. The yes/no question marker ha (i) is an outer clitic, yám𝑥ʷaʔ ‘basket’ and kʷíntxʷ ‘you take it’ (ii) are inherently stressed prosodic word hosts of the nominal and verbal domains, respectively. The determiner iʔ and future marker mi (iii) are examples of inner pivotal clitics of the nominal and verbal domains, respectively.

(38)  ha iʔ yám𝑥ʷaʔ mi kʷíntxʷ?

Core inner clitics (not shown in 38) attach directly to the main predicate in Nsyilxcn. Core inner clitics of the verbal domain include intransitive subject pronouns (39a), the l(aʔ) complementizer (39b), and the negative factual marker t̕a (a) (39c).28 These clitics sometimes show differences in relative ordering with respect to one another (cf. 1), but occur closer to the predicate than other inner clitics.

(39)  a.  kʷu l ?alʔiľxʷt.

Core inner clitics of the nominal domain include the set of prepositions (see Table 1).
c. lut kn ṭa klkəkwáwp.
  lut  kn  ṭa  kl-ko’ko’wáwp
NEG  1SG.INTR  NEG.FAC  have-horse  DIM.RED
‘I don’t own any dogs.’

Nsyilxcn inner clitics must parse as part of an extended prosodic word which includes the main predicate, and never parse with an adverb or other prosodic host (in contrast to Nxaʔamxčín). Example (40a) is ungrammatical because the subject pronoun kʷ is attaching to an adverbial host pútiʔ, rather than to the main predicate as in grammatical (40b). Outer clitics like the yes/no question marker ha are not subject to this restriction (40b).

(40) a. * ha kʷ pútiʔ ʔ̓ay̓lqs?
   * ha kʷ pútiʔ ʔ̓ay̓lqs
Q 2SG.INTR still black-robe
‘Are you still a priest?’

b. ha pútiʔ kʷ ʔ̓ay̓lqs?

Pivotal inner clitics are similar to core cases in that they must attach to a prosodic host which includes the main predicate, but they always occur to the outside of core inner clitics such as a pronoun or the laʔ complementizer. Pivotal inner clitics include the complementizer kiʔ, and future marker mi, as shown in (41).

(41) mi kʷu xʷuy.

   mi  kʷu  xʷuy
FUT 1PL.INTR go.PL
‘Let’s go.’

Most core and pivotal inner clitics participate in a phonological process known as ‘[a]-insertion/replacement’ (A. Mattina 2000). When a core inner clitic occurs before a [n, l, y, w], [a] is inserted between the clitic and that consonant (42). When an inner clitic with an [i] vowel occurs before [c] or [ɬ], the [i] vowel becomes [a] (43). This only occurs with inner clitics, never prefixes, adverbs, outer clitics, or other particles.

(42) [a] insertion
a. kl_ʔ̓utk ‘to the north’  ⇒  kła_ʔ̓utk
b. tl_ñyxʷut ‘from inside’  ⇒  tla_ñyxʷút
c. lútiʔ 1_ʔ̓ulxʷ ‘before he went in’  ⇒  lútiʔ la_ʔ̓ulxʷ
d. cúntám iʔ_ɬʔɬʔiw ‘his dad told him’  ⇒  cúntám iʔ_ɬʔɬʔiw
  e. iʔ_ɬʔɬʔlmixʷəm ‘by the boss’  ⇒  iʔ_ɬʔɬʔlmixʷəm
  f. iʔ_ɬʔɬʔlmixʷəm ‘the boss’  ⇒  yə_ɬʔɬʔlmixʷəm
An exception to this rule is future *mi*, which does not undergo [a]-replacement. Nevertheless, given its complementary distribution with *kiʔ* (which becomes *ka* in 43c), its ability to ‘double’ (see below), and its linearization to the left of pronouns, Lyon (2019) analyzes it as a pivotal inner clitic.

An additional distinction between inner and outer clitics comes from ‘clitic doubling’. Only inner clitics, core (44a) or pivotal (44b), have the ability to ‘double’ within a single clause. The optional ‘double’ can attach to a prosodic host other than the main predicate.29

In terms of linear ordering, future *mi* and complementizer *kiʔ* are the leftmost inner clitics (45): any clitic occurring to the left of *mi* or *kiʔ* will never undergo [a] insertion/replacement or double, and need not attach to the main predicate, i.e. they are outer clitics.30

Lyon (2019) claims that these outermost inner clitics are syntactically in the neighbourhood of T(ense). Modals and other syntactically high-scope-taking particles cannot occur linearly to the right of *mi* and *kiʔ*, suggesting that modals and outer clitics such as the yes/no question marker *ha* are in syntactic positions above T(ense).31 Because *mi* and *kiʔ* are syntactically and prosodically at the borderline, we refer to them as pivotal inner clitics.

29 It is unclear at this point whether clitic doubling is primarily a phonological or syntactic phenomenon.
30 Important Nsyilxcn outer clitics not discussed in this paper include some modals and evidentials.
31 The complementizer *laʔ* is an exception to this rule, as a core inner clitic, but there is some evidence to indicate a localized prosodic inversion of *laʔ* and clitic pronouns, on par with the prosodic inversion of determiner *iʔ* and prepositions in nominal contexts.
In sum, Nsyilxcn inner clitics must attach to the main predicate as their prosodic host, they are phonologically integrated with their host as shown by the [a] insertion/replacement data, and they can optionally ‘double’. Outer clitics, in contrast, can attach to either a pre-predicative prosodic host or the main predicate, and do not double. Though pivotal clitics are still inner clitics, they may not be quite so phonologically integrated, as shown by the fact that future mi does not undergo [a]-replacement.

3.2 Nxaʔamxchin Clitic Domains

Given the cognacy and/or functional equivalency between Nsyilxcn and Nxaʔamxchin functional morphemes (Table 1) and assuming that Nsyilxcn clitics are ordered and fall into domains (Section 3.1), then given the evidence shown in Section 2, it seems extremely likely that Nxaʔamxchin clitics also fall into similar domains.

Independent phonological evidence for clitic domains in Nxaʔamxchin, on par with [a]-insertion/replacement in Nsyilxcn, is difficult to find. More phonetic and phonological work needs to be done in this area.\(^{32}\) There is nevertheless some evidence to support a pivotal inner clitic status for future naʔ. Like Nsyilxcn mi, it doubles (46a). Example (46b) shows similar data for aʔ.\(^{33}\)

\[
\text{(46) a.} \quad \text{náʔ nxaštmíš naʔ.} \\
\text{náʔ n-šxm-tiš naʔ} \\
\text{FUT LOC-good-RLT-3ERG FUT} \\
\text{‘That will do him good.’} \quad \text{(Y26.31) (Nxaʔamxchin)}
\]

\[
\text{b.} \quad \text{lxaʔál aʔy čkičtmíš aʔy plaqal lu kł̓əmčáxʷ.} \\
\text{lxaʔál=aʔy č-kiciel-šm-š=ʔy} \\
\text{here=PAST CISL-arrive-CAUS-RLT-3ERG=PAST} \\
\text{lu k-ʔəm-čá-xʷ} \\
\text{COMP go.by-RLT+DIR+1SG.OBJ-2SG.ERG} \\
\text{‘He was visiting me yesterday when you went by.’} \quad \text{(EP4.45.1b) (Nxaʔamxchin)}
\]

Evidence against analyzing naʔ and aʔ as core inner clitics on par with subject pronoun clitics comes from the fact that in post-predicative environments they only attach directly to the main predicate in the absence of a subject clitic (cf. \(^{3*24}\)), which is particularly surprising given the preference of aʔ to attach directly to the host in other environments. Ordering parallels between Nsyilxcn mi and Nxaʔamxchin naʔ with pronoun clitics in pre-predicative single host environments further supports a distinction between pivotal and core inner clitics in Nxaʔamxchin (cf. 6, 8).

---

\(^{32}\) Though Bell (2003) makes many interesting and relevant observations regarding the interaction between different types of clitics and particles in Nxaʔamxchin, and stress.

\(^{33}\) Example (i) below could be evidence for doubling in Nxaʔamxchin pronoun clitics: The first modal is transcribed as šakʷ and the second as šak, so the initial modal may be a contraction of šak and 2SG.INTR kʷ.

\[\text{(i) śakʷ lút kʷ háwiym kʷaʔ tiʔ śak táxʷ-pståmùn.} \]

\[\text{śakʷ lút kʷ} \quad \text{váwiyùm kʷaʔ tiʔ śak } \text{štúxʷ-pstå-m-n} \]

\[\text{POT NEG 2SG.INTR work-MID CONJ EXCL POT stop-INCH-CAUS-2SG.OBJ-1SG.ERG} \]

\[\text{‘If you’re not working, I might just as well stop you.’} \quad \text{(J.1.29) (Nxaʔamxchin)}\]
Evidence for a distinctive, outer clitic analysis of Nxaʔamxčín question marker a may come from the fact that a always carries what seems to be a phrase-final, right-most stress. This right-most stress may also be carried by other phrase-final clitics, however this stress always shifts to a when present, leading Bell (2003) to hypothesize a distinct class of stress-attracting clitics including a, as opposed to stress-shifting clitics which may receive or lose phrasal stress depending on other factors. Though the facts remain unclear, it is possible that a distinction between stress-attracting and stress-shifting clitics may be couched in terms of a difference in how these clitics are phonologically parsed within the prosodic hierarchy.

In sum, the null hypothesis is that clitic domains across the two languages are as given in Table 2. With these arguments and assumptions in place, we now introduce our analysis.

<table>
<thead>
<tr>
<th>Gloss</th>
<th>Nxaʔamxčín</th>
<th>Nsyílxcn</th>
<th>Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st SG. intran</td>
<td>kn</td>
<td>kn</td>
<td>core inner</td>
</tr>
<tr>
<td>2nd SG. intran</td>
<td>kʷ</td>
<td>kʷ</td>
<td>core inner</td>
</tr>
<tr>
<td>1st PL. intran</td>
<td>kt</td>
<td>kʷu</td>
<td>core inner</td>
</tr>
<tr>
<td>2nd PL. intran</td>
<td>kp</td>
<td>p</td>
<td>core inner</td>
</tr>
<tr>
<td>3rd PL. intran</td>
<td>lx</td>
<td>lx</td>
<td>core inner</td>
</tr>
<tr>
<td>future</td>
<td>naʔ</td>
<td>mi</td>
<td>pivotal inner</td>
</tr>
<tr>
<td>past</td>
<td>a̓y</td>
<td>*</td>
<td>pivotal inner</td>
</tr>
<tr>
<td>yes/no question marker</td>
<td>a</td>
<td>(h)a</td>
<td>outer</td>
</tr>
</tbody>
</table>

4 An Orbital Analysis

In this section, we give our analysis. In Section 4.1, we discuss the prosodic hierarchy and how we parse clitics within the prosodic hierarchy, based on the evidence, arguments, and assumptions given in preceding sections. In Section 4.2, we present the basics of our constraints-based analysis, and how partially ordered constraints (Antilla 2001) inform the basic orbital patterns discussed above. In Section 4.3, we address the issue of orbital independence in Nxaʔamxčín by formalizing relations between specific alignment constraints as conditionals, and illustrate some predictions for clitic orientation which follow from our analysis. In Section 4.4, we address complications introduced by (ʔ)a̓y.

We include multiple sample derivations in Sections 4.3 and 4.4 in order to illustrate our approach, which may overgenerate possible parsings in some instances. With further study and additional language data, we hope to verify, and/or increase the accuracy of our analysis.

4.1 The Prosodic Hierarchy and Parsing Clitics

Our analysis utilizes a prosodic hierarchy (Selkirk 1995) which ranks phonological elements within a hierarchy whose largest unit is an utterance, and whose smallest unit is a mora.

---

34 Caldecott & Czaykowska-Higgins (2012) found that most phrases with stressed boundary vowels showed no rising or falling tone.
35 Bell (2003) notes an intriguing parallel between their observation that a (potentially) larger prosodic unit containing a clitic string in Nxaʔamxčín bears right-most stress, and Czaykowska-Higgins’ (1993) observation that prosodic word-level stress is also right-most, except in the case of prosodic words containing only schwa vowels, in which case stress is assigned left-most.
For the purposes of this paper, we will only be concerned with prosodic words (ω), phonological phrases (φ) consisting of one or more prosodic word(s), and intonational phrases (ι) consisting of one or more phonological phrases. These units and their internal constituency are illustrated schematically in (48a–c).

(48) a. (ω........(ω........)) \hspace{2cm} \textit{prosodic words}
b. (φ........(ω........)) \hspace{2cm} \textit{phonological phrases}
c. (........(φ........(ω........)))(ω....) \hspace{2cm} \textit{intonational phrases}

We follow Gerdts and Werle (2014) in assuming that prosodic words (ω) bear word-level prominence (i.e. stress) and are pronounceable in isolation, that phonological phrases (φ) contain one or more prosodic words, and that intonational phrases (ι) contain one or more phonological phrases. We also follow Gerdts and Werle (2014) in assuming that it is not necessarily the case that an element be parsed as part of a prosodic word in order to occur within a phonological phrase, just as it is not necessarily the case that an element be parsed as part of a phonological phrase in order to occur in an intonational phrase. We additionally assume for this paper that two clitics cannot, by themselves, parse together as a ω.\(^{36}\)

Clitics are phonologically parsed in different ways, depending on the degree of phonological integration with their prosodic host: Clitics parsed as part of ω are more integrated than those parsed at the φ or ι level. Gerdts and Werle (2014) apply the prosodic hierarchy to clitics in Halkomelem Salish, resulting in the following typology:

(49) a. (φ(part)(ω,lex)) \hspace{2cm} \text{particle (not a clitic)} \hspace{2cm} \text{less phonologically integrated}
b. (φCl(ω,lex)) \hspace{2cm} \text{free clitic}
c. (φ(adjoined clitic)(ω,lex)) \hspace{2cm} \text{adjoined clitic}
d. (φ,internal clitic(ω,lex)) \hspace{2cm} \text{internal clitic} \hspace{2cm} \text{more phonologically integrated}

Particles (49a) are parsed as their own independent ω, and can therefore bear lexical stress and host other clitics. Free clitics (49b) are parsed as part of φ containing the host ω, and hence are predicted to show greater variability in terms of position. Adjoined clitics (49c) are parsed as part of a recursive ω\(^{37}\) containing the host ω, and are therefore predicted to show less positional variability than free clitics. Lastly, internal clitics (49d) are parsed as part of the host ω, and as such are predicted to undergo phonological processes which less integrated clitics will not.

The chief utility of the prosodic hierarchy (47–48) and a parsing typology similar to (49) for our analysis as given in this paper is that it provides a theoretical framework to predict possible clitic linearizations, in conjunction with the prosodic alignment constraints discussed in following sections (Sections 4.2 to 4.4). Furthermore, in the context of multiple potential prosodic hosts, more

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36 Allowing two clitics to parse as a prosodic word leads to a different theoretical account, which could, conceivably, end up being the correct approach. Bell (2003), for example, observes “that certain particles attach to other particles to form a first constituent,” though the pattern hinted at is not clear.

37 Phonology does not have recursion in the sense of a structure which contains itself, or of a function which calls itself, so phonological ‘recursion’ is better termed embedding (Golston 2020). Furthermore, a ‘recursive’ prosodic word is theoretically problematic since the utility in positing ω as a phonological level holds only insofar as all instances of ω are treated equally by the theory (ibid). As such, we do not utilize recursive prosodic words.
than one possible clitic orientation may emerge directly from parsing and alignment (Section 4.3). Based on evidence given above in Section 3, we assume the prosodic classification of Nxaʔamxčín and Nsyilxčn clitics given below in Table 3.

Table 3: Prosodic classification of a subset of Nxaʔamxčín and Nsyilxčn clitics

<table>
<thead>
<tr>
<th>Parse</th>
<th>Label</th>
<th>Nxaʔamxčín</th>
<th>Nsyilxčn</th>
</tr>
</thead>
<tbody>
<tr>
<td>(φ(εCl lex))</td>
<td>core inner clitic (‘internal clitics’)</td>
<td>subject clitics</td>
<td>subject clitics</td>
</tr>
<tr>
<td>(εCl (ε,lex))</td>
<td>pivotal inner clitic (‘free clitics’)</td>
<td>naʔ, ay</td>
<td>mi</td>
</tr>
<tr>
<td>(ε Cl (φ(ε,lex)))</td>
<td>outer clitics</td>
<td>a</td>
<td>(h)a</td>
</tr>
<tr>
<td>(φ(ε,εCl)(ε,lex))</td>
<td>particles</td>
<td>šá, tɪʔ, lút, etc.</td>
<td>...</td>
</tr>
</tbody>
</table>

Further independent phonetic and phonological evidence for this classification is needed, as discussed in the previous section. For example, by parsing the Nxaʔamxčín yes/no question marker a at the t-level, we can correctly predict that it will always linearize to the outside of tense clitics in its own orbit, but currently our only major piece of independent phonetic/phonological evidence to parse a at its own prosodic level is that it always attracts a right-most phrasal stress, while other clitics in a post-host environment may potentially lose their phrasal stress (Bell 2003, Section 3.2).38

4.2 Linearizing Orbital Clitics

We propose that the linearization of clitics in Nsyilxčn and Nxaʔamxčín is derived by two families of constraints, each with three members tailored to the ω, φ, and t levels of the prosodic hierarchy.

(50) a. STAYω,φ,t: No daughter of ω,φ,t moves. (Agbayani & Golston 2010)

    b. STRONG-STARTω,φ,t: Assign one violation mark for every leftmost daughter constituent lower in the Prosodic Hierarchy than its sister constituent immediately to its right. (Selkirk 2011)

The basic idea is that if STAY-family constraints are dominant, all clitics will linearize before their hosts,39 while if STRONG-START-family constraints (henceforth abbreviated STR-ST) are dominant, all clitics will linearize after their hosts. The variability in clitic positioning seen for Nxaʔamxčín can be derived by allowing for multiple possible rankings for a defined subset of constraints (Antilla 2001). To illustrate using a simple attested case: For (51a), STAYω wins, while for the minimal pair (51b), STR-STω wins. We therefore predict free variation.

(51) a. kn qʷətnáyaʔqən.
    (\text{\textunderscore}kn qʷətn-áyaʔ-qən) \hspace{1cm} \text{STAY}_ω > \text{STR-ST}_ω
    1SG.INTR big-top.of-head
    ‘My head is big.’ \hspace{1cm} (MLW.AB.25.4) (Nxaʔamxčín)

---

38 It is worth mentioning that analyzing yes-no question marker (s)á as an (in)direct daughter of an intonational phrase receives theory-internal support from Match Theory (Elfner 2012), wherein MATCHCLAUSE enforces a correspondence between ForceP (or CP) and t.

39 We are assuming linear-correspondence and an underlying head-initial syntax for both languages, based on the Nsyilxčn pattern.
b. qʷətnáyaʔqn kn.
\[\begin{align*}
(qʷətn-\text{áyaʔ}-qn & \quad \text{kn}) \\
\text{big-top.of-head} & \quad \text{1SG.INTR} \\
\text{‘My head is big.’} & \quad (\text{MLW.AB.25.4}) \quad (\text{Nxa?amxčín})
\end{align*}\]

Allowing for multiple possible rankings between specific \textit{STAY} and \textit{STR-ST}-family constraints is crucial to explaining the ‘orbital’ effect seen with Nxa?amxčín pronoun clitics, tense clitics, and the yes/no question marker.\footnote{It is not the case that every \textit{STAY} constraint has a revolving door with every \textit{STR-ST} constraint, given that certain orderings are not apparent. See below.} We refer to the notion of multiple possible rankings informally as ‘revolving doors’, symbolized by ‘\(\oplus\)’.\footnote{Arto Antilla’s (2001) work on partial orderings in Finnish phonology provides the foundation for the “revolving door” idea, though the term itself was coined by Chris Golston.} The difference between the flexibility seen with Nxa?amxčín clitic pronoun linearization in cases like (51), and the corresponding lack of flexibility in Nsylxcn, can be captured generally by the following rankings:

\[(52)\]
\[
\begin{align*}
\text{a.} & \quad \text{Nxa?amxčín:} & \quad \text{STAY}_0 & \oplus & \text{STR-ST}_0 \\
\text{b.} & \quad \text{Nsylxcn:} & \quad \text{STAY}_0 & > & \text{STR-ST}_0
\end{align*}\]

Recall that Nxa?amxčín future \textit{naʔ} always occurs on the outside of a pronoun clitic in pre-host position, and after a pronoun clitic in post-host position (53). Given that \textit{naʔ} is the functional and syntactic equivalent of \textit{mi} in Okanagan, and both show evidence of being a pivotal inner clitic, we propose that \textit{naʔ} and \textit{mi} are both parsed at the level of \(\phi\).

\[(53)\]
\[
\begin{align*}
\text{a.} & \quad \text{naʔ kn lēkiyeč.} & \quad \text{STAY}_{0,\phi} & \oplus & \text{STR-ST}_{0,\phi} \\
& \quad (\text{φ naʔ kn l-če√kiyeč}) & \quad \text{FUT} & \quad \text{1SG.INTR} & \quad \text{return-CISL-arrive} \\
& \quad \text{‘I will be back.’} & \quad (\text{W7.261}) & \quad (\text{Nxa?amxčín})
\end{align*}\]

\[
\begin{align*}
\text{b.} & \quad \text{k’ám kn naʔ.} & \quad \text{STR-ST}_{0,\phi} & > & \ast \text{STAY}_{0,\phi} \\
& \quad (\text{φ k’ám kn}) & \quad \text{naʔ} & \quad \text{stay} & \quad \text{1SG.INTR} & \quad \text{FUT} \\
& \quad \text{‘I will stay.’} & \quad (\text{Y23.3}) & \quad (\text{Nxa?amxčín})
\end{align*}\]

The variation within Nxa?amxčín, as well as the variation between Nxa?amxčín and Nsylxcn can so far be expressed as follows:

\[(54)\]
\[
\begin{align*}
\text{a.} & \quad \text{Nxa?amxčín:} & \quad \text{STAY}_{0,\phi} & \oplus & \text{STR-ST}_{0,\phi} \\
\text{b.} & \quad \text{Nsylxcn:} & \quad \text{STAY}_{0,\phi} & > & \text{STR-ST}_{0,\phi}
\end{align*}\]

To account for the linearization of the yes/no question clitic \(á\), and given that it always attracts phrasal stress, we propose that it is parsed at the level of the intonational phrase (55a). For corresponding (55b), we assume that \(sá\), as a stress-bearing particle, is parsed as its own \(\omega\), and that \textit{STAY}, prevents it from moving.
are never found. Such limits may be expressed by implicational relations between specific \( \text{STAY} \) and STR-\( \text{START} \) constraints, which will rule out unattested orderings.

\[43\] Other unattested orderings for examples (58), such as \( \text{p}^*k^w \text{ na? nhampátkω} \) or \( \text{p}^*\text{nhampátkω na? k}^w \), are predicted ungrammatical by a highly-ranked constraint BINARY(\( \varphi \)) which disallows vacuous parsings of \( \omega \) as \( \varphi \). See section 4.4.
For (58), the implication is that if \( \text{STAY}_p \) is satisfied (58b,d), then \( \text{STAY}_a \) must also be satisfied (58b). Given the family-level revolving door so far proposed, this is equivalent to saying that if \( \text{STR-ST}_a \) is satisfied (58c,d), then \( \text{STR-ST}_p \) must also be satisfied (58c). This is formalized as the implication in (59).

\[
(59) \quad (\text{STAY}_p \rightarrow \text{STAY}_a) \oplus (\text{STR-ST}_a \rightarrow \text{STR-ST}_p)
\]

Utilizing a standard logical equivalence for conditional statements, \( \neg (p \rightarrow q) \equiv (p \& \neg q) \), a violation of the antecedent of any conditional will not result in the entire conditional incurring a violation, while a violation of the consequent of any conditional will result in the entire conditional incurring a violation, if the antecedent is not itself also violated. Example (60) below shows (59) again, as applied to the conditional in (59). For orbitally independent (60a), even though the antecedents of both conditionals incur violations, both conditionals will as a result automatically be true.

\[
(60) \quad (\neg (p \rightarrow q) \equiv (p \& \neg q)).
\]

Formalizations such as (59) are a shorthand for restricted partial constraint orderings accompanied by outranking, banned pairings: For example \( (\text{STAY}_p \rightarrow \text{STAY}_a) \) is equivalent to a more convoluted \(*((\text{STAY}_a, \text{STAY}_a)\) > (\text{STAY}_a \oplus \text{STAY}_a)\). In English: Any ranking of \( \text{STAY}_a \) and \( \text{STAY}_p \) is possible with respect to a specific input, unless that input satisfies \( \text{STAY}_p \) while violating \( \text{STAY}_a \). Such candidates will never be optimal, since \( \text{STR-ST}_a \rightarrow \text{STR-ST}_p \) (which is shorthand for \(*((\text{STR-ST}_a, \text{STR-ST}_a)\) > (\text{STR-ST}_a \oplus \text{STR-ST}_a)\) will also automatically be violated. If both \( \text{STAY}_a \) and \( \text{STAY}_p \) are violated however (e.g. 60c), then the candidate can still win just in case \( \text{STR-ST}_a \rightarrow \text{STR-ST}_p \).

---

44 \( \neg \) is equivalent to a violation, marked as *. Fatal violations of conditionals are indicated by !.

45 The formula in (59) is formally equivalent to:

\[
[*((\text{STAY}_a, \text{STAY}_a)\) > (\text{STAY}_a \oplus \text{STAY}_a)] \oplus [*(\text{STR-ST}_a, \text{STR-ST}_a) > (\text{STR-ST}_a \oplus \text{STR-ST}_a)]
\]

225
ST_φ is ranked higher. In other words, when an entire conditional incurs a violation, the revolving door is ‘activated’ to save the candidate, but if the conditional on the other side of the revolving door is also violated, the candidate will be ruled out. For most derivations in this section, the STAY and STR-ST conditionals make the same predictions, and so it is tempting to propose a simpler system which uses only STAY constraints. However, several examples below show that both are needed.

Next, consider (61) which shows orbital independence at the level of φ and t:

(61) a. lút naʔ lkʷáš á?
   (φ lút) (φ naʔ (φ l-kʷáš)) á
   NEG FUT LOC-take+DIR-3ERG Q
   ‘He won’t take it back, will he?’
   (MDK.Y29.154) (Nxaʔamxčín)

b. p (φ lút) (φ šá) (φ naʔ (φ l-kʷáš))

c. p (φ lút) (φ (φ l-kʷáš) naʔ) á

d. p* (φ lút) (φ šá) (φ (φ l-kʷáš) naʔ)

For (61), the implication is that if STAY, is satisfied (61b,d), then STAY_φ must also be satisfied (61b). This is formalized as the implication in (62).

(62) (STAY, → STAY_φ) ⊕ (STR-ST_φ → STR-ST_t) (cf. 61)

Example (61) is repeated below as (63), but is explicitly applied to (62) for the sake of demonstration.

(63) a. (φ lút) (φ naʔ (φ l-kʷáš)) á.
   (*STAY, → STAY_φ) ⊕ (*STR-ST_φ → *STR-ST_t) T ⊕ T

b. p (φ lút) (φ šá) (φ naʔ (φ l-kʷáš))
   (STAY, → STAY_φ) ⊕ (*STR-ST_φ → *STR-ST_t) T ⊕ T

c. p (φ lút) (φ (φ l-kʷáš) naʔ) á
   (*STAY, → *STAY_φ) ⊕ !(STR-ST_φ → *STR-ST_t) T ⊕ F

d. p* (φ lút) (φ šá) (φ (φ l-kʷáš) naʔ)
   !(STAY, → *STAY_φ) ⊕ !(STR-ST_φ → *STR-ST_t) F ⊕ F

For (63), note that STR-ST_t is violated if lút, which is parsed as a prosodic word, remains initial in the intonational phrase. For (63c,d), this is fatal to the STR-ST conditional. For this reason, the STAY conditional will take precedence: Both (63c) and (63d) violate the consequent STAY_φ, but this

---

46 This generally corresponds to the implication that if STR-ST_φ is satisfied then STR-ST_t must also be satisfied, but in the context of an initial stressed particle, the STR-ST implication will be violated, as in (63c,d).

47 The implication in (62) is formally equivalent to:

[*(*STAY_φ, STAY,) > (STAY, ⊕ STAY_φ)] ⊕ [*(*STR-ST_φ, STR-ST_t) > (STR-ST_t ⊕ STR-ST_φ)]

48 One strategy to save (63d) would be to move (φ lút) and (φ šá) to the end of the intonational phrase, though it is unclear if this is possible in Nxaʔamxčín. Particles prefer to occur before rather than after the main predicate (Kinkade 1982).
is fatal just in case \textsc{stay}, is satisfied, as in the case of \((63d)\). In other words, the only ordering of \((63)\) which violates both conditionals in \((62)\) will be \((63d)\). Notice that in \((63c)\), the two conditionals make different predictions, and so this is a good example of why the large revolving door, and both families, are still needed under this approach: The \textsc{stay} conditional will allow one or more \(\omega\) to precede a \(\varphi\), even though the \textsc{str-st} conditional is fatally violated.

Implicational relations such as \((59)\) and \((62)\) allow for multiple possible parsings of the same string, thus accounting not only for variable clitic linearizations, but for variable orientations. Example \((64)\) below consists of a clitic pronoun surrounded by two prosodic hosts. As an inner clitic, it can potentially parse in either direction.\(^{49}\)

\(\begin{align*}
\text{(64) a. } & \text{t}l \text{t}x\text{a}x\text{a}x\text{t} \text{mix}.
\text{(t}l \text{t}x\text{a}x\text{a}x\text{t} \text{mix})
\text{EXCL IPL.INTR getting,lost}
\text{I think we are getting lost.}'
\text{ }(W9.81) \text{ (Nxa’amxčín)}
\text{!} (\text{STAY}_\varphi \rightarrow \text{*STAY}_\omega) \varphi (\text{ST-RST}_\omega \rightarrow \text{ST-RST}_\varphi) \text{ F T}
\text{b. } (\text{t}l \text{t}x\text{a}x\text{a}x\text{t} \text{mix})
\text{!} (\text{ST-RST}_\omega \rightarrow \text{ST-RST}_\varphi) \text{ T F}
\end{align*}\)

Consider \((65)\) below, which is identical to \((63a)\) above except that \(\text{na?}\) parses as a free enclitic with preceding \(\text{lút}\), rather than as a free proclitic with the main predicate \(\text{lkʷás}\). In this case, both implicational relations are true, predicting that in such an environment, \(\text{na?}\) can parse either as a proclitic, or as an enclitic, so long as it maintains the \(\varphi\) orbit of a free clitic. (In fact, \(\text{na?}\) in \((60)\) was originally transcribed as part of the same word as \(\text{lút}\), suggesting \((65)\) is the correct parse.)

\(\begin{align*}
\text{(65) } & \text{lút na? lkʷás á?}
\text{! (l}t \text{ lút)= na? ) (lkʷás á? ) á)
\text{! (STAY}_\varphi \rightarrow \text{STAY}_\omega) \varphi (\text{ST-RST}_\varphi \rightarrow \text{ST-RST}_\omega) \text{ T T}
\end{align*}\)

More generally, this approach supports parsing initial stress-bearing particles, such as \(\text{lút}, \text{t}l\text{t}\), and \(\text{sá}\) as prosodic words, since assuming that these are parsed in turn directly by an intonational or phonological phrase and do not move, they will never in themselves violate the \textsc{stay} conditional.\(^{50}\)

The implications given as \((59)\) and \((62)\) are combined in \((66)\), resulting in a concise view of the relation between \textsc{stay} and \textsc{strong-start} family constraints in Nxa’amxčín.\(^{51}\)

\(\begin{align*}
\text{(66) } & \text{! (STAY}_\varphi \rightarrow \text{STAY}_\omega) \varphi ((\text{ST-RST}_\varphi \rightarrow \text{ST-RST}_\omega) \rightarrow \text{ST-RST}_\varphi) \text{ T}
\end{align*}\)

\(^{49}\) We abstract away from intonational phrases here for the sake of brevity. For \((64)\), we assume that both prosodic words are parsed as a \(\varphi\), though a parsing of each \(\omega\) as separate \(\varphi\) within an \(\iota\) will also be generated. We also predict \((\text{t}l \text{t}x\text{a}x\text{a}x\text{t} \text{mix})\) as a possible parse. Though there is no evidence that a pronoun can procliticize to \(\text{t}l\text{t}\), possibly for syntactic reasons similar to those discussed in Section 2.4, there is evidence that a pronoun can precede other prosodic words, such as \(\text{lút}\) in \((37e)\): \(\text{šac’kám kʷa} [\text{kʷ lút nůχʷt aʔ]}\)? As such, it makes sense not to prevent \((\text{t}l \text{t}x\text{a}x\text{a}x\text{t} \text{mix})\) as a possible parse, a priori.

\(^{50}\) Given the difference in the way \textsc{stay} and \textsc{str-st} constraints are defined, the prediction is that secondary, prosodic word hosts will adhere to their syntax and occur before the main predicate rather than after it.

\(^{51}\) The implication in \((66)\) is formally equivalent to: \[\text{! (STAY}_\varphi \rightarrow \text{STAY}_\omega) \varphi ((\text{ST-RST}_\varphi \rightarrow \text{ST-RST}_\omega) \rightarrow \text{ST-RST}_\varphi) \text{ T}
\]
For the sake of demonstration, (66) is applied to (67) below (cf. 24a). Though five out of the six linearizations below are predicted by the analysis as it currently stands, possibly suggesting overgeneration, (67d,f) will be removed from consideration in the next section.

(67) a. șúlt kʷ aý á?
   (i, (j ŝá) (j șúlt kʷ) aý)
   (STAY₁ → (*STAY₀ → *STAY₀)) ⊕ !((STR-ST₀ → STR-ST₀) → *STR-ST₁) T ⊕ T
   ‘Were you cold?’ (Y25.36) (Nxa?amxčín)
   (*STAY₁ → (*STAY₀ → *STAY₀)) ⊕ ((STR-ST₀ → STR-ST₀) → STR-ST₁) T ⊕ T

b. P (i, (j ŝá) (j șúlt kʷ) aý)
   (STAY₁ → (*STAY₀ → *STAY₀)) ⊕ !((STR-ST₀ → STR-ST₀) → *STR-ST₁) T ⊕ F

c. p (i, (j ŝá) (j șúlt kʷ))
   !((STAY₁ → (STAY₀ → *STAY₀)) ⊕ !((STR-ST₀ → STR-ST₀) → *STR-ST₁)) F ⊕ F

d. P (i, (j ŝá) (j șúlt kʷ))
   (STAY₁ → (STAY₀ → *STAY₀)) ⊕ !((STR-ST₀ → *STR-ST₀) → *STR-ST₁) T ⊕ F

e. P (i, (j ŝá) (j șúlt kʷ))
   !((STAY₁ → (STAY₀ → *STAY₀)) ⊕ !((STR-ST₀ → STR-ST₀) → STR-ST₁)) F ⊕ T

f. P (i, (j ŝá) (j șúlt kʷ))
   !((STAY₁ → (STAY₀ → *STAY₀)) ⊕ !((STR-ST₀ → STR-ST₀) → *STR-ST₁)) F ⊕ T

In sum, for the simple Nxa?amxčín linearizations addressed in Section 4.2, individual STAY and STRONG-START constraints seem to group together as ‘family units’ with respect to the revolving door. Orbital independence, however, complicates the picture Section 4.3, and the data suggest that while STAY and STRONG-START constraints do indeed group together as a family, the absence of certain possible linearizations in our corpus suggests that the grouping involves implicational relationships between individual constraints which limit orbital independence, yet still allow flexibility in clitic orientation. This approach correctly accounts for attested linearizations, and rules out unattested ones, though it may overgenerate in its current form.

4.4 Addressing the Linearization of (?)'aý

Data involving (?)'aý introduce complications to our analysis, given the patterns discussed above in Sections 2.2 and 2.3. The basic pattern which holds in the context of one potential prosodic host is given again in (68). The pronoun always occurs before (?)'aý, though in (68a) ?'aý remains in orbit, while in (68b) the orbit appears at first glance to be overruled. The other possible orderings, shown in (68c) and (68d), are unattested. We predict (68c) to be possible, though not (68d), for reasons discussed below.

(68) a. nažál kn aý.
   na-νžál kn=aý
   LOC-afraid 1SG.INTR=PAST
   ‘I was scared.’ (W3.10) (Nxa?amxčín)
In (72),

This is when it occurs post

question marker, which is

It is note

order to save the linearization.

being

always be an enclitic.

follows

It is important to note that

parse with

a glottal stop

(69)

We predict (68c) to be possible given

69

We suggest that the correct approach to ruling out (72), and other possible orbit

is transcribed with an initial glottal stop, which

is also sometimes transcribed as containing a glottal stop. If ay is promoted to a ω ay in these cases as well, then the pronoun clitic can then

parse with ?ay as a ω (69b). Thus, there is no actual orbital violation.

(69) a. ?ay ʔačkičštumš yaštú ššálχalt lu ay páňká ?aní.

(ω ?ay) (ω ?ač-čkič-št-m-ʃ) yaštú ššálχalt lu ay páňká ?aní

PAST IPFV-arrive-CAUS-1SG.OBJ-3ERG all day COMP PAST where DEM

‘He used to visit me every day.’

(EP4.46.2) (Nxa?amxčín)

b. kn ?ay nuχ=tútiɣa?.

(ω kn ?ay) (ω nuχ=tútiɣa?)

1SG.INTR PAST go-on.foot

‘I went on foot.’

(JM3.185.8) (Nxa?amxčín)

d. p* na-ʔvxḷal aỵ kn.

‘I was scared.’

second-position

We predict (68c) to be possible given data showing that rarely, (ʔ)ay occurs initially: In such cases, (ʔ)ay is transcribed with an initial glottal stop, which we take as evidence that it has been promoted to a prosodic word (69a). In cases such as (68b), (ʔ)ay is also sometimes transcribed as containing a glottal stop. If ay is promoted to a ω ay in these cases as well, then the pronoun clitic can then

parse with ?ay as a ω (69b). Thus, there is no actual orbital violation.

b. kn ?ay nuχ=tútiɣa?.

(ω kn ?ay) (ω nuχ=tútiɣa?)

1SG.INTR PAST go-on.foot

‘I went on foot.’

(JM3.185.8) (Nxa?amxčín)

It is important to note that (ʔ)ay is never transcribed as containing an initial glottal stop when it follows a host, which suggests that promotion to ω is position dependent, and that post-host ay will always be an enclitic. In other words, the promotion of (ʔ)ay to ω seems to be dependent on STAY, being satisfied: Assuming that enclitic ay can never occur initially in a φ, (70a) becomes (70b) in order to save the linearization. In (71a), STR-ST takes precedence, so ay will not be promoted to ω.

(70) a. p* (ω ay (ω kn (ω nuχ=tútiɣa?))

b. p* (ω ay (ω kn (ω nuχ=tútiɣa?))

(71) a. p* (ω (ω nuχ=tútiɣa? kn ay)

b. p* (ω (ω nuχ=tútiɣa? kn (ω ay))

It is notable that this proposed distribution of ?ay and ay and is parallel to that of the yes/no question marker, which is realized as a ω sá in pre-predicative or initial position, and an enclitic á when it occurs post-host. The problem of orbit-violating linearizations like (68d) remain, however. This is parsed below as (72).

(72) p* (ω (ω nuχ=tútiɣa? ay kn))

In (72), STAY is violated, since ay moves to a linear position internal to ω. As such, word promotion is not a possibility, but STR-ST is nevertheless satisfied, as is STR-ST, albeit vacuously, and so the revolving door should save (72), all else being equal.

We suggest that the correct approach to ruling out (72), and other possible orbit-violating linearizations involving tense clitics and pronoun clitics, is to prevent vacuous parsings of ω as φ,
as in (72). This is achieved by the following highly-ranked constraint \textsc{binarity}(\varphi) (see Elfner 2012 among others), which will essentially force (72) to parse as (71a).

\[(73) \quad \textsc{binarity}(\varphi): \varphi\text{s are binary-branching.} \]

The linearization of \(a'y\) in other cases is then based partially on the promotional constraint in (74).

\[(74) \quad \text{promote}_{a'y \to \omega}: \text{Parse } a'y \text{ as a prosodic word.} \]

Since promotion of \(a'y\) occurs if and only if \text{stay}_{\varphi} \text{ is satisfied, these two constraints are paired together as in (75). (We assume for now that in binary } \varphi \text{s without } a'y; (75) \text{ is satisfied vacuously.)} \]

\[(75) \quad \text{promote}_{a'y \to \omega} \leftrightarrow \text{stay}_{\varphi} \]

The biconditional in (75) is ranked below the orbital conditional below in (76), though this \textit{may} not be crucial. What is crucial, however, is that promotional-related constraint relations like (75) operate semi-independently from orbital conditionals, rather than being included within them. \textsc{binarity}(\varphi) is undominated, in any case. Derivations are given below in (77), abstracting away from intonational phrases. (77a-c) are predicted parses, and (77d-g) are predicted to be impossible.

\[(76) \quad \text{binarity}(\varphi) > (\text{stay}_1 \rightarrow (\text{stay}_\varphi \rightarrow \text{stay}_\omega)) > (\text{promote}_{a'y \to \omega} \leftrightarrow \text{stay}_\varphi) \]

\[(77) \quad \begin{align*}
a. \quad & p(\varphi (a \text{?a'y}) (a \text{ kn } \slantnu\xg\tuti\i\a)) \\
& \text{binarity}(\varphi) > (\text{stay}_\varphi \rightarrow \text{stay}_\omega) > (\text{promote}_{a'y \to \omega} \leftrightarrow \text{stay}_\varphi) \\
\ 
& \text{promote}_{a'y \to \omega} \leftrightarrow \text{stay}_{\varphi} \hspace{1cm} \text{as discussed above.}
\end{align*} \]

This general picture allows considerable freedom of movement for enclitic \(a'y\) within a clause, so long as it forms a binary \(\varphi\) with a \(\omega\).

I now apply the ranking in (76) to cases involving \(a'y\) and multiple potential prosodic hosts, as shown in (78) and (79) (cf 20-21). This analysis strongly predicts only one possible parse each for (78) and (79), though other parses are possible if \(a'y\) is promoted, as discussed above.
(78) a. \( \phi ( \alpha \) pláqal \( \mathbf{kn} \) \( \alpha y \) \( ( \alpha \) nkupalwáš) \)
BINARITY(\( \phi \)) > (*STAY\( \phi \) → *STAY\( \alpha \)) > (*PROMOTE\( \alpha y \)→\( \alpha o \) ↔ *STAY\( \phi \))

b. \( \phi ( \alpha \) pláqal \( \mathbf{kn} \) \( ( \alpha y \) (\( \alpha \) nkupalwáš) \)
BINARITY(\( \phi \)) > !(STAY\( \phi \) → *STAY\( \alpha \)) > !(PROMOTE\( \alpha y \)→\( \alpha o \) ↔ STAY\( \phi \))

c. \( \phi ( \alpha \) pláqal) \( ( \alpha \) \( \mathbf{kn} \) \( \alpha y \) nkupalwáš) \)
!BINARITY(\( \phi \)) > (*STAY\( \phi \) → STAY\( \alpha \)) > (*PROMOTE\( \alpha y \)→\( \alpha o \) ↔ STAY\( \phi \))

(79) a. \( \phi \) \( ( \alpha \) pláqal \( \mathbf{ay} \) \( ( \alpha \) \( \mathbf{kn} \) nkupalwáš) \)
BINARITY(\( \phi \)) > (*STAY\( \phi \) → STAY\( \alpha \)) > (*PROMOTE\( \alpha y \)→\( \alpha o \) ↔ STAY\( \phi \))

b. \( \phi ( \alpha \) pláqal \( \mathbf{ay} \) \( \mathbf{kn} \)) \( ( \alpha \) nkupalwáš) \)
!BINARITY(\( \phi \)) > (*STAY\( \phi \) → *STAY\( \alpha \)) > (*PROMOTE\( \alpha y \)→\( \alpha o \) ↔ STAY\( \phi \))

c. \( \phi ( \alpha \) pláqal) \( ( \alpha \) \( \mathbf{ay} \) \( ( \alpha \) \( \mathbf{kn} \) nkupalwáš) \)
BINARITY(\( \phi \)) > (STAY\( \phi \) → STAY\( \alpha \)) > !(PROMOTE\( \alpha y \)→\( \alpha o \) ↔ STAY\( \phi \))

The strongly predicted parse in (79a) may actually be supported by phonetic evidence. Consider that the pronoun \( lx \) has a stronger tendency to occur before \( ay \) than other pronoun clitics, thus almost always follows the pattern in (78) (Czaykowska-Higgins 2019).\(^{52}\) When the opposite order occurs (79), it appears to do so in the context of a significant pause (#), as shown in (80).

(80) \( ? a \) lut \( \mathbf{ay} \) \( \mathbf{lx} \) cilám.
\( ? a \) lut \( \mathbf{ay} \) # \( \mathbf{lx} \) cilám.

ASR NEG PAST 3PL run(PL.)

‘They hadn’t started to run.’

(ECH.ED.90.CD.149) (Nxa?amxčín)

Combining the complex orbital implication in (66) with (76) yields the current working comprehensive constraint ranking for Nxa?amxčín (81).\(^{53}\)

(81) BINARITY(\( \phi \))

> ((STAY\( \phi \) → (STAY\( \phi \) → STAY\( \alpha \))) \( \oplus \) ((STR-ST\( \alpha \) → STR-ST\( \phi \)) → STR-ST\( \phi \)))
> (PROMOTE\( \alpha y \)→\( \alpha o \) ↔ STAY\( \phi \))

This represents our working understanding of how orbits interact with one another to yield specific linearizations, and how second-position clitics like \( ay \) interact with these orbits. A full study will examine other second-position enclitics.

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\(^{52}\) However unlike other pronouns, \( lx \) never occurs initially, which makes \( lx \) very much like \( ay \). A full treatment of \( lx \) is beyond the scope of this paper.

\(^{53}\) (81) is formally equivalent to:

\[
\begin{align*}
\text{BINARITY}(\phi) & > \star_{\text{STAY}_\alpha, \text{STAY}_\phi} \star_{\text{STAY}_\alpha, \text{STAY}_\phi} > (\text{STAY}_\alpha \oplus \text{STAY}_\phi \ominus \text{STAY}_\phi) > (\text{PROMOTE}_{\alpha y \rightarrow \alpha o} \leftrightarrow \text{STAY}_\phi) \\
& \oplus (\text{BINARITY}(\phi) > \star_{\text{STR-ST}_\alpha, \text{STR-ST}_\phi} \star_{\text{STR-ST}_\alpha, \text{STR-ST}_\phi} > (\text{STR-ST}_\alpha \oplus \text{STR-ST}_\phi \ominus \text{STR-ST}_\phi) > (\text{PROMOTE}_{\alpha y \rightarrow \alpha o} \leftrightarrow \text{STAY}_\phi))
\end{align*}
\]
5 Summary and Discussion

Assuming that Nxaʔamxčín pronominal markers are clitics, that pronominal clitics are somewhere in Tense, and that verbs do not raise as high as Tense, examples (4-5) shown again below as (82-83) provides strong evidence that there is some level of prosodic optionality in Nxaʔamxčín.

(82) a.  
   kn qʷətn-áyaʔqn.  
   kn  qʷətn-áyaʔ-qn
   1SG.INTR  big-top.of-head
   ‘My head is big.’  
   (MLW.AB.25.4) (Nxaʔamxčín)

b.  
   qʷətnáyaʔqn kn.  
   qʷətn-áyaʔ-qn  kn
   big-top.of-head  1SG.INTR
   ‘My head is big.’  
   (MLW.AB.25.4) (Nxaʔamxčín)

(83) a.  
   kn čałíx.  
   kn  čałíx
   1SG.INTR  stand
   ‘I stood up.’  
   (W4.168) (Nxaʔamxčín)

b.  
   čałút kn.  
   čałút  kn
   stand  1SG.INTR
   ‘I stood up.’  
   (W4.167) (Nxaʔamxčín)

The general pattern in (82-83) was shown to extend to other tense-related clitics and one C-domain clitic, the yes/no question marker.

The macro-pattern of Nxaʔamxčín clitics may be described as orbital. Clitic orbits were defined in terms of the prosodic hierarchy, but clitic orbits also seem to correspond in some ways to hierarchy in the clausal syntax, since for example stress-bearing modal particles appear to block initial prosodic words from attracting a clitic string. Within these orbits, optionality in linearization and the blocking of unattested patterns was modeled using a set of conditionals as a shorthand for partially-ordered constraint rankings (Antilla 2001) accompanied by higher-ranked banned pairings. Certain micro-variations are apparent within the larger pattern with second-position enclitics, such as ay.'

While our analysis successfully explains attested linearizations of orbital clitics in Nxaʔamxčín, and rules out unattested patterns, the major limitation of our study is that we cannot currently confirm that the majority of unattested patterns are, in fact, ungrammatical. Given the relatively large size of the Nxaʔamxčín corpus, the absence of unattested patterns to us is strongly suggestive of ungrammaticality, but this is of course no substitution for negative data.

Another major limitation of our study is the scarcity of independent phonetic and phonological evidence for parsing Nxaʔamxčín clitics as we have chosen to do. Appealing to cognacy and distributional similarities between Nxaʔamxčín and Nsyilxcn clitics and particles will only go so far, however evidence such as clitic doubling with future naʔ, phrasal stress on question marker a, and parallels between Nxaʔamxčín and Nsyilxcn in the linearization of functionally-equivalent clitics is strongly suggestive that our analysis is at least on the right track.
Other areas in need of further work include a better understanding of the role of clitic promotion, syllabification, and metrical considerations, and stress in Nxaʔamxčín clitic linearization and orientation. First, there is good evidence that clitics have been promoted in certain cases, for example the locative clitic preposition kɄ̓l versus particle k̕al. It is unclear however whether all clitics can be promoted or only a subset, and under what conditions promotion occurs, and relying on orthographic transcription is certainly not sufficient to tell whether a clitic has or has not been promoted. Second, clitics in many cases clearly syllabify with their hosts, and while not removing the need for orbits, syllabification does plausibly affect linearization and orientation in certain cases. The same can be said for our understanding of the role of metrical structure in clitic prosody, which is not well understood. Third, Bell’s (2003) classification of Nxaʔamxčín particles and clitics rests in part on whether a given element is always stressed, never stressed, or whether it is stressed in certain contexts, but loses its stress when co-occurring with certain particles or clitics, in putative cases of ‘stress-shift’. Many of the patterns which Bell (2003) observes have numerous exceptions, which is why these observations were of limited use in the current study. It will nevertheless be a worthwhile pursuit to try and clarify the patterns noticed by Bell, and to determine how they inform our present project.

Future studies should examine how clitics of the nominal domain, such as prepositions and determiners, differ from the verbal domain clitics discussed in this paper. For Nxaʔamxčín and Nsyilxcn, determines always linearize before head nominals, and as such prosodic alignment constraints seem to be sensitive to the syntax in ways not discussed in this paper. In any case, though it is fairly clear that syntax does play some role in the placement of clitics within the verbal domain, more work is needed to clearly separate the roles of phonology versus syntax in Southern Interior Salish language prosody.

Next, in our theoretical analysis, we have assumed that unattested patterns of orbital independence in Nxaʔamxčín are in fact ungrammatical. If this assumption turns out to be true, then ω, ε, and α orbits stand in an implicational relationship with one another. The utility of a conditional analysis is most obvious in the context of a single prosodic host (Section 4.3), but the analysis also makes predictions for clitic linearization and orientation in the context of multiple prosodic hosts (Sections 4.3 and 4.4), some of which seem to be supported. Further phonetic, phonological, and descriptive work will hopefully clarify whether the predictions in multiple prosodic host environments are actually borne out, or whether certain prosodic parsings are incorrectly predicted by the relatively weak conditional analysis given above.

54 Though Kinkade (1974) questions whether k̕al is in fact the same as preposition kɄ̓l, since rather than meaning ‘to, into’, it can be translated ‘together with, along with.’
A prepositional phrase is functioning as a predicate, but the preposition (presumably an inner clitic of the nominal domain) precedes the predicate, while the subject clitic (an inner clitic of the verbal domain), follows the prepositional phrase. A separate but related challenge: N. Mattina (2002) shows that the genitive clitic l (homophonous with the preposition l) can occur in any position internal to a possessed DP (ii).

(i) I štxʷúl kn.
   1 štxʷúl kn
   in house 1SG.INTR
   ‘I’m in the house.’

(ii) a. ?ani Mary I štxʷulḥ.
    ?ani Mary 1 štxʷul-ʕ
    DET Mary GEN house-3POSS
    ‘Mary’s house’
   b. ?ani Mary štxʷulḥ.
   c. ?ani štxʷulš I Mary.
   d. ?ani štxʷulš Mary I.
Last, the cross-linguistic difference between Nxaʔamxčin and Nsyilxcn is interesting: The orbital clitics of Nxaʔamxčin correspond to an (almost) total absence of variation in Nsyilxcn, which is similar to other Interior Salish languages in allowing only one orientation per clitic. Theoretically, we account for this cross-linguistic variation by assuming a more-or-less strict constraint ranking for Nsyilxcn as opposed to Nxaʔamxčin, but the questions remain: Why are Nxaʔamxčin clitics orbital,\textsuperscript{56} and how did this system develop? Do other languages also have orbital clitics, and if so, are their distributions subject to similar constraints?

6 Conclusion

This paper examines the distribution of verbal clitics in Nxaʔamxčin, a Southern Interior Salish language. Clitics seem to move in defined, prosodic orbits around a prosodic host, resulting in a ‘mirroring’ effect. Linearization before a prosodic host as opposed to after a prosodic host appears to be optional, so long as orbits are adhered to.

For the macro-pattern, we propose that clitic orbits in Nxaʔamxčin correspond to different levels of the prosodic hierarchy (Selkirk 1995, 2011), based partially on evidence from closely related Nsyilxcn. We derive linear variation within an orbit by appealing to a tension between a set of STAY and STRONG-START constraints, whose individual members apply specifically to prosodic words, phonological phrases, or intonational phrases. We assume partial constraint orderings (a.k.a. ‘revolving doors’) (Antilla 2001) in order to account for apparently free linear variation, given an orbit. Attested orbital independence, and limits on unattested independence, are expressed through constraint implications, which utilize a standard logic for conditionals.

Micro-variation exists within these orbits, and is most apparently exhibited by second-position enclitics, such as the past tense marker ay. We propose higher-ranked word-promotion constraints for second-position clitics, which in some cases override linearization patterns found within the macro-pattern.

References


\textsuperscript{56} Bell (2003) speculates that variation in clitic placement may be due to “pragmatic emphatic effect” though this remains to be seen.


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Lyon, John, and Ewa Czaykowska-Higgins. 2019. Linearizing Clitics in Two Interior Salish Languages: Nsyilxcn and Nxaʔamxčín. Presented at the annual Canadian Linguistic Association meeting, Vancouver, BC.


### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Translation</th>
<th>Abbreviation</th>
<th>Translation</th>
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</thead>
<tbody>
<tr>
<td>ASR</td>
<td>assertive</td>
<td>INTR</td>
<td>intransitive</td>
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<td>AUT</td>
<td>autonomous</td>
<td>IPFV</td>
<td>imperfective</td>
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<td>BOUL</td>
<td>bouletic modal</td>
<td>LOC</td>
<td>locative</td>
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<td>CAUS</td>
<td>causative transitive</td>
<td>MID</td>
<td>middle intransitive</td>
</tr>
<tr>
<td>CISL</td>
<td>cislocative</td>
<td>NEG</td>
<td>negative</td>
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