

An investigation of aspiration in Nl̓eʔkepmxcín

Aspiration is a commonly documented feature of phonological systems cross-linguistically that is under-researched in the study of Salish languages. The present study looks at the system of aspiration in Nl̓eʔkepmxcín (ISO: thp), a Northern Interior Salish language spoken in south-central British Columbia with around 100 fluent speakers (Gessner et al., 2022). Within the system of aspiration outlined in the language’s grammar, voiceless stops are categorized as “unaspirated before vowels and resonants, but often somewhat aspirated before a spirant and regularly before another stop. In syllable-final position they are strongly aspirated” (Thompson & Thompson, 1992:4). No data are provided as evidence for these four categories, and clear definitions of the meanings of *somewhat*, *regularly*, and *strongly* are not provided.

Because aspiration is frequently measured using voice onset time (VOT), a measure of the duration between the release of a stop and the onset of voicing, comparisons of non-contrastive aspirated and unaspirated voiceless stops have been investigated extensively in word-initial position (Cho et al., 2019; Cho & Ladefoged, 1999; Lisker & Abramson, 1964) leaving questions about the behaviour of aspiration in other word positions. The vague description of aspiration in Nl̓eʔkepmxcín, where syllable-final stops are mostly strongly aspirated, presents an opportunity to investigate non-contrastive aspiration in a less documented context. The goal of this project is twofold. I first verify and document the pattern of aspiration in Nl̓eʔkepmxcín and then look to phonological theory for a way to account for the data.

The presented data were collected from Bev Phillips, a fluent speaker of the Lytton/Canyon dialect of Nl̓eʔkepmxcín. Data was collected in weekly Zoom meetings over an eight-month period. The words, which were elicited in isolation, consisted of both mono- and multi-syllabic words for the four environments outlined by Thompson and Thompson (1992). A sample of the wordlist is provided in Table 1. To verify the proposed pattern of aspiration, I measured release burst duration for each of the four targeted environments.

Table 1. Sample of wordlist used in elicitation sessions

Target Environment	Aspiration Type	Word-Initial	Word-Final
____V	Unaspirated	<i>kéyx</i> ‘hand’	
____spirant	Somewhat aspirated	<i>txíʔeʔt</i> ‘narrow’	<i>sxáyqs</i> ‘coho salmon’
____stop	Regularly aspirated	<i>ptéyptn</i> ‘rug’	<i>sʔíqt</i> ‘sky’
____σ	Strongly aspirated		<i>syép</i> ‘tree’

Average release burst duration showed that stops before vowels (unaspirated) and stops before spirants (somewhat aspirated) were both unaspirated (before-vowels: 36ms, SD 3ms; before-spirant: 35ms, SD 5ms). Voiceless stops before other stops (regularly aspirated) appear to be aspirated (66ms, SD 7ms), and word-final voiceless stops (strongly aspirated) have extreme VOT duration (152ms, SD 7ms). Figure 1 provides the visual representation of release bursts for each environment. For the environments that were targeted in both word-initial and word-final positions (somewhat and regularly aspirated), a univariate ANOVA showed a significant interaction between environment and word-position ($F(3, 58) = 10.5, p < .001$). The mean value of release burst duration was significantly different between stops before stops in word-final position and the three other environment positions (Tukey’s HSD Test: $p < .01$) suggesting that the position of voiceless stops in the word itself could be the relevant environment for aspiration. Further analyses on stops in the four environments in word-internal syllable boundaries is

required to determine if aspiration is the result of word or syllable position.

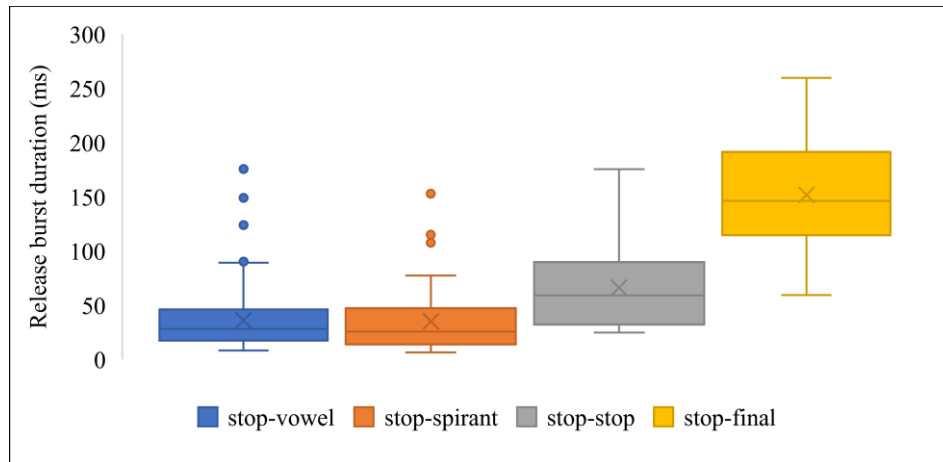


Figure 1. Release burst durations for voiceless stops in T&T (1992) environments

Since the publication of the Nl̥əʔkepmxcín grammar, aspiration has been investigated as a manifestation of final lengthening with voiceless stops in phrase-final position being strongly aspirated compared to those in phrase-internal positions (Koch, 2015). Because words in this project were targeted in isolation, the strong word-final aspiration in my data could be due to final-lengthening. Leaving this concern aside for now, there are two accounts of laryngeal markedness that could be used in the analysis of this data. The first is the common assumption that plain voiceless consonants are less marked than voiceless aspirates. Under this account, aspiration in Nl̥əʔkepmxcín is allophonic with the unaspirated stop becoming aspirated in word-final position. Opposed to this, is the theory that it is aspirated consonants which are less marked (Vaux & Samuels, 2005). In this account, voiceless aspirates are produced by neutralization with stops in other positions being unspecified for aspiration. More work is required to determine which, if either, of these laryngeal markedness accounts best explains the pattern of aspiration in Nl̥əʔkepmxcín.

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