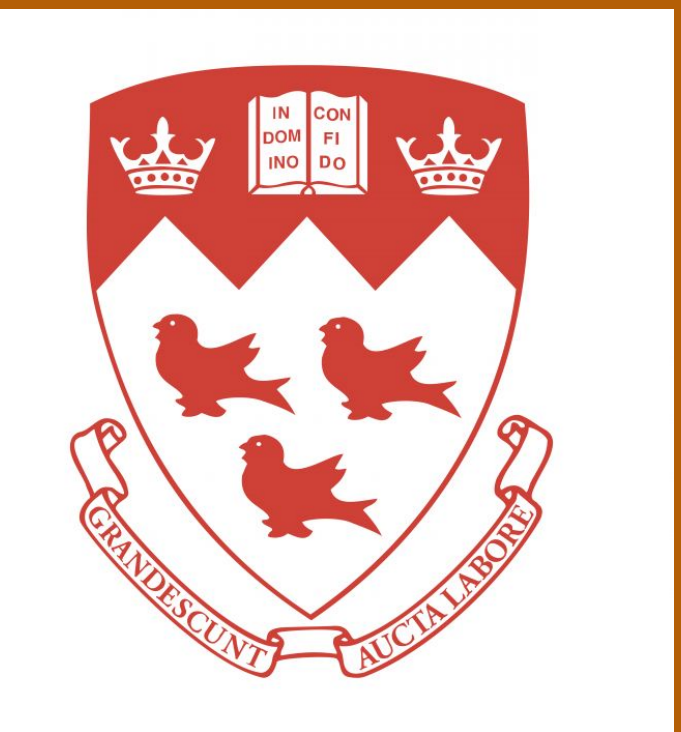


WHERE DOES THE GAMMA GO?

2023 ARIA project on Tlingit sound change & evidence for a primary-split merger in the 20th century.

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Special thanks to Professor A. Cardoso at the University of British Columbia.



BACKGROUND

Tlingit is a critically endangered Indigenous language situated in Alaska, British Columbia, and the Yukon. The language is one branch of the Na Dene language family, along with the Athabaskan languages and Eyak. Tlingit also has one of the most complex sound systems in the Western hemisphere, including few sonorants but other sounds that are rare in human languages.

OVERVIEW

Our project focused on the gradual loss of the sound /ɥ/ in Tlingit communities throughout the 20th century. /ɥ/ is a voiced velar approximant traditionally transcribe with /y/ in Tlingit orthography. This sound change prompted all instances of /ɥ/ to become merged with some instances of /j/, creating one version of /j/ that alternates with /w/ and one that does not. This change is an example of a *primary split-merger* where one contrastive sound merges with two other existing contrastive sounds, reducing a three-way distinction to a two-way distinction with a now opaque alternation.

The study used synchronic (point-in-time) variation between Tlingit speakers as evidence for the diachronic (over time) changes that led to the loss of /ɥ/.

$/j/ \rightarrow /j^1/ \& /j^2/ \rightarrow /j^1/+/\mathfrak{y}/ \& /j^2/ \rightarrow [j_{+\mathfrak{y}}^1] \& [j^2]$

Figure 1: Progression of the primary split merger

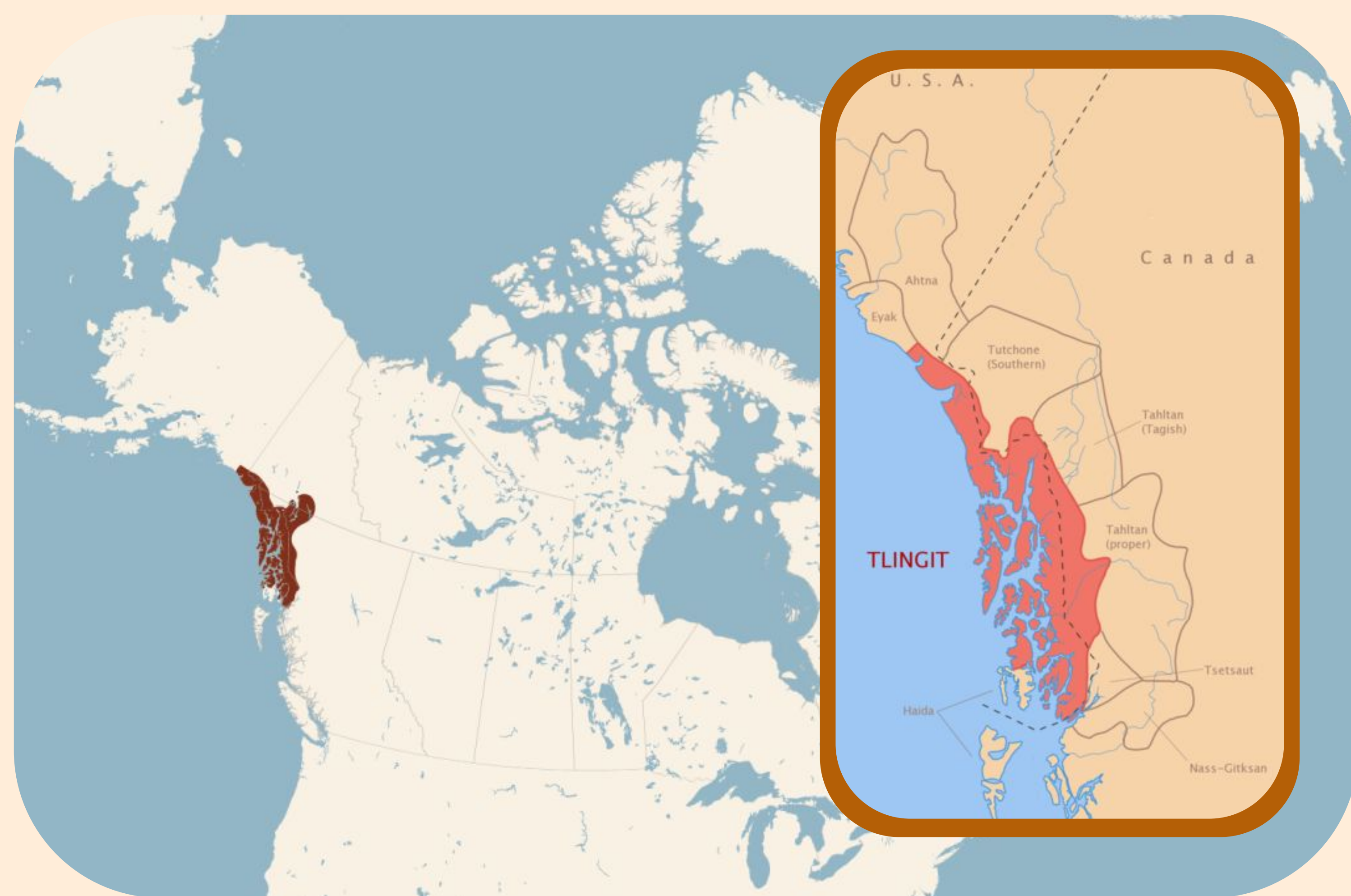


Figure 2: Map of Tlingit territories.

INITIAL GOALS

Determine what the phonetic qualities of γ were before, during and after its assimilation, then compare these to the phonetic qualities of other sounds. Use recordings from different times and different communities to attempt to track this merger in ‘real time.’

METHODOLOGY

The traditional framework of linguistic research is insufficient for Indigenous language research as we must balance our primary goals with the goals of Tlingit communities; language preservation and revitalization. Archival work is commonly scarce, incomplete or otherwise challenging, but the small populations of fluent speakers make new data collection even more difficult. To address these challenges we devised a three-part methodology:

- (1) Preparation
 - Pair the recordings with their transcriptions/translations.
 - Improve sound quality.
 - Export the sound clips for identification and analysis.
- (2) Identification
 - Identify the relevant sounds $\rightarrow /ɥ, j, w, m, n, u, u\mathfrak{I}, i, i\mathfrak{I}, n/$.
 - Segment the sounds and mark their contexts.
 - Provide transcriptions for each segment.
- (3) Analysis
 - Identify any patterns in contexts and possible allophones.
 - Obtain phonetic measurements.
 - Compare and contrast measurements to find patterns.
 - Use speaker information and phonetic measurements to determine the circumstances of the sound change.

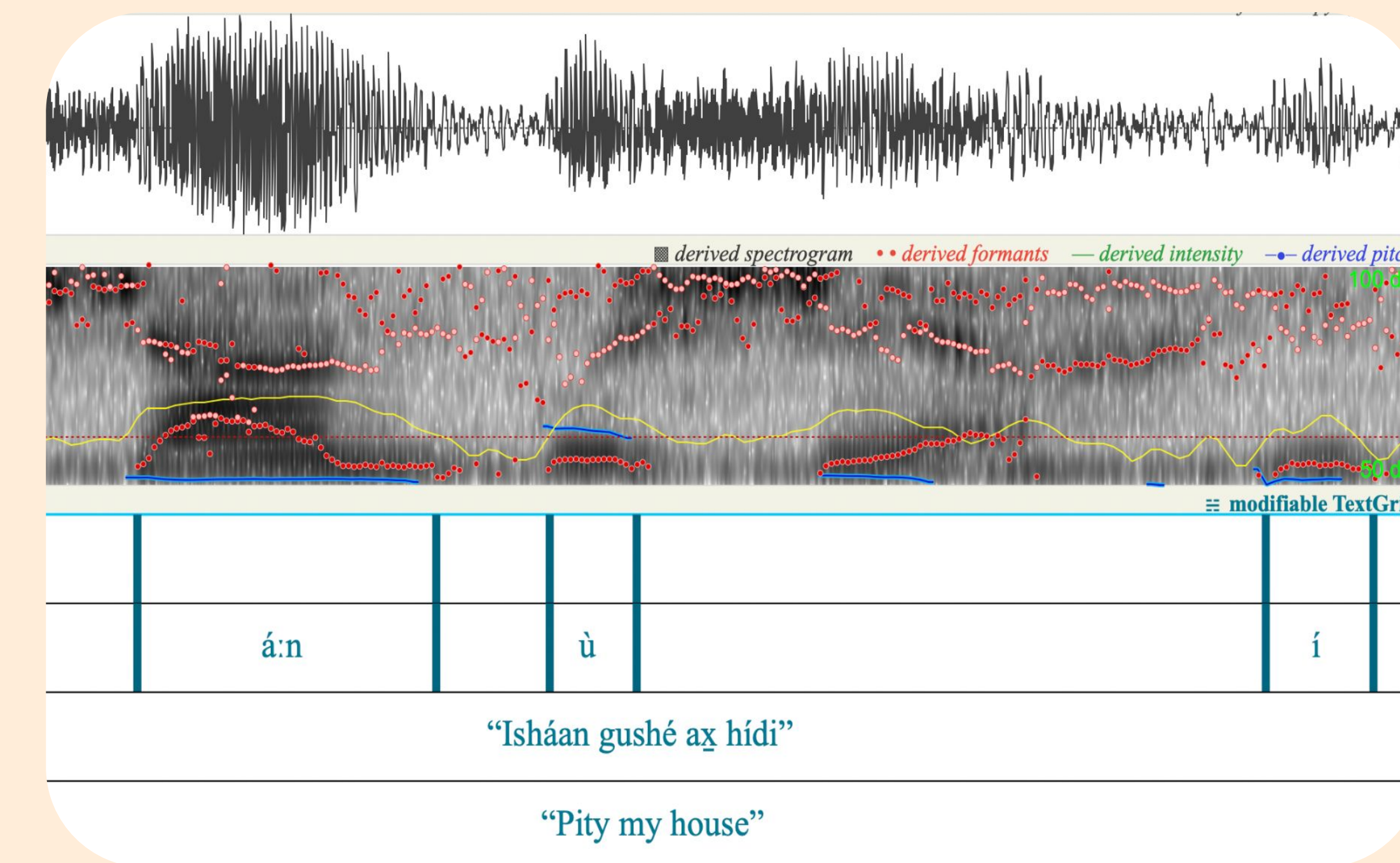
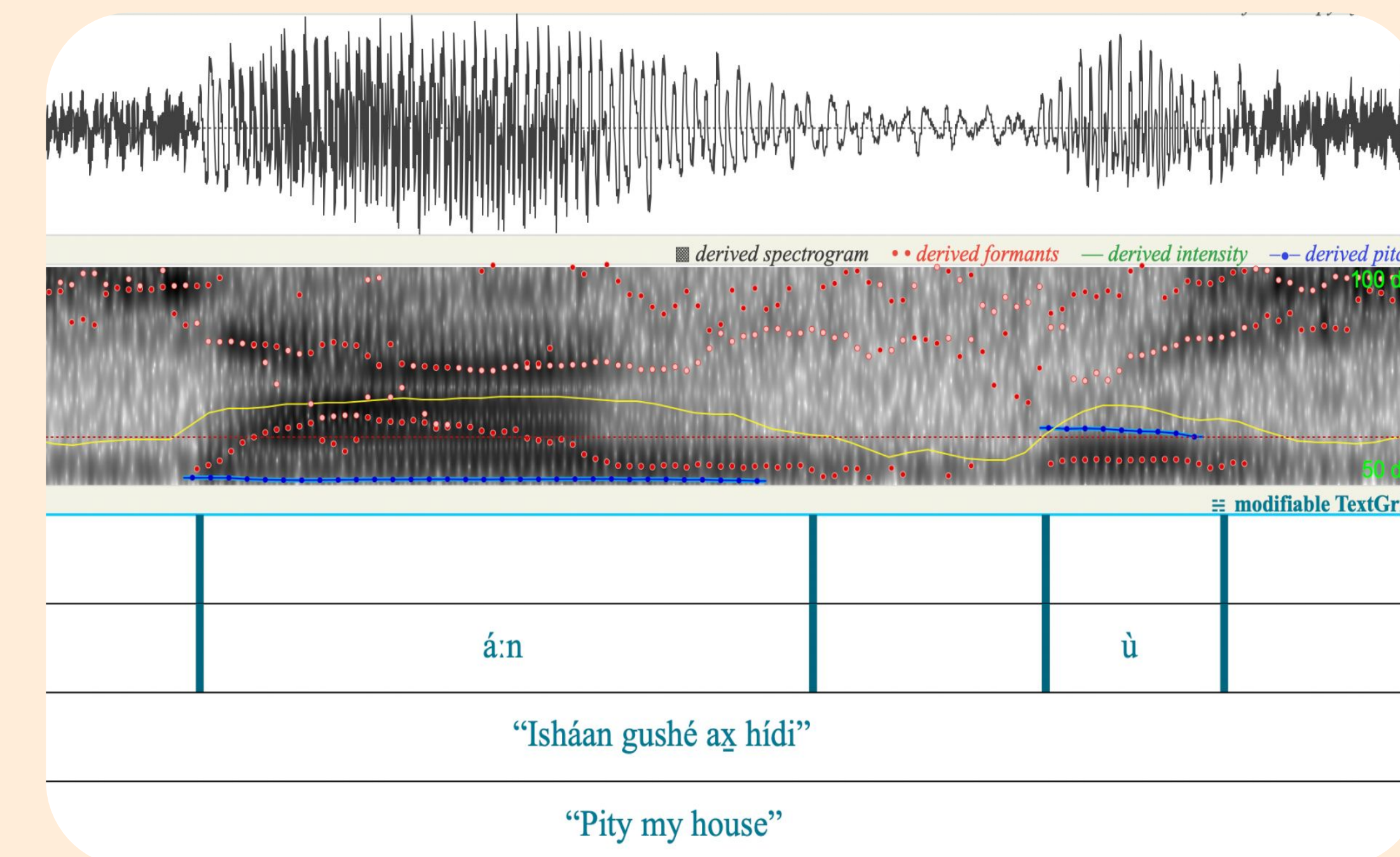


Figure 4 & 5: Sound segmentation.



	Alveolar	Post-Alveolar	Palatal	Velar (+Labialized)	Uvular (+Labialized)	Glottal
Unaspirated Stop	t			k k ^w	q q ^w	ʔ
Aspirated Stop	t ^h			k ^h k ^{wh}	q ^h q ^{wh}	
Ejective Stop	t ^ʼ			k ^ʼ k ^{wʼ}	q ^ʼ q ^{wʼ}	
Unaspirated Affricate	ts	tʃ				
Aspirated Affricate	ts ^h	tʃ ^h				
Ejective Affricate	ts ^ʼ	tʃ ^ʼ				
Plain Fricative	s	ʃ		x x ^w	χ χ ^w	h
Ejective Fricative	s ^ʼ			x ^ʼ x ^{wʼ}	χ ^ʼ χ ^{wʼ}	
Sonorants	n		j	w {ɥ}		

Figure 3: Consonant (non-vowel sounds) inventory of Tlingit.

RESULTS

As of August 2023 we have updated all archival data for research and for future revitalization/preservation efforts, and identified and segmented all relevant sounds.

Currently, the software for gathering the phonetic measurements is being developed and background data is being compiled as a foundation for sound comparison.

Based on preliminary mapping, /ɥ/ loss began in northern Tlingit communities, then diffused southwards and eastwards. Several speakers had entirely lost /ɥ/ at the time of their recordings, while others maintained the phonemic distinction between /j/ and /w/, and others still treated /ɥ/ as allophonic.

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- Hall, Jaeci. 2021. *Indigenous Methodologies in Linguistics: A Case Study of Nuu-wee-ya' Language Revitalization*. University of Oregon: Ph.D. Dissertation.
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