



# Tone & Tune in Tlahuapa Tu'un Sàví songs

*Morgan Sleeper*

WAIL20 | 5.12.2017

# Language & music

- ◆ Linguists!
  - ◆ (Sapir 1910; Hinton 1984; Hammond 2015)
- ◆ Ethnomusicologists!
  - ◆ (Slobin 1985; Fox 2004)

# Language & music

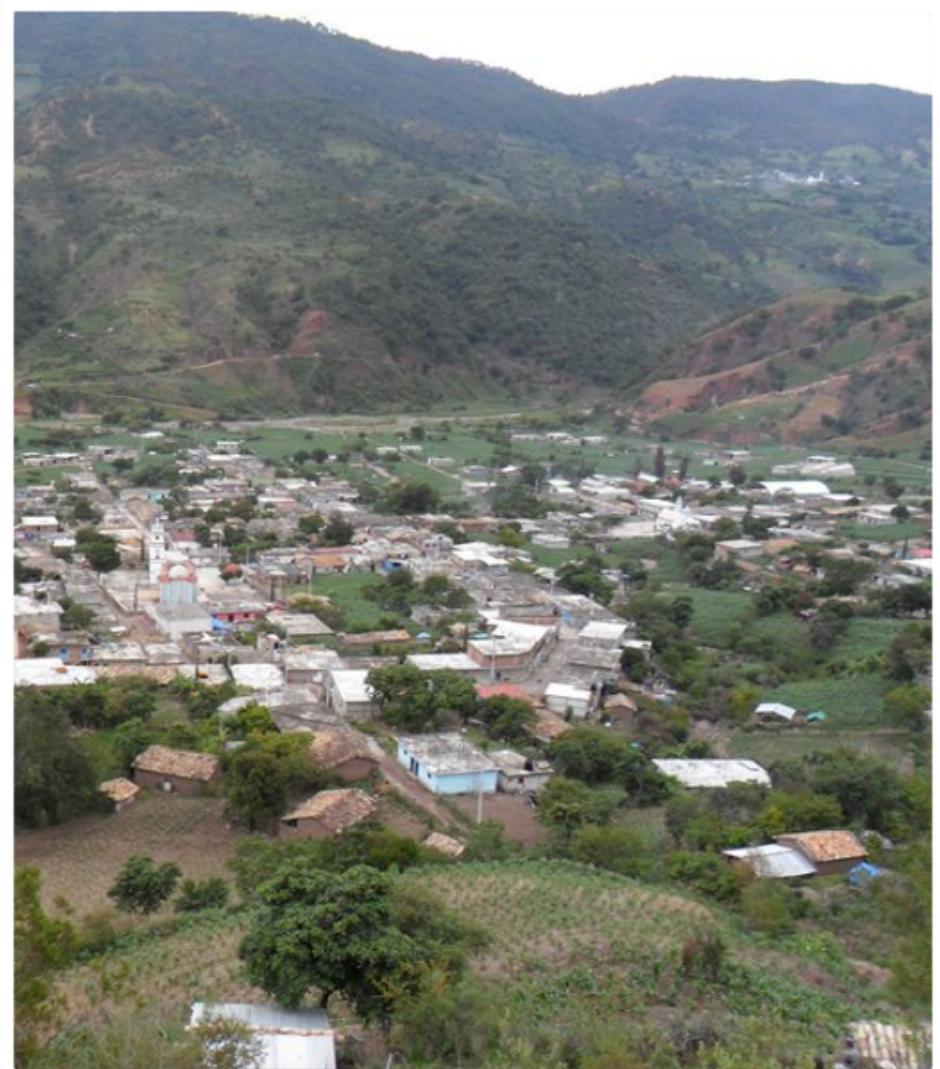
- ◆ Combining both types of data (Haviland 2012; Tuttle 2012; Love-Nichols & Sleeper 2016)

# Language & music

- ◆ Combining both types of data (Haviland 2012; Tuttle 2012; Love-Nichols & Sleeper 2016)
- ◆ New methodology for integrating musical information into linguistic data
  - ◆ Using free, open-source tools
  - ◆ Portable, exportable
  - ◆ For linguistic analysis and community materials

# Tlahuapa Tu'un Sàví

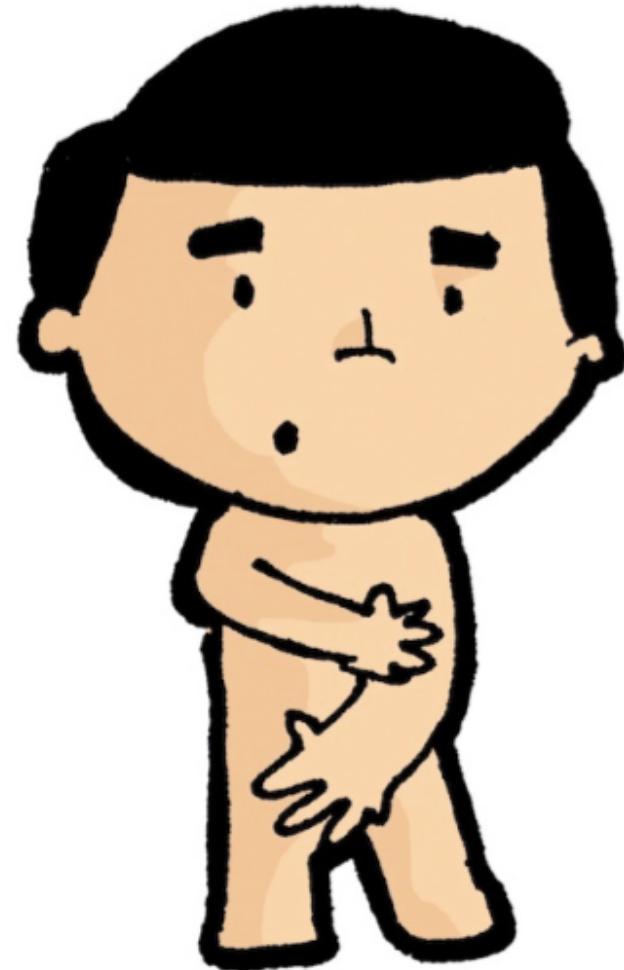
- ◆ Field Methods 2015-2016
- ◆ Mixtec, Otomanguean
- ◆ Lexical tone
- ◆ Spoken in Tlahuapa,  
Guerrero, Mexico
  - ◆ (~1,200 residents)
- ◆ Griselda Reyes Basurto





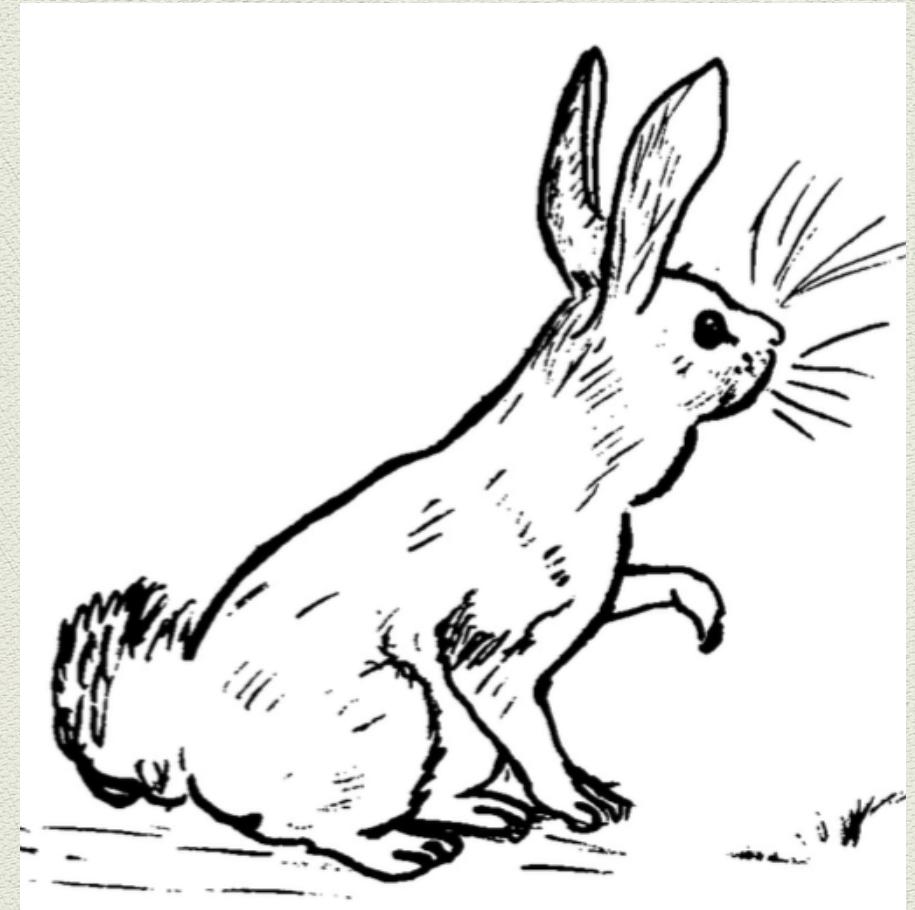
# Songs: Lálú Lálú

- ◆ “This song is for the children, to help them not go to the bathroom at night”



# Songs: Conejo la kò'onchí

- ◆ A trickster rabbit dances for children to distract them and run free.



# Songs: Ña lo'o kwé'e

- ◆ lit.: “small ungrateful wench”
- ◆ “He kept waiting for his love, and kept hurting, because Lucila never returned”
- ◆ (Sung by Benita Basurto Olivera)



# Methods: adding the music

The screenshot shows the ELAN annotation software interface with the following details:

- Top Bar:** ELAN - TIhp-025-Song\_Lalu\_Lalu-MTS.eaf. Includes tabs: Grid, Text, Subtitles, Lexicon, Comments, Recognizers, Metadata, and Controls (highlighted).
- Volume Control:** A slider set to 100.
- Timeline and Selection:** Shows a timeline from 00:00:14.515 to 00:00:21.000. The selection is set to 00:00:00.000 - 00:00:00.000.
- Control Buttons:** Navigation buttons (left, right, play, stop), selection mode, loop mode, and volume control.
- Audio Waveform:** An audio waveform for the file TIhp-025-S... from 00:00:15.000 to 00:00:21.000.
- Transcription Table:** A grid-based transcription table with columns corresponding to time points: 00:00:15.000, 00:00:16.000, 00:00:17.000, 00:00:18.000, 00:00:19.000, 00:00:20.000, and 00:00:21.000.
  - Speaker TX:** Entries include "lálú lálú tátún ñúun" (9 times), "táná tátún ñúun", and "kanì yo'ò".
  - Speaker FT:** Entry: "Belly button, belly button, don't go to th... If you go to the bathroom, I will hit you!"
  - Interviewer TX:** Entry: "lálú = belly button, tátún = no hagas d..."
  - Interviewer FT:** Entry: "táná = if (si), tátún = hace kanì = I will hit (p..."
  - Notes:** Entry: "[6]"

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- ◆ ABC notation system (Walshaw 2011;  
[abc.sourceforge.net](http://abc.sourceforge.net))

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X:1

T:Twinkle, Twinkle Little Star

M:4/4

L:1/4

K:D

| D D A A | B B A2 |

*Title field*

*Metre*

*Note getting the beat (quarter note)*

*Key*

*Music!*

# Methods: adding the music

- ◆ ABC notation system (Walshaw 2011;  
[abc.sourceforge.net](http://abc.sourceforge.net))

T:Lálú Lálú

M:4/4

L:1/4

K:C

| G G G G | F A PG2 | G G G G | F A PG2 | G G F A | [M:2/4] PG2 | [M:4/4] F D G C |

# Methods: adding the music

The screenshot shows the ELAN annotation software interface. The title bar reads "ELAN - Tlhp-025-Song\_Lalu\_Lalu-MTS.eaf". The top menu bar includes Grid, Text, Subtitles, Lexicon, Comments, Recognizers, Metadata, and Controls (which is currently selected). A volume slider is set to 100. The timeline at the top shows a selection from 00:00:00.000 to 00:00:00.000. Below the timeline are playback controls (rewind, fast forward, play, stop) and mode checkboxes for Selection Mode and Loop Mode. The main workspace displays a timeline from 00:00:14.515 to 00:00:21.000. A red vertical line marks the start of the song. Below the timeline is a transcription table with four rows:

|                | 00:00:15.000   | 00:00:16.000                           | 00:00:17.000                 | 00:00:18.000          | 00:00:19.000 | 00:00:20.000 | 00:00:21.000 |
|----------------|--|--|------------------------------|-----------------------|--------------|--------------|--------------|
| speaker-tx [9] | Iálú Iálú tàtún ñúun                                 | Iálú Iálú tàtún ñúun                   |                              | táná tàtún ñúun       |              | kanì yo'ò    |              |
| speaker-ft [8] | Belly button, belly button, don't go to th           | Belly button, belly button, don't go t | If you go to the bathroom,   | I will hit you!       |              |              |              |
| speaker-mu [4] | X:25 T:Lálú Lálú L:1/4 M:4/4 K:C G G G G  \$ F A PG2 |  | G G F A  [M:2/4] PG2         | [M:4/4] F D G C       |              |              |              |
| notes [6]      | Iálú = belly button, tàtún = no hagas d              |  | táná = if (si), tàtún = hace | kanì = I will hit (p) |              |              |              |

# Methods: adding the music

- ◆ Because it's text-based and uses standard ABC notation, can easily be converted to sheet music

# Methods: adding the music

## Lálú Lálú

Sung by: Griselda Reyes Basurto, 11.12.2015

Transcription: Griselda Reyes Basurto & Morgan Sleeper

1

4 4

Lá - lú      lá - lú      tà - tún      ñúun  
belly - button      belly - button,      don't go to - the bathroom      at night  
ombligo      ombligo      no - hagas del baño      por la noche

3

4 4

lá - lú      lá - lú      tà - tún      ñúun  
belly - button      belly - button,      don't go to - the bathroom      at night  
ombligo      ombligo      no - hagas del baño      por la noche

5

4 4

tá - ná      tà - tún      ñúun      ka - ní      yo - 'ò  
if you      go to - the bathroom      at night      I'll - hit      you!  
si      hagas - del baño      por la noche      voy a - pegarte!

# Methods: adding the music

- ◆ Likewise, can start in graphical music editor and convert to ABC text from there

# Methods: adding the music

MuseScore 2: Tlhp-039-Song\_Ná\_lo'o\_kwe'e-MTS

Palettes    Tlhp-039-Song\_Ná\_lo'o\_kwe'e-MTS

Sung by: Benita Basurto Olivera, 2.9.2016      Transcription: Griselda Reyes Basurto & Morgan Sleeper

6

Ndá'-bì      kú - -ì      xá - ku-ì      Táá   tá --ká  
poor      me      I - cry      how      like  
pobre      me      estoy llorando      como      igual

nùún      xí - kà-uñí      ká - -yà      Ndá'-bì      kú - -ì  
when      you - were around      everything continues      poor      me  
cuando      estabas - tú      todo - sigue      pobre      me

1:01:000

# Methods: adding the music

T:Ná lo'o kwé'e

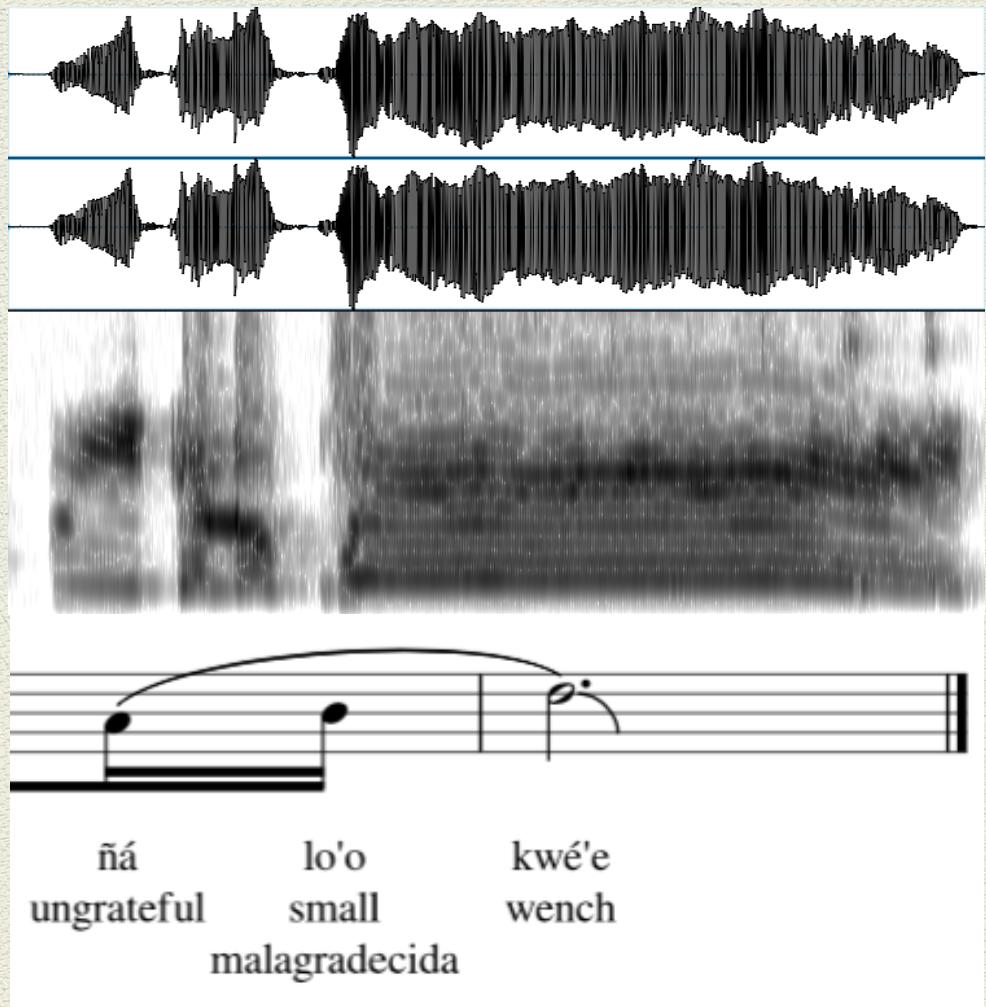
M:6/8

L:1/8

K:Cb

| z4 .d.A | (d3 A3) | .dA- A4 | [M:5/8] z5 | .A.c d3 |\$ .A(=d{/=c} \_d3) | (d A2) z2 | [M:6/8] .d.A (d A2) z |

# What do we get?



# Tone & tune correspondence

- ◆ Link between musical tune and lexical tone:

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# Tone & tune correspondence

- ◆ Link between musical tune and lexical tone:
  - ◆ Strong tendency for the melody line to move in parallel with the lexical tone melody of the lyrics
  - ◆ i.e. for LH MM:
    - ◆ [L] rise ↗ [H] fall ↘ [M] same → [M]

# Tone & tune correspondence

## ◆ Lálú Lálú (20/21)

*Lálú Lálú*

**lá-lú lá-lú**

→ → →

**tà-tún ñúun**

↖↗ ↘↗↘

**lá-lú lá-lú**

↗→→→

**tà-tún ñúun**

↖↗ ↘↗↘

**tá-ná tà-tún ñúun**

↗→ ↘↗ ↘↗↘

**ka-nì yo'ò**

↘↘ ↗↖

# Tone & tune correspondence

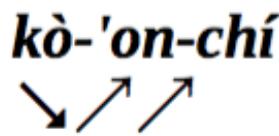
## ◆ Conejo la kò'onchí (16/20)

*Conéjo la kò'onchí*

|                 |           |                   |    |                  |
|-----------------|-----------|-------------------|----|------------------|
| <i>co-né-jo</i> | <i>la</i> | <i>kò-'on-chí</i> | áá | <i>ka-ndi-ta</i> |
|-----------------|-----------|-------------------|----|------------------|



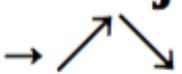
→



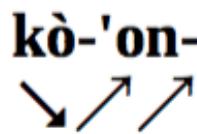
↓

→ → →

|                 |           |                   |    |                |
|-----------------|-----------|-------------------|----|----------------|
| <i>co-né-jo</i> | <i>la</i> | <i>kò-'on-chí</i> | áá | <i>ka-ndee</i> |
|-----------------|-----------|-------------------|----|----------------|



→



↓

→ →

# Tone & tune correspondence

## ◆ Ñá lo'o kwé'e (102/120)

*Ñá lo'o kwé'e*

|              |            |       |          |              |           |              |
|--------------|------------|-------|----------|--------------|-----------|--------------|
| ndá'-bì kú-ì | xá-ku-ì    | táá   | tá-ká    | nùún         | xí-kà-ún  | ká-yà        |
| ↖ ↘ ↗ ↘      | ↗ ↘ ↗ ↘    | ↗     | ↗ ↗ ↗    | ↘            | ↗ ↘ ↗     | → ↘          |
| ndá'-bì kú-ì | tá         | tà    | tá-ká-bí | tu'-un       | ti-ka-ún  | xí'-in ká-yà |
| ↖ ↗ ↗ ↘      | ↗          | ↘     | ↗ ↗ →    | ↘ →          | → → ↗     | → ↘ ↗ ↘      |
| yó'-o        | ñá         | kwé'e | koo      | ñú'un        | ini-ún    | xa'-á-yà     |
| ↖ ↘          | ↘          | ↗     | ↘        | ↗            | ↘ ↗       | ↘ ↗ ↘        |
| ini-ra       | bi-ti-taàn | ba    | koó      | ndi-ga-ní-ni | kú-sú-chí | ini-ì        |
| ↗ ↗          | → → ↘      | ↗     | ↗        | ↗ → ↘ ↘      | ↗ → ↘     | ↘            |
| xá-ku-ì      | xa'-ún     | ñá    | lo'o     | kwé'e        |           |              |
| ↗ ↘          | → ↗        | ↘     | →        | ↗ ↘ ↘        |           |              |

# Tone & tune correspondence

- ◆ Holds over:

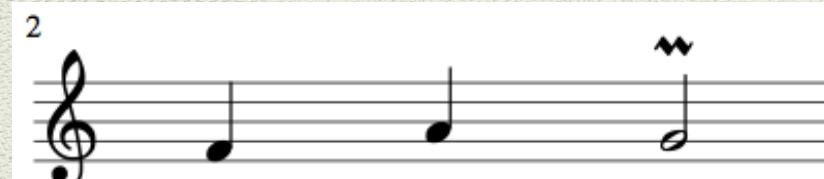
|                  | Segments<br>with pattern | Total<br>segments | %   |
|------------------|--------------------------|-------------------|-----|
| Lálú Lálú        | 20                       | 21                | 95% |
| Conejo           | 16                       | 20                | 90% |
| Ña lo'o<br>kwé'e | 102                      | 120               | 85% |

# Tone & tune correspondence

- ◆ Based on tone targets, rather than syllables:

# Tone & tune correspondence

- ◆ Based on tone targets, rather than syllables:
- ◆ Monosyllabic ñúun ‘night’ (MHM):



The musical notation consists of a single staff with a treble clef. It contains four notes: a quarter note on the first line, a quarter note on the third line, a quarter note on the fourth line, and a note with a wavy line above it on the fifth line.

2

tà - túñ ñúun  
don't go to the bathroom at night  
no - hagas del baño por la noche

# Tone & tune correspondence

- Based on tone targets, rather than syllables:
  - Monosyllabic koó 'not' (MH):

15

The musical notation consists of a single staff in 5/8 time. The key signature has six flats. The melody includes quarter notes, eighth notes, and rests. There are two slurs: one over the first four notes and another over the last three notes. The lyrics are:

|       |   |             |    |           |    |      |      |       |     |
|-------|---|-------------|----|-----------|----|------|------|-------|-----|
| ini   | - | -ra         | bi | -         | ti | -    | taàn | ba    | koó |
| about | - | this man    |    | every     | -  | day  |      | don't |     |
| de    | - | este hombre |    | todos las | -  | dias |      | no    |     |

# Ornamentation & lexical tone

- ◆ Similar correspondence in ornamentation

# Ornamentation & lexical tone

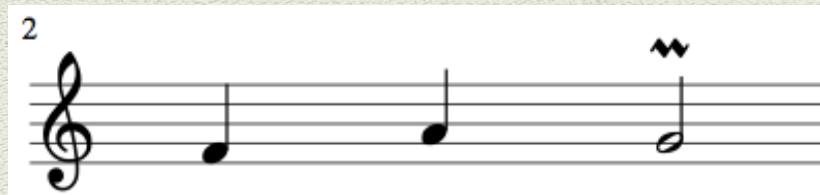
- ◆ Three types of ornamentation prevalent:

# Ornamentation & lexical tone

- ◆ Three types of ornamentation prevalent:
  - ◆ Prall (single alternation between principal note, note half-step above, and back):

# Ornamentation & lexical tone

- ◆ Three types of ornamentation prevalent:
  - ◆ Prall (single alternation between principal note, note half-step above, and back):



2

tà - túñ      ñúun  
don't go to the bathroom at night  
no - hagas del baño por la noche

# Ornamentation & lexical tone

- ◆ Three types of ornamentation prevalent:
  - ◆ Upper acciaccatura (rapid move from note a half-step above to principal note):

# Ornamentation & lexical tone

- ◆ Three types of ornamentation prevalent:
  - ◆ Upper acciaccatura (rapid move from note a half-step above to principal note):

20



*Rruí rrú*  
[sound of-leaving]  
[sonido de - irse]

# Ornamentation & lexical tone

- ◆ Three types of ornamentation prevalent:
  - ◆ Fall (prolonged fall to non-specified pitch target):

# Ornamentation & lexical tone

- ◆ Three types of ornamentation prevalent:
  - ◆ Fall (prolonged fall to non-specified pitch target):

26

A musical score for measure 26. The key signature is seven flats, and the time signature is 6/8. The melody starts with a half note followed by a fermata. It then descends through various notes, including a grace note and a sixteenth-note cluster, before reaching a final note. Below the staff, lyrics are written in Spanish and English, corresponding to the notes. A circled '3' is placed under the third note of the descending sequence.

sí - sí - kí      Lu - cí - la  
on there      Lucila  
encima      Lucila

# Ornamentation & lexical tone

- ◆ Patterns:

# Ornamentation & lexical tone

- ◆ Patterns:
  - ◆ First two ornamentation types (prall & upper acciaccatura):

# Ornamentation & lexical tone

- ◆ Patterns:
  - ◆ First two ornamentation types (prall & upper acciaccatura):
    - ◆ *Only* occur on notes where the sung syllable has a lexical high tone

# Ornamentation & lexical tone

- ◆ Patterns:
  - ◆ Fall, in 11 / 13 cases, occurs either:

# Ornamentation & lexical tone

- ◆ Patterns:
  - ◆ Fall, in 11 / 13 cases, occurs either:
    - ◆ On a note where sung syllable has lower lexical tone than preceding sung syllable
    - ◆ OR on a note which encompasses a falling lexical tone melody:

# Ornamentation & lexical tone

## ◆ Patterns:

- ◆ Two ornaments that use half-step above principal note (**prall & upper acciaccatura**) linked to lexical high tone
- ◆ Fall linked to falling tone melodies
- ◆ As with melody, musical ornamentation seems to be linked to lexical tone

# What else?

- ◆ Vowel length & note length

# What else?

- ◆ Vowel length & note length
- ◆ Musical discourse structure

# What else?

- ◆ Vowel length & note length
- ◆ Musical discourse structure
- ◆ Community materials

# Coda

- ◆ Link between musical tune and lexical tone in Tlahuapa Tu'un Sàví
  - ◆ Melody
  - ◆ Ornamentation
- ◆ Potential for musical data in linguistic research, documentation, resources
- ◆ Tutorials coming soon!

◆ References:

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Txá'vi-ndó! Thank you!

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