

From linguistic analysis to public engagement

Improving community access to Tunica language documentation

Outline

- The Tunica language
- The Tunica Language Working Group
- Community access to Tunica language documentation
 - Choosing a platform for transcribing documentation digitally
 - Determining community needs
 - Assessing accessibility issues and finding or creating solutions
- Documentation initiatives
- Conclusions and next steps

The Tunica language

- An indigenous language of the Lower Mississippi Valley in the United States
- Language isolate
- Language shift to French, then to English
- Last known native speaker died in 1948
- Before Tunica ceased to be spoken, it was documented by three linguists working with three consultants
 - Albert Gatschet (1886), John R. Swanton (1910), Mary Haas (1930s)
- Revitalization efforts depend on documented Tunica



Louisiana within the United States

The Tunica language

- A heritage language of the **Tunica-Biloxi Tribe**, located in Louisiana
 - ~1600 members
- Revitalization efforts date back to the 1970s using Mary Haas's documentation
 - Tunica [grammar] (Haas 1940), Tunica Texts (Haas 1950), Tunica Dictionary (Haas 1953)
- *Kuhpani Yoyani Luhchi Yoroni*, the Tunica Language Working Group
 - Formal collaboration between the Tunica-Biloxi Tribe and Tulane University since 2010 to revitalize the Tunica language
- Creation of the Tunica-Biloxi Language & Culture Revitalization Program in 2014

The Tunica Language Working Group

- A collaboration between the **Tunica-Biloxi Tribe of Louisiana** and **Tulane University's Interdisciplinary Program in Linguistics**
- Started in 2010
- Goal of revitalizing and reintroducing Tunica to the Tunica-Biloxi community
- Operates within a framework of **community-engaged scholarship**
 - "Community engagement research is a framework that seeks and **nurtures community involvement**, leverages community knowledge, and is **led by community need.**"
(Baldwin et al. 2022: 176) (emphasis added)
- How can we use leverage language documentation to allow community members to engage with their language?

Current ways to engage with the Tunica language

- Reference materials
 - Online dictionary
 - Dictionary apps for mobile devices
- Pedagogical materials
 - Children's books
 - Tunica Language Textbook (2023)
- Interactive learning
 - Tunica games
 - Tunica coloring books

Community access to Tunica language documentation

Original documentation

- Three linguists writing at different times using different transcription conventions
- Varying degrees of readability
 - e.g., no word breaks in Haas's *Tunica Texts* (1950), handwritten in Gatschet (1886)

Choosing a platform for digital documentation

Early project needs

- Language worker familiarity
- Feature set
 - Does it work well for dictionary creation? (main project in the early days)
- Cost
- Collaboration
- Ease of use

Choosing a platform for digital documentation

Fieldworks Language Explorer (FLEx)

- **Familiar** to Tunica-Biloxi language workers
- **Integrated** repository for **dictionary** and **texts**.
 - Can publish dictionary both **in print** and **online**
- Focused on analyzing **written transcriptions**
- **Free** and **open source**
- **Cloud repository** for collaboration
- **Steep learning curve**
- **No web interface** for editing or analysis

tun-tx-flex - FieldWorks Language Explorer

File Send/Receive Edit View Data Insert Format Tools Parser Window Help

English Default Paragraph

Texts & Words

Interlinear Texts
 Concordance
 Complex Concordance
 Word List Concordance
 Word Analyses
 Bulk Edit Wordforms
 Statistics

Texts

Title

Show All

30a. Houses, construction of
 36b. Baskets, construction of
 36c. Hats, construction of
 37. About Fire
 38. Tanning
 39. Two Fever Remedies
 40. How to Shoot Ghosts
 41a. Tarushtahipu
 41b. Tanokushihipu
 41c. Tayishikuhipu
 42a. One Eyed Indians
 42b. The Stone Witch
 42c. The Clawed Witch
 42d. Tahikuwa Rōwa
 42e. A Water Animal
 42f. Mammoths
 42g. Chushi
 42h. The Harbinger of Death
 42i. Le Juif Errant
 43a. About Woodpeckers
 43b. About Deer
 43c. A Saying
 43d. A Star Country
 43e. When the Ocean Dried Up
 43f. A War with the Pascagoula and the Natchez

Text

Title tun

en 43d. A Star Country

Info Baseline Gloss Analyze Tagging Print View Text Chart

1 Word	Tastihpulat'ε	sahkun	, hal'ukin
Morphemes	tastihpula -t'ε	sahku -n	hal'ukin
Lex. Entries	tastihpula -t'ε ₁	sahku -n ₄	hal'ukini
Lex. Gloss	star big	one nasal prosody	(the) world
Lex. Gram. Info.	n Attaches to any category	num Attaches to any category	n
Word Gloss	a big star	one	a world
Word Cat.	n	num	n

arani	tastihpulat'ε	kichun
ara	-ani	kichu -n
ara ₁	-ani ₁	kichu -n ₄
existential - "there is/was"	QUOT, "it is said"	inside of nasal prosody
v.chameleon	v:(Quotative)	post Attaches to any category
there is, it is said	the big star	inside of (it)
v.chameleon	n	post

Free (There is) a certain big star (which) has a world inside of it.

11/Sep/2022 Queue: (-/-) No Parser Loaded Sorted by Title 76/93

A FLEx interlinear text

Considering community needs

- Accessibility
 - Access the texts on any operating system from any device (macOS, Windows, Linux, iOS, Android, etc.)
- Suitability for multiple audiences
 - Accommodate those who just want to read the texts, and those who want to look at how the language works
- Ability to run analyses
 - As the community at large engages more with the language, there is more interest in exploring the language more thoroughly

Accessibility and features in FLEx

- Online publishing
 - Dictionary
 - Easy export of FLEx dictionary to hosted website using Wordpress at webonary.org
 - Poor user experience on mobile devices
 - Arduous creation of smartphone dictionary apps for Android and iOS
 - Texts
 - Export of all texts or selected interlinear texts as html
 - No dynamic search for texts published online
- Complete access to the newest version of FLEx requires a Windows computer or virtualization software that runs Windows

Publishing interlinear texts online with FLEx

43d. A Star Country

¹	Tastihpulat'ε	sahkun	,	hal'ukin	arani	
	tastihpula -t'ε	sahku -n		hal'ukin	ara	-ani
	tastihpula -t'ε ₁	sahku -n ₄		hal'ukini	ara ₁	-ani ₁
	star big	one nasal prosody		(the) world	existential - "there is/was"	QUOT, "it is said"
	n Attaches to any category	num Attaches to any category		n	v.chameleon	v:(Quotative)
	a big star	one		a world	there is, it is said	
	n	num		n	v.chameleon	
	tastihpulat'ε	kichun	.			
	tastihpula -t'ε	kichu -n				
	tastihpula -t'ε ₁	kichu -n ₄				
	star big	inside of nasal prosody				
	n Attaches to any category	post Attaches to any category				
	the big star	inside of (it)				
	n	post				

(There is) a certain big star (which) has a world inside of it.

Issues and solutions with FLEx export

- Solutions
 - **Web** solution
 - Ability to read the texts in both **English** and **Tunica**
 - Ability to see the **morphology** of the language
 - Familiar linguistic **formatting** of interlinear texts
- Remaining issues
 - **Cluttered** for those that just want to read the text and free translation
 - Only very **basic search** via the browser
 - No **interactivity**
 - No **tools for analysis**

Can FLEx's database be extended to solve some of the remaining issues?

LingView

(Pride, Tomlin, and AnderBois 2020)

- Web interface
- Takes a structured FLEx interlinear text export (.flextext)
- Provides a website with dynamic search and filtering by tier

LingView

43d. A Star Country

1

Tastihpulat'ε sahkun, hal'ukin arani tastihpulat'ε kichun.

Tastihpulat'ε sahkun hal'ukin arani

tastihpulat'ε kichun

tastihpula-t'ε sahku-n hal'ukin ara-ani

tastihpula-t'ε kichu-n

tastihpula-t'ε sahku-n hal'ukini ara-ani

tastihpula-t'ε kichu-n

star-big one-nasal prosody (the) world existential - "there is/was"-QUOT, "it is said" star-big inside of-nasal prosody

(There is) a certain big star (which) has a world inside of it.

Speakers:

Show/hide tiers:

- Luhchi Yoroni words
- Luhchi Yoroni morpheme (as in the text)
- Luhchi Yoroni morpheme (citation form)
- English morpheme gloss
- English free

Search database:
 Luhchi Yoroni words
 Luhchi Yoroni morpheme (as in the text)
 Luhchi Yoroni morpheme (citation form)
 English morpheme gloss
 English free
 Luhchi Yoroni free
Story: 10. Owl-Mammoth

Hinyatihch	hal'ukini	'arani	
hinyatihch	hal'ukini	'ara-ani	
hinyatihch	hal'ukini	'ara-ani	
then	town, village	existential - "there is/was"-QUOT, "it is said"	

Now (there) was a town.

[View story](#)**Story:** 43d. A Star Country

Tastihpulat'ε	sahkun	hal'ukin	arani	tastihpulat'ε	kichun
tastihpula-t'ε	sahku-n	hal'ukin	ara-ani	tastihpula-t'ε	kichu-n
tastihpula-t'ε	sahku-n	hal'ukini	ara-ani	tastihpula-t'ε	kichu-n
star-big	one-nasal prosody	(the) world	existential - "there is/was"-QUOT, "it is said"	star-big	inside of-nasal prosody

(There is) a certain big star (which) has a world inside of it.

[View story](#)**Story:** 02. The Emergence of the Avoyelles

Hinahkuhch	uhkonisεma	hopina'arahch	hishtahahki	sahku	hopiwihch
hinahkuhch	uhk-oni-sεma	ho-pi-na'ara-hch	hishtahahki	sahku	hopi-wi-hch
hinahkuhch	uhk-oni-sεma	ho-pi-na'ara-hch	hishtahahki	sahku	hopi-wi-hch
now	3MS.alienable-human being-MP GNA	out, out of-to emerge, get out-3HP.durative.ura-while	still	one	to come out-3MS.c

Now while his people were still coming out, one (of them) upon coming out found the world, (to be) beautiful, it is said.

[View story](#)**Story:** 10. Owl-Mammoth

LingView

- Solutions
 - **Display and hide tiers** to fit each viewer's needs
 - **Advanced search** functionality
 - Creates a **full website**
- Issues
 - **Formatting** of morphemes needs improvement
 - **Not updated often**; needs contributors
 - **Technical knowhow required** — must compile website from the command line or GitHub
 - Import script needs better error handling
 - **No interactive analysis** features

Creating analytical tools for FLEx-transcribed texts

- Goal: Create an **analytical tool** that operates on interlinear FLEx exports but **does not need to be run in FLEx itself**
 - Export xml files and use Python scripts to query them
 - Export flextext files and use R package interlineaR to convert the database of texts to an R dataframe
 - Exporting dataframes from R as a SQL database could serve as a queryable backend for a frontend web interface

sentence_id	word_id	cf.tun.morph	gls.en.morph	type	txt.tun.morph	id	grammatical-info.value	txt.tun.full_word	cf.tun.word	gls.en.sentence
3572	26689	tastihpula	star	stem	tastihpula	3059	Noun	tastihpulat'ε	tastihpula, -t'ε	(There is) a certain big star (which) has a world inside of it.
3572	26689	-t'ε	big	suffix	-t'ε	2869	NA	tastihpulat'ε	tastihpula, -t'ε	(There is) a certain big star (which) has a world inside of it.
3572	26690	sahku	one	stem	sahku	2954	Numeral	sahkun	sahku, -n	(There is) a certain big star (which) has a world inside of it.
3572	26690	-n	nasal prosody	suffix	-n	2049	NA	sahkun	sahku, -n	(There is) a certain big star (which) has a world inside of it.
3572	26692	hal'ukini	(the) world	stem	hal'ukin	1360	Noun	hal'ukin	hal'ukini	(There is) a certain big star (which) has a world inside of it.
3572	26693	ara	existential - "there is/was"	stem	ara	1228	Chameleon Verb	arani	ara, -ani	(There is) a certain big star (which) has a world inside of it.
3572	26693	-ani	QUOT, "it is said"	suffix	-ani	2995	Verb	arani	ara, -ani	(There is) a certain big star (which) has a world inside of it.
3572	26694	tastihpula	star	stem	tastihpula	3059	Noun	tastihpulat'ε	tastihpula, -t'ε	(There is) a certain big star (which) has a world inside of it.
3572	26694	-t'ε	big	suffix	-t'ε	2869	NA	tastihpulat'ε	tastihpula, -t'ε	(There is) a certain big star (which) has a world inside of it.
3572	26695	kichu	inside of	stem	kichu	1786	Postposition	kichun	kichu, -n	(There is) a certain big star (which) has a world inside of it.
3572	26695	-n	nasal prosody	suffix	-n	2049	NA	kichun	kichu, -n	(There is) a certain big star (which) has a world inside of it.

Columns from a text's R dataframe

Documentation initiatives

Improving access and adding features

- Digitization of unpublished Mary Haas notebooks (collaboration with American Philosophical Society)
- Documenting and analyzing revitalized Tunica (Harvey 2023)
- Creating analytical tools for FLEx-transcribed texts (Abdalian 2023)

Conclusion

- A database of transcribed texts is a starting point
- These texts should be made as **accessible** to the community as possible
- **Accessibility** means **availability**, but also **approachability**
- **FLEx** was initially designed with the linguistic fieldworker as the target audience
 - Lacks built-in capabilities for displaying texts online in an interactive way
- **LingView** provides a web interface dynamic search, and can serve both language workers and the community at large
- Next steps
 - Providing **web-accessible analytical tools** that will allow both language workers and the wider community explore documentation of their language in new ways.

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Questions