Archiving Cherokee texts and developing Augmented Reality/Virtual Reality tools for language teaching.

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Roadmap

- Background on Cherokee language
- Brief history of Cherokee people, removal
- Current state of affairs for language and needs for support
- Archiving work
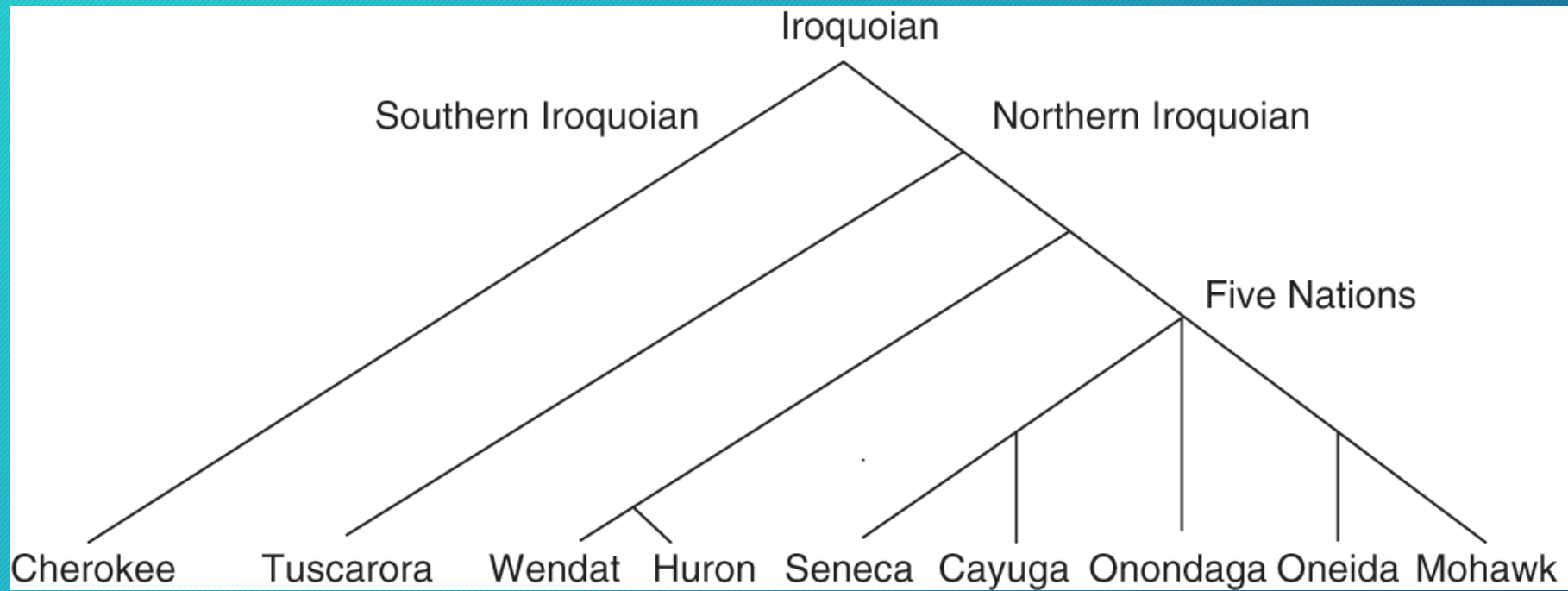- Digital projects, engagement in daily life
- Future work

Background

- 3 Nations
- Iroquoian language
- Polysynthetic
  - "Wi-da-tsi-ne-gi-si"
- Classificatory system
  - Solid
  - Liquid
  - Long & rigid
  - Flexible
  - Animate

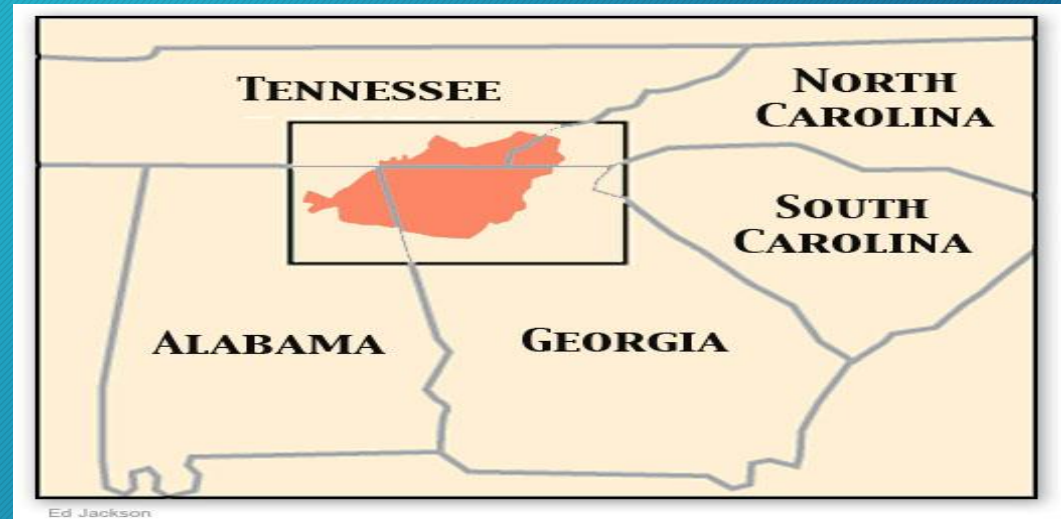# Iroquoian Languages

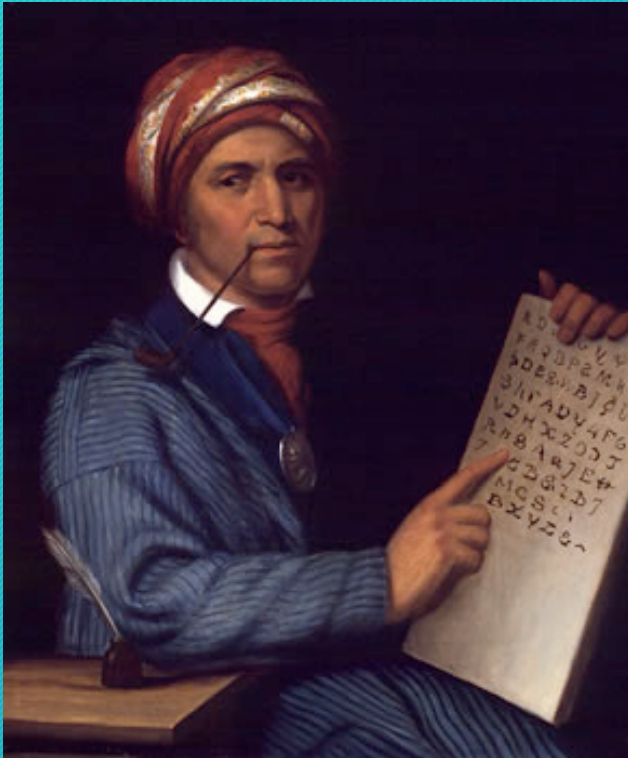# Iroquoian & Cherokee traditional land bases

Cherokee territory

Pre-Revolution

Post-Revolution

ᏗᎳᏫᎵ: Writing and Literacy

- Sequoyah – ca. 1821
- Single-handed invention
- Illiterate, Monolingual
- Syllabary, ≠ "alphabet"

From Hand to Print

First newspaper in an American Indian language

Trail of Tears

- 1838 – forced removal of Cherokees in Georgia, Alabama, Tennessee, parts of NC.

- Eastern Band of Cherokee Indians in NC are descendants of those who remained and those who returned.

Eastern Cherokee Territory Today

Qualla Boundary
(NC Cherokee Reservation)

Current State of Affairs

- 2 extant dialects

- Some 2,000 speakers remain TOTAL, according to 2019 estimates

- Majority of speaker population elderly, little/no intergenerational transfer

- Speaker replenishment is priority

Published On: Thu, Jun 27th, 2019   Front Page / News I By **Scott**
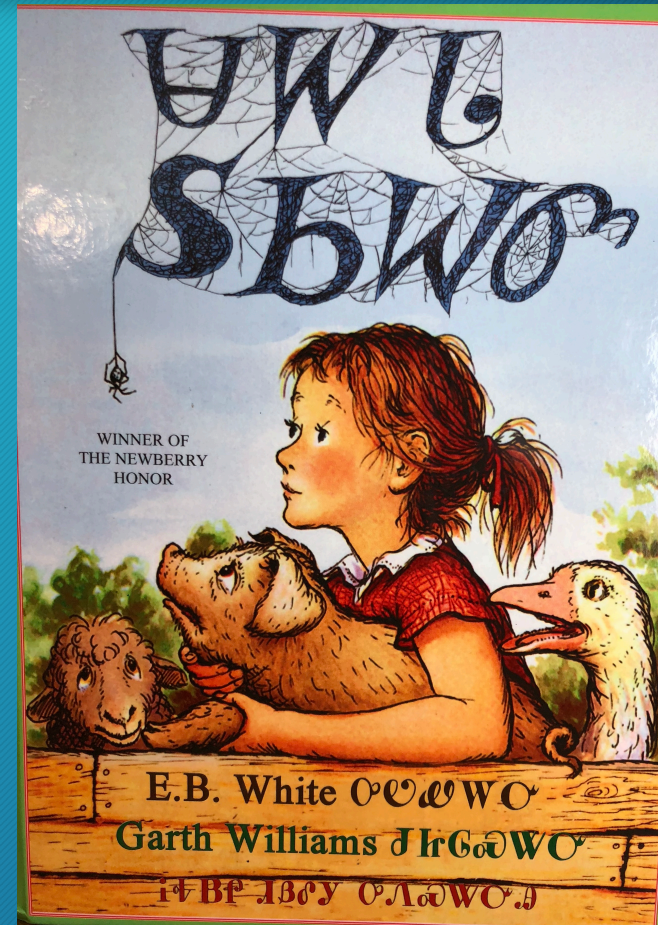
Tri-Council declares State of Emergency for Cherokee language

The leaders of the three federally recognized Cherokee tribes – Eastern Band of Cherokee Indians, Cherokee Nation (Okla.), and the United Keetoowah Band of Cherokee Indians (Okla.) – met in a Tri-Council meeting at Kituwah on the morning of Thursday, June 27. (SCOTT MCKIE B.P./One Feather photos)

Current state of affairs

- Existing Technology
  - Unicode keyboard
  - Apple, Microsoft integration
  - Google, Facebook
  - Language learning Apps
    - EBCI: Shiyo
    - CN: Mango Languages

- Immersion schools
  - New Kituwah Academy (NC)
  - ᏣᎳᎩ ᏧᎾᏕᎶᏍᏗᎢ (OK)

Learn Cherokee.

Now available: online Cherokee language course from Mango Languages.

Beloit Public Library homepage "beloitlibrary.org" has free access to Mango language learning with your BPL card at "Discover, Investigate, Grow" , "Mango", "https://connect.mangolanguages.com/beloit/login?u=46668". There are language learning programs for 63 of the world's most popular languages.

mángo
languages

Needs for support

- Immersion schools need support from L2 learners, while L2 learners need their own support
  - (Faster) materials creation
  - Engaging the language in day-to-day life
- Two needs for support, two projects:
  - Archiving Cherokee texts
  - (Computer-mitigated) social integration

Potentials of technological applications

- Faster materials creation
- Easier transcription
  - (we'd kill for an accurate speech-to-text system)
- More engaging learner materials
- Mobile apps to increase the language's presence in day-to-day life

Archiving

- Digitize/scan/OCR texts & translations

- Align sentences, export to .txt

- Import to AntPConc, AntConc

- Query results

Text Analysis

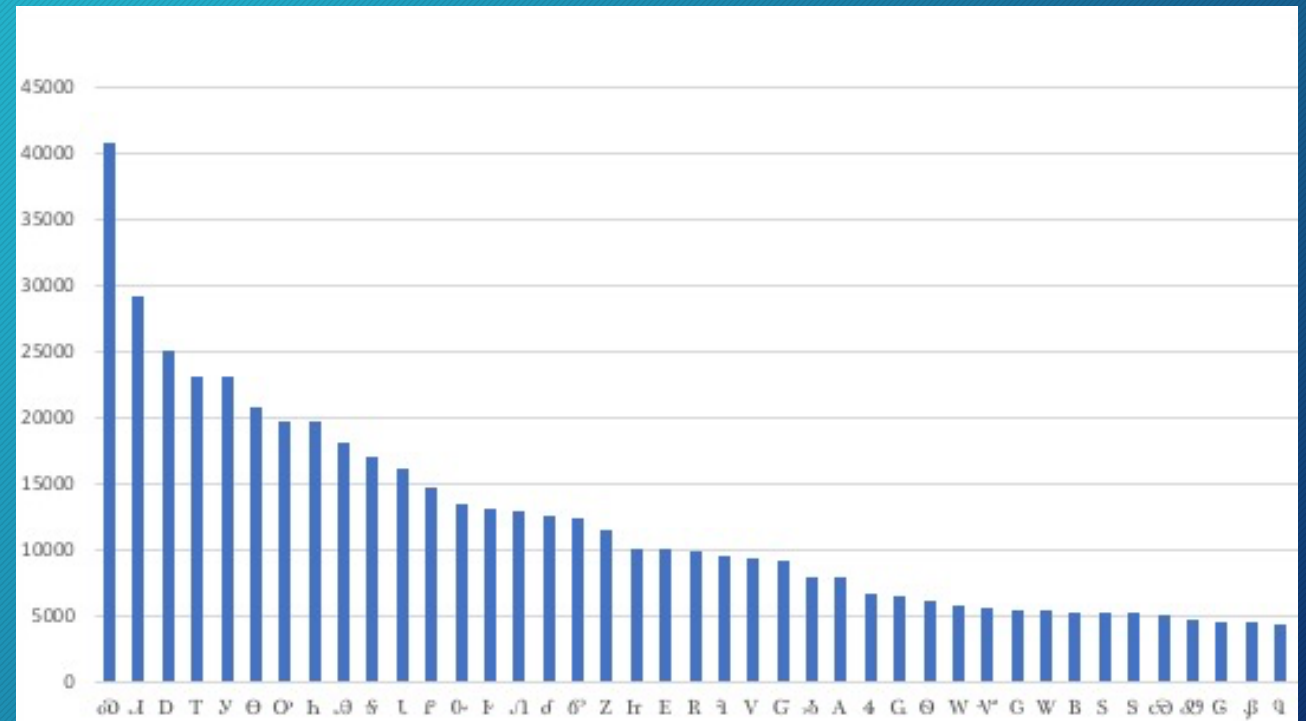## Most frequently occurring words

```
#Word Types: 5727
#Word Tokens: 18806
#Search Hits: 0
1        710      ZƉ
3        420      OᏆᏐᏁ
4        275      ҒᏒᎫᏣ
6        210      ᏓᏍᎤᏞ
10       126      ᎶᎩ
13       106      D4Z
14       99       AᎠᏒᎫᏣ
18       89       ᏂᏚᏞ
19       86       TᏚ
22       81       TᏩᏒᎫᏣ
23       81       ZᏣ
25       72       OᏆᏐᏁ
26       68       TᏩ
27       67       ᏆᏎ
28       66       ᏆᏒ
29       66       ᏣᏂᏒᎫᏂᎻᎠVᏣ
30       62       ᏐᎩᏲᎾ
33       59       ᏐᎠᏉ
34       57       ᏰᏞ
35       56       ᏈᎻᏉ
36       55       ᏆᏎᏔ
37       53       ᏆᏎᏒᎫᏣ
38       52       RWᏣ
39       51       ᎩᏩ
40       50       RᏞᎤᎩᎤ
```

Most frequently occurring syllabary characters

Lexicography

- Corpus-based approach is effective

- Ready-made reference sentences

- Fairly straightforward glossing

Translation

- Computer assisted translation…?
  - Problematic b/c of genre
  - Better for non-literary applications
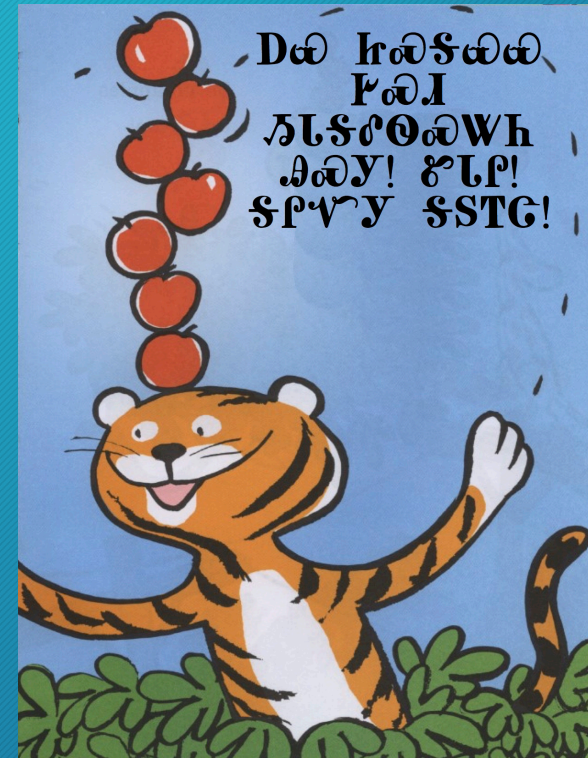- Neural network training (similar to Google Translate)

Integration

- Archiving yields data – how do you get people to *use* it?
  - Pedagogy
    - Immersion
    - Second language learners
  - Day-to-day applications
    - Conversational domains
    - Technology

Immersion school pedagogy

- L2 learners can help L1 speakers produce new texts more quickly.

- Translation exercises provide practice opportunities + feedback from speakers

- Speaker-approved texts can be archived and improve database

L2 pedagogy

- Archives can generate sentences for practice activities
  - Cloze-gap
  - mad-libs
  - Multiple choice…

- Practice for L2 learners ➔ more proficient speakers, more help for L1 speakers and immersion schools
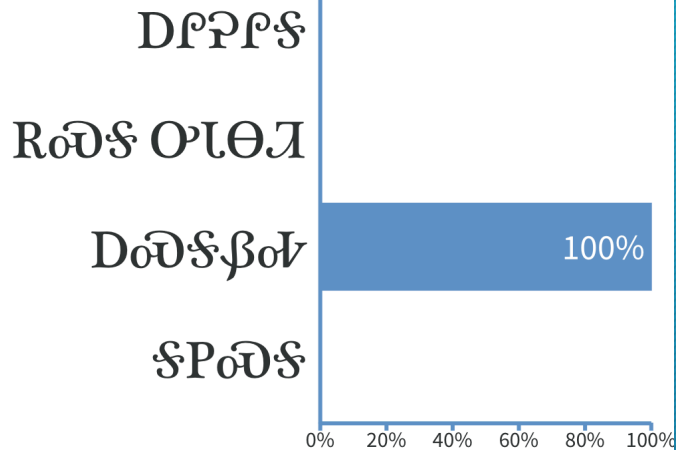
Pedagogy

Poll Everywhere

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When poll is active, respond at **PollEv.com/benjaminfrey746**

Text **BENJAMINFREY746** to **22333** once to join

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ᎠᎤᏓᏛᎤᏤ — 100%

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0% 20% 40% 60% 80% 100%

Poll Everywhere

Google Forms

Multiple Choice

Ahyoka wants to ask for help in class. Which of the following would be the most appropriate for her to say? Choose the best answer.

✓ She's stuck on a particular problem and can't figure it out. * 1/1

- ⦿ sgisdela ✓
- ◯ galisgewi
- ◯ daquado'a
- ◯ denadagohvyu

✓ She doesn't understand what is being said. * 1/1

- ◯ usganoli hniwi
- ⦿ gesdi yigoliga ✓
- ◯ sunale
- ◯ detsado'a

Software Localization

Word Munchers

Heriswap

Social Integration

Augmented Reality

Mobile app for conversations

Time Stamp	Phrase
0:04-0:07	¡Hola! ¿Como estás?
0:07-0:11	¡Hola! Muy bien. Quería un cafe.
0:11-0:12	¿Qué café querías?
0:13-0:14	Un cortado.
0:14-0:16	Un cortado. Bueno.
0:20-0:21	¿Cuánto es?
0:22-0:23	Cinco con cincuenta.
0:23-0:24	Muchas gracias.
0:24-0:25	Muchisimas de nada.
0:25-0:26	¡Adiós!
0:26-0:27	Ciao.

Here we see someone ordering a coffee. View the video again as necessary to gather the vocabulary needed to order.

When you're ready, take a look at the glossary for your own ordering needs, and rate your partner on their Spanish after ordering!

GLOSSARY   HOMEPAGE

Potential future projects

- VR practice sessions for conversations
- VR-mitigated interaction online between speakers and learners
- Tours of Cherokee cultural sites
- More expansive illustration of traditional stories, beliefs

Mondly VR (English)

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