

Language Documentation @Field Methods Intro

Brenda H. Boerger & Matthew Lee



Who am I? (And should you listen to me?)

Matthew R. Lee

- MA in Applied Linguistics @ DIU 2022
- BA in Integrated Science and Technology & BA in Philosophy and Religion
 @ James Madison University 2006
- Adjunct Faculty @ DIU since 2022
- Field Data Management Instructor @ GIAL 2013
- Instructor @ Cameroon Baptist Theological Seminary 2012
- Visiting instructor at University of Dschang in Cameroon.



Language Technology Consultant (2008*-Present)

- Serving primarily (and currently) in Yaoundé, Cameroon
- Language Technology training and support
- Linguistics, Translation, Literacy, Scripture Engagement, and Publishing
- I serve as a bridge between the language workers and the tech nerds.





* Note: I've been working in LangTech for SIL since 2008, but I became a consultant in 2016.

Overview

- Identification of language endangerment as a pressing issue
- The rise of documentary linguistics as a response of the linguistics community
- Defining language documentation
- Perspectives on why it is important
- Application of LancDoc principles.



Thinking about our audience

 As staff of SIL (mostly), you probably already have a heart for minority linguistic communities.





Image by brgfx on Freepik

EGIDS Scale

You know a language begins the slide towards language death once children are no longer learning and using it.



Image source: p25 of Hanawalt, Charlie & Varenkamp, Bryan & Lahn, Carletta & Eberhard, David. (2015). Guide for Planning the Future of Our Language. 10.13140/RG.2.1.4219.0164. https://www.sil.org/sites/default/files/guide-1st_ed_nov_17_2016.pdf



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Wikipedia.org, Retrieved March 4th, 2023

- The **scientific** significance
 - Some linguistic phenomena are known only through these languages.
 - Claims about linguistic universals need to be tested against all languages.
 - Clues about the prehistory of peoples are lost.



• The ecological significance

- Diversity is good for the planet.
 - Just as the environment needs biological diversity in order to thrive and to rebound from disaster,
 - So humankind needs diversity of knowledge and ways of thinking in order to thrive on our planet and to adapt to changing situations.
 - The loss of a language diminishes this capacity.
- Each language encodes unique and valuable knowledge
 - When a language is lost, humankind loses with it a vast store of knowledge about the environment in a particular region of the planet—knowledge that took millennia to develop and that is never likely to redevelop.



- The legal significance
 - One tool in combating the loss of languages has been to establish legal rights for language use and development. For example,
 - United Nations Declaration on the Rights of Indigenous Peoples (2007)
 - <u>History</u> on Wikipedia; <u>Full text</u> on UN site
 - Article 13
 - 1. Indigenous peoples have the right to revitalize, use, develop and transmit to future generations their histories, languages, oral traditions, philosophies, writing systems and literatures.



- The **social** significance
 - Language is an expression of identity; loss of identity is a serious problem for groups and individuals alike.
 - Victims of language loss have been <u>shown to have worse health</u> (see <u>Healing through language</u>)
 - "Tribal children given the opportunity to learn their language are happier, healthier human beings. It doesn't mean their lives are easier. It does mean that their identities are stronger and they are better prepared to face the challenges of being an indigenous person in the modern world."
 - Jacob Manatowa-Bailey



Why Does Language Death Matter?

- The theological significance
 - God intends that every people and language should be part of his kingdom (Dan. 7, Rev.
 7)
 - Even when a language is going to be lost, there can be spiritual motivations for documenting it:
 - Helping people sustain their identity as a distinct people.
 - Preserving a record of a human language is capturing a facet of God's creative glory.
 - Honoring God by publishing descriptions that put his workmanship on display to a watching world.
 - Honoring God by honoring the people he created in their uniqueness.



The Birth of Language Documentation

- Definitive source on documentation vs description:
 - Nikolaus **Himmelmann**, 1998. "<u>Documentary and descriptive linguistics</u>." *Linguistics* 36:165–191.
- Definitions
 - Documentation is "the activity concerned with collecting, transcribing, translating, and commenting on *primary data*" (190) [+archiving]
 - Aim is "to provide a comprehensive record of the linguistic practices characteristic of a given speech community." Contrasts with description which aims at "the record of a language ... as a system of abstract elements, constructions, and rules." (166)



Documentation vs. Description

	Documentation	Description		
What?	Primary data	Secondary data		
How?	Observe, Record, Transcribe, Translate	Analyze, Generalize		
Who?	Recording specialists, Literate speakers	Professional linguists		
Where?	On site	On or off site		
When?	Short term	Long term		



How does this compare to traditional descriptive practice?

- Traditional descriptive linguistics is to:
 - Publish a grammar (with phonology), dictionary, and interlinearized texts the Boasian trilogy.
 - Requires extensive training and years of effort.
 - In practice, few projects produce all the above.
 - What's worse, there has not been a practice of archiving recordings, so that *the primary source material* is not available for:
 - Language revitalization or identity maintenance
 - Supporting descriptive claims that are published
 - Analysis by others to fill descriptive gaps





Language Documentation as a Specialization

Language Documentation as a Specialization

- Language Documentation is the collection, annotation, and archiving of a corpus of raw primary linguistic data.
 - Language Documentation can be a project/goal unto itself, carefully collecting and annotating a broad corpus of language and culture data that will be preserved for later generations.
 - Such an organized corpus could easily become the foundation of linguistic work, language development, or language revitalization (but that is an analytical exercise left to the reader after documentation has been done).



Basic Documentation Tasks

- Make *archival quality* digital recordings of the language in a variety of uses (including an extended wordlist).
- Provide metadata documenting the full situation surrounding each recording.
- Transcribe each recording with time alignment.
- Translate each transcription at sentence level and even word level.
- Obtain and document informed consent to share.
- Archive all of the above as a corpus.
- Allow public access as a citable publication.



The three basic tasks

"Language Documentation is concerned with compiling, commenting on, and archiving language documents." — Himmelmann 1998

- **1. Compile (collect)** a sample of recordings of a full range of speech event types
- 2. Comment on (annotate) those recordings
 - E.g., transcription, translation, discussion, situational context, informed consent to share
- **3. Archive** the complete corpus of recordings and commentary with an institution that will provide long-term access



"Classic" Language Documentation

Stemming from Himmelmann and Woodbury, "classic" Language Documentation includes:

- recording (audio, video, and photos)
- adding value (annotation and metadata)
- and archiving all of the above.

It stops there. Further analysis and facilitating use of the content are not in part of the expectations.



Austin's Five Activities of Language Documentation

According to Austin (2014, 60-61; 2006; 2010, 19), the ideal language documentation process contains five activities:

- Recording
- Transfer [for mgmt.]
- Adding value

- Archiving
- Mobilization





Language Documentation Methods (As an Add-on to Your Work)

In the course of your language work, you may:

- Collect texts and linguistic paradigms.
- Compile a wordlist or dictionary.
- Collect recordings and photos.
- Analyze and annotate the above content.

and finally...

• Write papers and give presentations on your findings.



A Moment for Humility

- While the analytical papers you write may make you rich and famous (in the linguistic world), we need to realize that the culturally-relevant content you collected along the way may sometimes be more valuable to the community.
 - ...as a cultural archive
 - ...as a historical record
 - ...as the building blocks for language revitalization
 - ...as a standardizing force
 - ...as a source for more advanced work



Language Documentation as an "Add-on"

- Practically, Language Documentation methodologies on a small scale promote proper stewardship of the primary data collected in the course of research.
- Even elicitations that were narrowly selected to respond to a specific research question could still help to serve future cultural and language-development purposes.
- Every language worker could benefit from a "minor" in Language Documentation techniques.



Primary Recordings

- A blind spot in our practice of field work to date involves the primary recordings:
 - Virtually every project produces them, but
 - Virtually no project has published or preserved them
- That is no longer acceptable practice:
 - Language communities are calling for them
 - Academic community is calling for them
- We should want to comply because language documentation has so many *potential benefits*, which we look at next.



Including Data Enhances Your Credibility:

- Which sounds better?
 - "Nchane exhibits a contrasting /e/ and /ε/ such as in the words ge 'do' and gε 'not'."
 - "Nchane exhibits a contrasting /e/ and /ε/ such as in the words ge 'do' and gε 'not' as heard in recordings W-012 (at 0:30) and W-032 (at 0:21) in the linked corpus."
- Including referenced source data in a corpus enriches the reading, allowing the reader to verify your work. Including ALL source data gives the reader the chance to test your conclusions AND do further research.



Reproducible Linguistics

- Science is about testing and retesting results.
- A chemistry experiment may be reproducible with chemicals found in the laboratory, but minority linguistics experiments can not be easily repeated without access to the raw data.
- This push for publishing both the data and analysis is called "reproducible research" and has been extended to linguistics.

Berez-Kroeker, Andrea L et al. (2018). "Reproducible Research in Linguistics: A Position Statement on Data Citation and Attribution in Our Field". In: Linguistics 56.1, pp. 1–18. doi: 10.1515/ling-2017-0032.



Reproducible Linguistics

If a <u>linguist</u> makes a claim that a skeptic can only reproduce by spending three decades <u>working in the same language community in the same sociolinguistic and fieldwork conditions</u>, the original claim is really only reproducible in principle. [...] Our view is that it is not healthy for <u>linguistic descriptions</u> to be supported by <u>examples</u> that cannot be reproduced except by <u>doing one's own fieldwork</u> [...] it may be *research* and it may be *important*, but unless enough details of the <u>utterances in context</u> are made available so that it can be subjected to true reproducibility tests by skeptics, it isn't Science.

(Gezelter paraphrased by Berez-Kroeker et al (2018:4))



• The contribution of Simons (2008), Boerger (2011), and Boerger et al. (2019) represents two major elements: (1) a recommendation for the minimal contents of a language documentation corpus and (2) canonization of an oral-first workflow of annotation.





The Language Documentation Process

1. Recording of media and text (including metadata) in context

- Elicited Lists
 - Wordlists and Grammatical Paradigms
- Communicative Events
 - Interactive Discourse, Narrative, Procedural Discourse, Oratory, Description, Drama, Poetry, Songs, Formulaic Discourse, Language Play, Unintelligible Speech
- Analytical Discussions about any other (meta)content.
- Written Works by Local Authors
- Events, Activities, Images, Locations, Maps, Artifacts, etc.
- *Descriptive Metadata* about all content collected.

(Boerger et al. 2019, 140-46)

Other sampling dimensions

- The choice of speakers should involve sampling as well. Universally applicable:
 - Gender
 - Age
- Relevant in some situations:
 - Social stratum
 - Education level
- Also sample regional varieties



2. Transfer — to a data management environment

SayMore by SIL International

- Gathering
- Converting
- Organizing
- Annotating
- Checking Coverage
- Archiving

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3. Adding value — the transcription, translation, annotation and notation and linking of metadata to the recordings

- Written Transcription in the orthography or IPA
- Written Translation into a language of wider communication
- Interlinearization?


Our ability to record (and archive) language materials outstrips our ability to make their contents accessible through transcription. (Cox et al. 2019)

Photo by Kelly Sikkema on Unsplash



Transcription Bottleneck

- The extreme workload of written transcription (the transcription bottleneck (Seifart et al. 2018, 1)) means that large amounts of language documentation content may never be "ready" for distribution.
- At best, the unfinished content may be hidden in the archive obscurely.
- At worst, staff and resources can be reassigned, and unfinished content may be lost to history.



The problem

- Small language communities are losing their languages faster than linguists using conventional methods can document them.
 - Using written methods creates a transcription and analysis bottleneck.
- What should we be doing in response?
- A possible solution has arisen from combining two ideas.
- We'll look at a proposed partial solution to the transcription bottleneck (BOLD) later.





Breaking the Transcription Bottleneck

Developing a BOLD approach

- A team at SIL developed a method called:
 - Basic Oral Language Documentation
- In place of the traditional corpus approach:
 - Compile, Transcribe, Annotate, Archive
- We build an oral documentation corpus:
 - Compile, Comment orally, Archive
- An advantage is that while a linguist may be the catalyst, even non-linguists (e.g. community members) can be mobilized to do the work of compiling and commenting, thereby speeding the work and often increasing accuracy.



BOLD Oral Annotation





BOLD Annotation Creates Aligned Oral Transcription and Translation



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Adding written transcription and translation

- Oral transcription and oral translation are the source for written transcription and translation
 - Either done immediately and added to the documentary corpus
 - Or done later (even as a different project by different people) as the basis for a new descriptive corpus with links back to the sources in the documentary corpus



Further Reading



- Woodbury, Anthony. 2003. "Defining documentary linguistics." In Peter Austin (ed.), *Language Documentation and Description 1.* HRELP, SOAS.
- Bird, Steven and Gary Simons. 2003. "Seven dimensions of portability for language documentation and description." Language 79:557-582.
- Gippert, Jost, Nikolaus P. Himmelmann, and Ulrike Mosel (eds.). 2006. *Essentials of Language Documentation.*
- Boerger, Brenda H., Sarah Moeller, Will Reiman and Stephen N. Self. 2016. *Language and Culture Documentation Manual*, Leanpub.
- Reiman, D. Will. 2010. <u>Basic Oral Language Documentation</u>. *Language Documentation and Conservation*, Vol. 4:254-268.
- Boerger, Brenda H. 2011. <u>To BOLDly Go Where No One Has Gone Before</u>. Language Documentation and Conservation, Vol. 5:208-233.



Tool for a lang doc corpus

SayMore

Lang Doc Productivity

- Organize
 - Session data
 - People data
 - Media files
- Track progress
- Do transcription
- Archive results
- Download v. 3.1.5
- <u>https://software.sil.org/saymore/</u>
- <u>https://github.com/onset/laMETA/releases</u>

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	Participants		Location			
	Awi Heole, Ilawi Amosa		Huya			
	Event Type		Access			
	Narrative		Open			
	Situation		Synopsis			
	Walking with Ilawi, we passed the plant they use to make poison for fishing, and I asked him if he'd tell me about how to do it. We went to his house, where Awi joined us, and the two of them took turns telling parts of the "whole story".					
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More features

- Auto segments files
- Handles video
- Automates the BOLD respeaking process
- Creates staggered audio for lg. learning
- Moeller (2014)

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BOLD Corpus is Ready to Archive





4. Archiving — creating archival objects and assigning them access and usage rights;

SayMore facilitates archival of quality primary recordings, full metadata, and annotation to preserve aspects of the language and cultural heritage for the long term.



5. Mobilization — creation, publication and distribution of outputs in a range of formats for a range of users and uses.

Mobilization in language documentation means working with speaker communities to produce products from language documentation that can be used to counter language endangerment (Nathan 2006, 363).





Archives and Vaults



Submissions to the Seed Vault

- Samples are cleaned, decontaminated and carefully frozen so that they can last hundreds of years.
- Individual items are clearly labeled in bags and boxes.
- Metadata is created with sources, dates, names, and species and added to a central index.
- The boxes are placed in specific locations so that they can be found.
- The natural ice helps keep temperatures cool, but the staff watch for other risks.

Image on Previous Page: <u>https://commons.wikimedia.org/wiki/File:Svalbard_seed_vault.jpg</u>

Linguistic Archives are similar to the Seed Vault

- Content is prepared in the best quality possible.
- Individual items are clearly labeled in files and folders.
- Overview metadata is collected on content, language, situation and date.
- The materials are submitted to relevant sections of the archive and an index is maintained.
- The archivists actively work to protect the storage from fire, water, mechanical failures, and corruption.



A paradox of writing history

The more advanced the writing technology, the more it can store but the less durable the written product.

From most durable to least durable:

- Clay tablets and stone (2,000 yrs+)
- Vellum
- Papyrus
- Paper

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Digital word processing (tens of years?)



Digital Storage media are ephemeral

- Life expectancy of digital storage media:
 - Magnetic tape and disks: 10 to 20 years in low humidity.
 - CD-R (write once)
 - Manufacturers say: 100 to 200 years
 - Independent lab says: 30 years

- CD-RW (write many times)
 - Manufacturers say: 25 years
- Traditional "Spinny" Hard Drives
 - 3-5 years depending on use.
- SSD drives
 - It may be too early to know.



Forms contrasted by function

Working form

• The form in which information is stored as it is created and edited.

Presentation form

• The form in which information is presented to the public.

Archival form

• The form in which information is stored for access long into the future.



The Three Forms

Adapted from https://www.archives.gov/records-mgmt/policy/transfer-guidance-tables.html

	Archival Form	Working Form	Presentation Form*
Photos	.TIFF	Photoshop File	.JPG, .PNG
Audio	.WAV, .AIFF	Audacity Project	.MP3, .ACC
Video	.AVI, .MXF, .MOV	Final Cut Project	.MP4, WEBM
Docume nts	Unicode Text, OpenDocumen t Text (ODF), PDF/A, Rich Text Format	Word DOCX, Publisher, InDesign, Google Docs,	

SIL's digital archive

- REAP Repository for Electronic Archiving and Publishing
- SIL's digital archiving system:
 - Released in 2011 as link on *Insite* home page
 - Based on <u>DSpace</u>, an open-source system used by hundreds of universities
 - Uses a web browser to supply metadata through forms and upload new resources
 - Includes RAMP a tool for offline acquisition
 - Deposits marked as "Public" are automatically shared via sil.org and OLAC



July 21, 2021 I am in desperate need of some more seeds Dear Svaldbard Seed Vault, to plant this year. Can you please send some seeds to help save my farm? I've enclosed a list of the seeds I need. Thanks in advance, D. A. Fon, Bafia, Cameroon

Where the analogy to seeds breaks down.

- If someone removes the some of the seeds, the vault now holds less seeds.
- One of the advantages of digital media is that it can be copied without the vault losing the original, so why would the archive still need to limit access?

However...

- Every time the data is accessed, the drives edge closer to failing.
- Drives must be tested for data integrity, which adds to wear.
- Access increases the risk of corruption, viruses, and hacking.





Discoverability

ROAD ENDS

Photo by Lubo Minar or

"But look, you found the notice, didn't you?"
"Yes," said Arthur, "yes I did. It was on display in the bottom of a locked filing cabinet stuck in a disused lavatory with a sign on the door saying 'Beware of the Leopard."
Douglas Adams, The Hitchhiker's Guide to the Galaxy

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Open Language Archives Community

www.language-archives.org

- OLAC is an international partnership of institutions and individuals who are creating a world-wide virtual library of language resources by:
 - Developing consensus on best current practice for the digital archiving of language resources
 - Developing a network of interoperating repositories and services for housing and accessing such resources
- Founded in December 2000
 - Now has 61 participating archives
 - <u>~400,000</u> language resources in catalog



A focused search strategy

SI

http://search.language-archives.org



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A Google search strategy



SIL

Hidden in plain sight

ARCHIVE / INTER A ARCHIVE / INTER A ARCHIVE / ANECDOTE MERMAID Anecdote mermaid Details Next Title Anecdote_mermaid.eaf Restricted Contributor Anecdote_mermaid.wav Restricted 4: Country Genre Discourse Format audio/x-wav text/x-eaf+xml Persistent Identifier Description KM describes how she saw a mermaid, when she was a child. KM describes how she saw a mermaid, when she was a child. Description



Austin's Five Activities of Language Documentation

According to Austin (2014, 60-61; 2006; 2010, 19), the ideal language documentation process contains five activities:

- Recording
- Transfer
- Adding value

ArchivingMobilization



Austin's Five Activities of Language Documentation

To use Nathan's (2006, 363) words:

o "This chapter ∧ assumes that you hope that some of your fieldwork results will one day be applied to the maintenance, strengthening, or revitalization of the visited community's language."



Revitalization

- Language Documentation projects must store archive-quality content.
- Archival-quality materials (AVI, TIFF, and RTF) are NOT the compressed convenient formats used on modern devices.
- While use of these materials is an exercise for the community, revitalization requires use of those materials in ways familiar to the speakers.
 - Today, that means websites, apps, and media.



Archives and Vaults

- Vaults clearly serve a purpose, protecting valuables from the elements, and ourselves for the long term.
- But...we can't forget:
 - What is necessary to turn around the decline of an endangered language.
 - How can these riches be shared now?


https://www.firstvoices.com/

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Joe 'i' Silu Xut'ukw. Joe and Silu Carving.	Joe and Silu Canoe Pulling	Joe and Silu History Lesson.
CONTINUE TO STORY		CONTINUE TO STORY
	'i tsun tswe'wutu Tam making a sweater. CONTINUE TO STORY Image: Contimage: Conto st	i tsun tswe'wutu Iam making a sweater COTINUE TO STORY





Prestige Desktop Prototype



Language Documentation with Prestige A Community-Oriented Process

- 1. Speakers share stories and songs
- 2. Performances are recorded in video or audio
- 3. Recordings are BOLD annotated and translated in SayMore
- 4. Raw data and annotations are archived for future generations





Language Documentation with Prestige A Community-Oriented Process

- 5. Community organizes and categorizes content into lessons
- 6. Content and tagging are imported into Prestige
- 7. Multimedia content can be used interactively at home or in the classroom for heritage and language learning









How can an annotated corpus be used?

1. Academic uses

- BOLD corpora will serve the *academic community* as a basis for:
 - *Linguistic description* providing primary data for the analysis of phonology, grammar, texts, lexicon (even after the language is gone)
 - Linguistic training providing data for examples, problems, and theses
 - *Transcription and analysis*—easier starting from an orally transcribed corpus



2. Bible translation uses

- A lang doc corpus supports BT because...
 - **Translation personnel**—Are more easily identified while working with community on language
 - "Comprehensible input"—From corpus helps in expat's language learning
 - Translation naturalness—Is directly derived from analysis of discourse genres in the corpus
 - Translation key terms—These can be revealed in the texts collected as part of the corpus
 - Language revitalization—Can be a result of sharing documentation products, such as illustrated story books
 - Contributes to well-being and strengthens identity
 - Gives communities time to respond to the gospel





SIL

3. Church uses

- BOLD corpora will serve the *worldwide church* as they relate to minority language communities to support:
 - Language learning providing comprehensible input through oral transcription and translation
 - Oral storytelling approaches providing models for oral performance in the language



4. Govt & NGO uses

- The services of *governmental and NGOs* will benefit from BOLD corpora to support:
 - Language status offering tangible evidence of a people and its language
 - Literature & education providing source material for new literature and educational materials for schools and the community
 - COVID-19 materials



5. Language Community uses

- *Minority language communities* will benefit from BOLD corpora since they provide a basis for:
 - Heritage preservation saving a record of traditional knowledge and of a group's identity as a people
 - Language revitalization providing source material to help people learn their language or learn it better



Language Documentation: Sounding the Depths of a Language Through Annotation

Documentation Project

Source Recordings

Metadata, Index

Oral Transcription

Oral Translation

Some Written Annotation

Community Sharing & Dialogue

Record of Experience

Media Catalog

Language & Culture Learning Materials

Diaspora Engagement, Linguistic Sources, Wider Reach

Literacy Resources, NLP Corpora, etc.



Uncertain times uses

- When **community access is limited**, (like during a pandemic) oral documentation already gathered or quickly gathered can be used for analysis and language learning at a distance
- A team about to leave a project due to sickness or family needs can create a corpus to help **jump start** a new team
- Uninterested communities can end up being engaged about their language, language development, and possible translation through interactions during a documentation project, which is not as threatening as BT, perhaps



Conclusion

- A language documentation corpus can be developed in a fairly short period of time by using a purely oral approach.
- Easy access to these corpora will:
 - Address many needs of the scientific community, the worldwide church, governments and NGOs, language communities, and contributes to translation.
- Archiving such corpora will:
 - Ensure long-term access to the recordings, even if the language one day falls silent.

