The role of metadata in the infrastructure for archival interoperation

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The problem: Sharing

- Sociolinguists are asking each other:
  - How do we archive our corpora so that they can be shared?
- We need to be able to
  - Compare current findings with previous findings to describe change over time
  - Compare findings from multiple speech communities to describe synchronic differences
  - Study someone's data to confirm their findings

With sustainability

- And we want to keep doing these things far into the future.
- But given the relentless:
  - Entropy that degrades digitally stored information
  - Innovation that obsoletes hardware and software
  - Discovery that provides new ways of doing things
- How do we keep our corpora from
  - Falling into disuse, then
  - Slipping into oblivion?

Road map for talk

1. Foundational concepts:
   - Five *necessary conditions* for the sustainable sharing of sociolinguistic corpora
   - Four *key players* in the infrastructure of sustainable sharing
   - Three terms: *archive, metadata, interoperate*
2. Corpus-level metadata and OLAC as a global infrastructure for corpus sharing
3. Observation-level metadata as the basis for data interoperation between corpora

Necessary conditions

- In order for a corpus to be shared today, it must be:
  - **Discoverable**
  - **Available**
  - **Interpretable**
  - **Portable**
- And for this to continue far into the future, it must also be:
  - **Preserved**

1. Discoverable

- A corpus cannot be used unless the prospective user is able to find it.
- The key is descriptive metadata:
  - The description of the corpus must be published in such a way that the user to whom it is relevant is able to discover its existence when searching.
  - The description of the corpus must be done in such a way that the user to whom it is relevant is able to judge it as being relevant without having to first obtain a copy.

2. Available

- A corpus cannot be used unless it is available to the prospective user.
- Availability has two major facets:
  - User must have the right to access and use the corpus; the rights must be sorted out when the corpus is created and clarified when it is archived
  - User must know the procedure for gaining access
- Open Access fosters the most widespread use
- Long term access requires persistent URIs

3. Interpretable

- A corpus cannot be used if the user is not able to make sense of the content.
- OAIS standard (ISO 14721) states that:
  - Archives must ensure that resources are “independently understandable” by the designated user community (*i.e.,* no need to consult producer)
- *E.g.,* Document the context of the study, the methodology, terminology, abbreviations, markup conventions, character encodings

4. Portable

- A corpus cannot be used if it does not interoperate in user's working environment.
- A corpus must work with:
  - User's hardware and operating system
  - Software tools available to the user
  - Best practices of the designated user community
- Maximizing portability means:
  - Formats that are open and transparent (not proprietary)
  - Following best practice markup and terminology

5. Preserved

- Use of a corpus cannot be sustained if a faithful copy of the original resource ceases to exist
- Archiving institution must follow procedures to:
  - Ensure that resources are preserved against all reasonable contingencies (*e.g.*, offsite backup)
  - Ensure periodic migration to fresh and current media
  - Ensure that all copies are authenticated as matching the original
  - Keep preservation metadata (provenance, fixity)

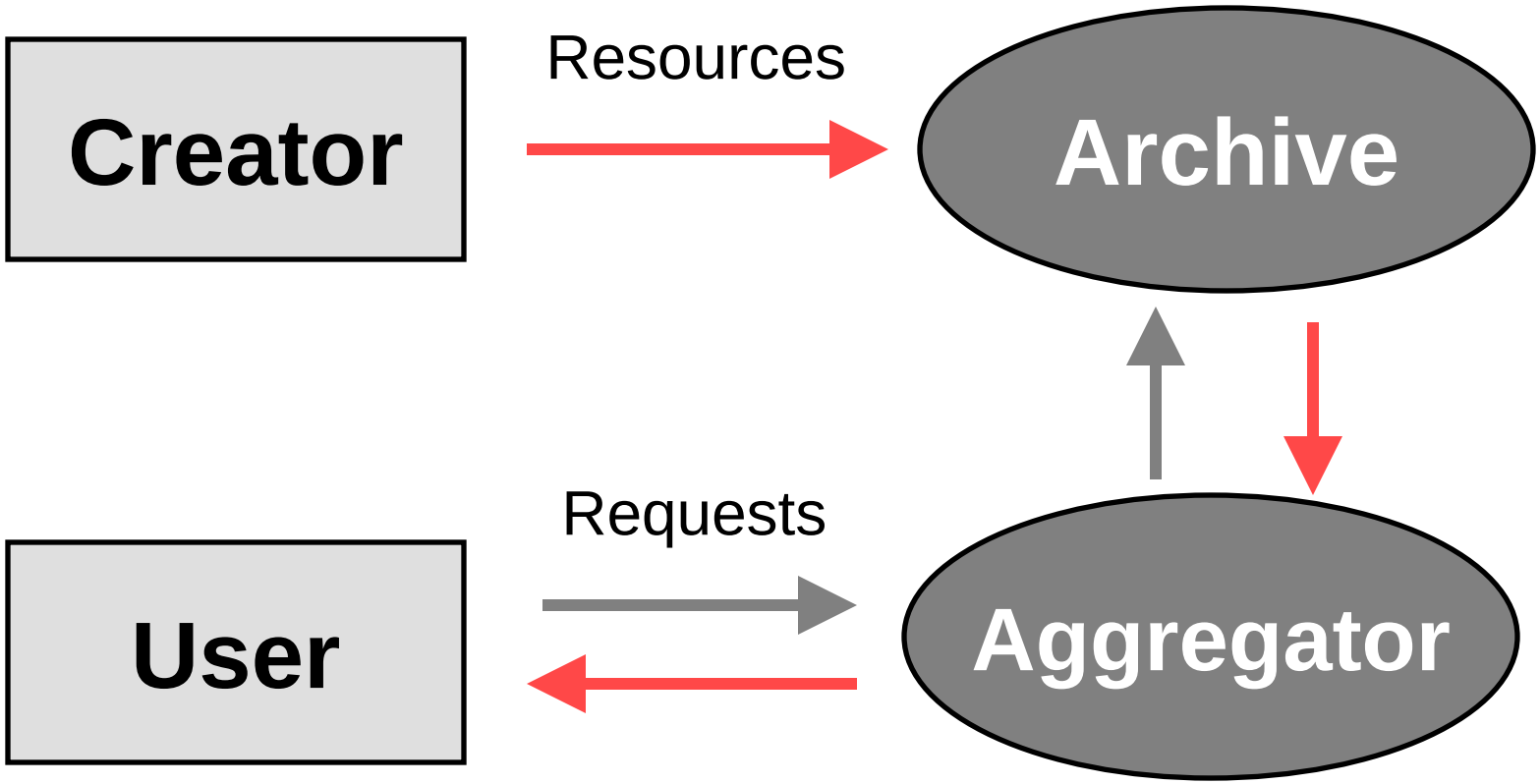
It takes an infrastructure

- ***Sociolinguists*** can create corpora that are *portable* and *interpretable*.
- They cannot *preserve* them long term or provide the means of *access* to all users.
  - That's what ***Archives*** do.
- They cannot make them *discoverable*.
  - That's what ***Aggregators*** do (*e.g.,* Google).

The key players

Creator	A person who creates language resources
Archive	An institution that curates language resources for long-term preservation
Aggregator	An institution that makes resources from many archives interoperate
User	A person who wants to use language resources

The big picture



Terminology: *archive*

- The term is polysemous in common usage.
  - *E.g., Wikipedia:* An **archive** is a collection of historical records, or the physical place they are located.
  - In “Workshop on sociolinguistic *archive* preparation”, the first sense is in focus; but the new emphasis on archiving in the linguistics community, puts the focus on the second.
- Problem and terminological solution
  - If we call a collection of information an archive, linguists will think they’ve “archived” when they’ve created an “archive”.
  - Rather we want them to create an *archivable corpus* and they’ve archived when they’ve placed that in an *archive.*

Terminology: *metadata*

- Literally, “data about data”
- This, too, has multiple meanings. Just as we have data at many levels, so also with metadata:
  - When librarians and archivists talk about metadata, they mean data about the items they are curating
  - When sociolinguists use the term, they often mean data about the individual observations they are taking
- To avoid confusion, I will speak of:
  - Corpus-level metadata vs. Observation-level metadata

Terminology: *interoperation*

- Two or more systems *interoperate* when they can exchange information or services and then make satisfactory use of what is exchanged.
- Two levels of interoperation (corresponding to corpus-level and observation-level) are distinguished:
  - macrointeroperation — interoperation between archives to discover relevant corpora
  - microinteroperation — interoperation between relevant corpora to compare their contents

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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 & services for housing and accessing such resources
- Founded in 2000
  - Now has a library of >100,000 items from 40 archives

Who's involved?

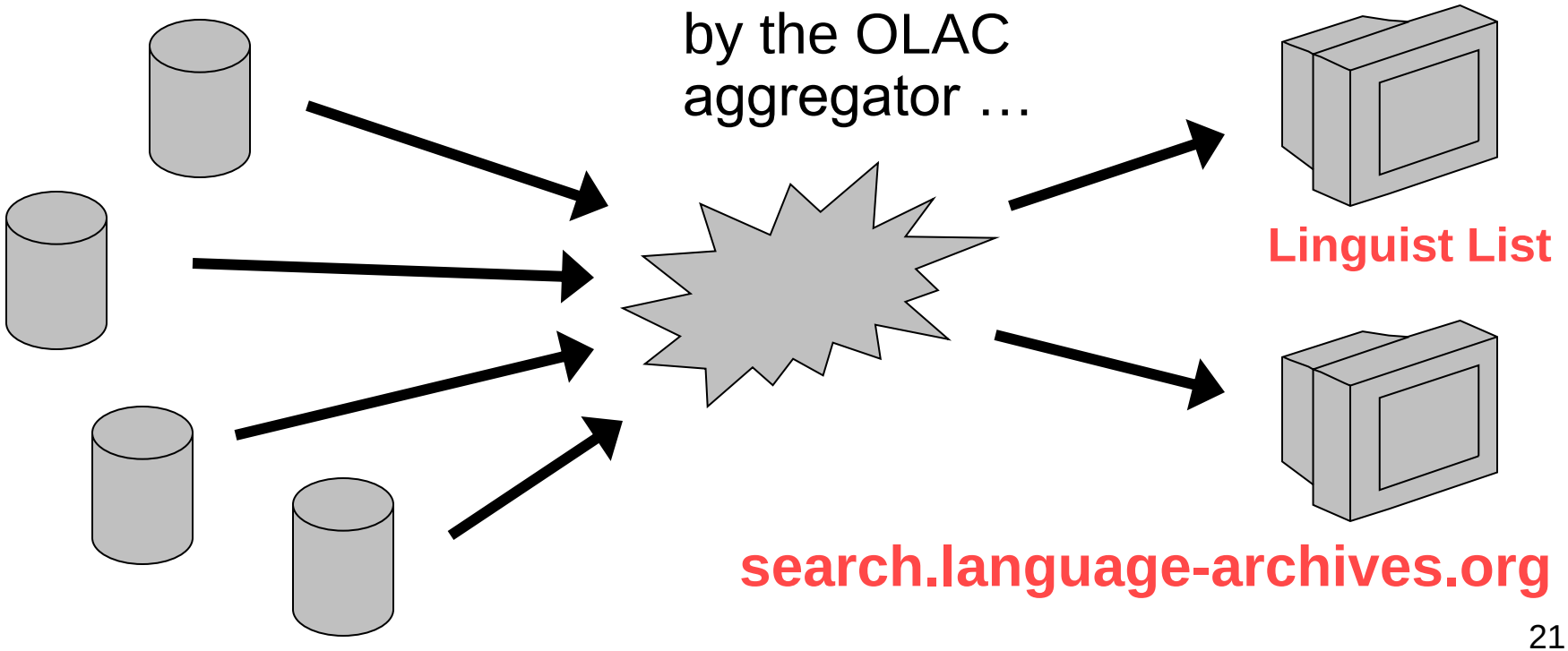
- Aboriginal Studies Electronic Data Archive, Australia
- Academia Sinica, Taiwan
- African Language Materials Archive
- Alaska Native Language Center
- C'ek'aedi Hwnax Ahtna Regional Archive, Alaska
- Califronia Language Archive
- Central Institute of Indian Publications, India
- Centre de Ressources pour la Description de l'Oral
- CHILDES Data Repository
- Comparative Corpus of Spoken Portuguese, Brazil
- Cornell Language Acquisition Laboratory
- Ethnologue: Languages of the World
- European Language Resources Assoc., France
- Graduate Institute of Applied Linguistics
- Kaipuleohone, Univ. of Hawaii
- The Language Archive's IMDI Protal, Netherlands
- Language Commons Language Corpora
- Linguistic Data Consortium Corpus Catalog
- LINGUIST List Language Resources
- Multi-Modal Media File Server, Switzerland
- Multimodal Teaching and Learning Corpora, France
- Natural Language Software Registry, Germany
- Online Database of Interlinear Text (ODIN)
- Oxford Text Archive, England
- PARADISEC, Australia
- Perseus Digital Library
- POLLEX Online, New Zealand
- Research Papers in Computational Linguistics
- Rosetta Project Library of Human Language
- SIL Language and Culture Archives
- Speech and Language Data Repository, France
- Surrey Morphology Group Databases, England
- TalkBank
- The Text Laboratory, Univ. of Oslo
- Tibetan and Himalayan Digital Library
- TST Centrale, Netherlands
- Typological Database Project, Netherlands
- University of Bielefeld Language Archive, Germany
- WALS Online, Germany

Standards for macrointeroperation

- The community has defined standards for the encoding and exchange of corpus-level metadata to permit discovery and sharing:
  - OLAC Metadata — XML format of metadata records
  - OLAC Repositories — Protocol for metadata harvesting and requirements on compatible repositories
  - OLAC Metadata Usage Guidelines — Explains the available metadata elements and how to use them

OLAC infrastructure

- The 40 archives publish catalogs in a standard XML form …
- to be harvested by the OLAC aggregator …
- which supplies information to search services.



OLAC Language Resource Catalog

Search for language resources sociolinguistics go

Navigating the Catalog
- Catalog Home
- Search Strategies
- Advanced Search
- New: Records recently added or modified

Quick Links
- Browse by Language
- Browse by Country
- Browse by Linguistic Field
- Browse by Linguistic Type
- Browse by Language Family

Contacts
- Email Us

More information
- OLAC Homepage
- OLAC FAQ
- Participating Archives

Powered by the DLA

Results: *« First • Previous • Next • Last »*

Showing hits **1 - 50** out of **1827** Show 50

The Sociolinguistics of Language
Morgan, Mary. 1987. Insight Media.

Language and society: The topic of sociolinguistics
Neubert, Albrecht. n.d. Graduate Institute of Applied Linguistics Library.

Memories
Friedrich, Paul. 1997. Publications in Sociolinguistics 2.

Missionaries and Language
Lewis, P. 2001. Elsevier.

Second language proficiency report
Grimes, Barbara F. 1984. Notes on Linguistics 31.

Sociolinguistics 14:1 : Volume XIV number 1 spring/summer 1983
Taipale, Michele M.; Burnich, Joann. 1983. Chico, Cal : Research Committee on Sociolinguistics.

Sociolinguistics, current trends and prospects
Shuy, Roger W. 1973. Monograph series on languages and linguistics.

Currently Used Filters
✓ Query: sociolinguistics

Sort Results By:

Possible Sorts: all

Narrow Results By:

Archive	browse
Online	browse
Subject language	browse
Language family	browse
Geographic region	browse
Country	browse
Linguistic type	browse
Linguistic field	browse
Discourse type	browse

DCMI type browse

Text	1609
Software	39
Sound	6
Collection	5

view more...

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Results: *« First • Previous • Next • Last »*

Showing hits **1 - 6** out of **6** Show 50

BilingBank German-English Eppler Corpus
Eppler, Eva. 2004-03-30. TalkBank.

BilingBank Chinese-Hungarian Langman Corpus
Langman, Juliet; Snow, Catherine. 2004-03-30. TalkBank.

SLX Corpus of Classic Sociolinguistic Interviews
Stephanie Strassel, Jeffrey Conn, Suzanne Evans Wagner, Christopher Cieri, William Labov, and Kazuaki Maeda. 2003. The LDC Corpus Catalog.

Nationwide Speech Project
Cynthia G. Clopper and David B. Pisoni. 2007. The LDC Corpus Catalog.

CSLU: Kids` Speech Version 1.1
Khaldoun Shobaki, John-Paul Hosom, and Ronald Cole. 2007. The LDC Corpus Catalog.

N4 NATO Native and Non-Native Speech
John Grieco, Laurent Benarousse, Edouard Geoffrois, Robert Series, Herman Steeneken, Hans Stumpf, Carl Swail, and Dieter Thiel. 2006. The LDC Corpus Catalog.

« First • Previous • Next • Last »

Currently Used Filters
- ✓ Query: sociolinguistics
- ✓ DCMI type: Sound

Sort Results By:

Possible Sorts: all
- Title [a-z][z-a]
- Id [a-z][z-a]
- Date [a-z][z-a]

Narrow Results By:

Archive browse
- The LDC Corpus Catalog 4
- TALKBANK Data repository 2

Online browse
- No 4
- Yes 2

Subject language browse
- Chinese 1
- Dutch 1
- German 1
- Hebrew 1

view more...

Language family browse

OLAC Language Resource Catalog

Search for language resources sociolinguistics go

back to results

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SLX Corpus of Classic Sociolinguistic Interviews

Title: SLX Corpus of Classic Sociolinguistic Interviews

ID: LDC2003T15
ISBN: 1-58563-273-2

Online: No

Archive: The LDC Corpus Catalog (see archive description)

Contributor: Stephanie Strassel, Jeffrey Conn, Suzanne Evans Wagner, Christopher Cieri, William Labov, and Kazuaki Maeda (author)

Date: 2003-11-25

Description: Release type: General
Non-member fee: 100.00 USD
Reduced-license fee: 100.00 USD
Extra-copy fee: 100.00 USD
Online documentation:
http://www.ldc.upenn.edu/Catalog/docs/LDC2003T15
Application: sociolinguistics
Application: discourse analysis
Related research project: DASL
Related research project: Talkbank
Membership year: 2003
Data source: field recordings

Content language: English

Find Related Information:

- ☐ Archive: The LDC Corpus Ca
- ☐ Online: No
- ☐ Subject language: English
- ☐ Language family: Germanic
- ☐ Language family: Indo-Europ
- ☐ Geographic region: Europe
- ☐ Linguistic type: Primary text
- ☑ DCMI type: Sound
- ☐ Content language: English
- ☐ Date: 2000 - 2009
- ☐ Date: 2000 and later
- ☐ Contributor: Stephanie Strass Wagner, Christopher Cieri, W
- ☐ Title: SLX Corpus of Classic
- ☐ Other format: Distribution: 1 D
- ☐ Other format: Sample rate: 22
- ☐ Other format: Sample type: p
- ☐ Other language: English

Record as published

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  <dcterms:medium>Distribution: 1 DVD</dcterms:medium>
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  <dc:identifier>ISBN: 1-58563-273-2</dc:identifier>
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    http://www.ldc.upenn.edu/Catalog/nonmem_agree/generic.license.html</dc:rights>
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  <dc:subject xsi:type="olac:language" olac:code="eng"/>
  <dc:type xsi:type="olac:linguistic-type" olac:code="primary_text"/>
  <dc:type xsi:type="dcterms:DCMIType">Sound</dc:type>
</olac:olac>
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OLAC metadata standard

- OLAC uses Dublin Core standard which has:
  - Contributor, Coverage, Creator, Date, Description, Format, Identifier, Language, Publisher, Relation, Rights, Source, Subject, Title, Type
- And adds extensions (with controlled vocabularies) specific to our community:
  - Language Identification (ISO 639-3), Linguistic Data Type, Linguistic Field, Participant Role, Discourse Type

Corpus-level metadata for sociolinguistics

- The OLAC standard provides a good starting point with an implemented infrastructure for discovery
- The sociolinguistics community could define further specialization for discovery across the community:
  - Agree on a standard type label
    - *E.g.*, `<dc:type>Sociolinguistic corpus</dc:type>`
  - Use the OLAC extension mechanism to define a controlled vocabulary for relevant resource types
  - Define standardized labels for standard formats and use them in `<dc:format>` elements

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Observation-level metadata

- The data about the individual observations within a corpus is another kind of metadata, *e.g.,*
  - Coding of demographic characteristics
  - Coding of social attitudes
  - Coding of social situations
- Interoperation over these requires definition of:
  - Formats for marking up the structure of primary data and associated metadata (e.g. an XML schema)
  - Controlled vocabularies for values of metadata elements

Automating microinteroperation

- When multiple corpora use the same markup format and controlled vocabularies
  - Parsers can load them into a common database
  - Search and aggregation of statistics across those corpora is then possible within that database
- Doing this on a large scale requires discovering all corpora that follow the supported standards
  - Therefore, exploit macrointeroperation infrastructure
  - Define standard labels for supported formats and vocabularies and use them in corpus-level metadata

Conclusion

- Sociolinguists can share their corpora long into the future if they:
  - Deposit them in archives that will preserve them, make them accessible to potential users, and make them globally discoverable through an aggregation infrastructure like OLAC
  - Use community-wide standards of format for markup and controlled vocabularies for analysis to make them portable and interpretable, not only for stand-alone use but also for automated interoperation across multiple corpora