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MINDING OUR WORDS: AUDIO RESPONSIBILITIES IN ENDANGERED LANGUAGES DOCUMENTATION AND ARCHIVING

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Abstract

Linguists are addressing the predicted the loss of many of the world's languages through an emerging discipline called Language Documentation, which focuses not on theory but on data, and how the data is acquired, represented, presented, and preserved. For most endangered languages, which are not written, much of this data is audio, and unlike many corpora it is likely to be local, particular, opportunistic, and uneven. New questions are raised, such as: what audio data counts as a record of a language that is likely to disappear? how can coverage and quality be measured? for what purposes and by whom will the data be used? For those of us documenting languages, there are four key audio-related issues: audio quality, its accompanying symbolic data, the usage of data for practical purposes such as language revitalisation, and the need for enhanced sensitivities and protocol in audio access and distribution. Language Documentation has benefited from the knowledge and experience of other disciplines, but perhaps it is now sufficiently experienced to offer some useful advice to others. This paper surveys these issues, and also describes the funding, teaching, archiving and publishing activities of the Endangered Languages Project at SOAS.

1. INTRODUCTION

Today the world is facing the impending loss of at least half of its languages. Many linguists are addressing this challenge through an emerging discipline called documentary linguistics. Documentary linguistics (also called “language documentation”) focuses on data, and how data is acquired, represented, presented, and preserved, in contrast to the analytical and theoretical concerns of much of linguistics. And since many endangered languages are not written, the majority of the documentary data is audio. In turn, this raises new and interesting questions, such as: what audio data needs to be collected to count as a record of a language that is likely to disappear? are standard corpus concepts of coverage and balance applicable to endangered language documentations? how can quality be measured? for what purposes and by whom will the data be used?

For those of us concerned with the evolution of documentary linguistics, there are four key audio-related issues. The first is audio quality; typically, linguists need considerable training in order to make good audio recordings. To help address this, we at the Endangered Languages Project at SOAS[1] have developed and run audio training courses in several locations. The second issue is the role and nature of the symbolic data that accompanies audio. While there are increasingly standardised software tools for annotation, transcription, and metadata creation, there are still debates about methodologies and wildly varying practices. Neither is there clear agreement about the roles that symbolic data play in archiving, processing and presenting endangered languages data. The third issue is what we call mobilising: the practical development of resources and products that make use of collected data to serve purposes such as language revitalisation (Nathan 2006). While examples such as pedagogical multimedia can be effective, in general methods for creative and effective presentation and navigation of audio remain limited, being drawn from other areas such as games. The fourth issue, "protocol", arises from the fact that audio directly captures and represents individuals in a way that written data does not. For endangered languages communities, which are often under a range of social pressures, we have to enhance the way we deal with sensitivities and implement protocol in audio access and distribution.

The final section of this paper outlines the Endangered Languages Project at SOAS, and its funding, training, and archiving activities.

[1] Formally known as the Hans Rausing Endangered Languages Project (HRELP). It is located at the School of Oriental and African Studies, one of the colleges of the University of London. The author is the Director of the Endangered Languages Archive, one of the three components of HRELP. See the last section for details.

2. ENDANGERED LANGUAGES AND DOCUMENTATION

Documentary linguistics is a subfield of linguistics that emerged a decade ago as a response to predictions that thousands of human languages will disappear within a century (e.g. Krauss 1992). It aims to develop “methods, tools, and theoretical underpinnings for compiling a representative and lasting multipurpose record of a natural language” (Gippert, Himmelmann and Mosel 2006:v). Language documentation weaves its focus on endangered languages together with “traditional” descriptive linguistics and an emphasis on the appropriate use of media and information technologies. It also adds the ethical dimension of involving language speakers and considering their rights and needs (Grinevald 2003). Austin and Grenoble (2006) describe the core features of documentary linguistics, following Himmelmann 2006:15):

- *focus on primary data* – documentation consists of collecting and analysing an array of primary language data which is also made available for a wide range of users
- *accountability* – access to primary data and representations of it makes for more transparent evaluation of linguistic analyses
- *long-term preservation* – a focus on archiving to ensure that documentary materials are available to a range of potential users into the distant future
- *interdisciplinary teams* – documentation requires input and expertise from a range of disciplines and is not restricted to linguists alone
- *involvement of the speech community* – collaboration with community members not only as consultants but also as co-researchers

The outcomes of documentation are sometimes described in terms of lists of interaction types and genres. For Wittenburg et al (2002), for example, “the corpus should consist of a variety of text types and genres” as in the following list of genres, registers and styles (from Johnson and Dwyer 2002):

- *interaction* – conversation, verbal contest, interview, meeting/gathering, riddling, consultation, greeting/leave-taking, humour, insult/praise, letter

- *explanation* – procedure, recipe, description, instruction, commentary, essay, report/news
- *performance* – narrative, oratory, ceremony, poetry, song, drama, prayer, lament, joke
- *teaching* – textbook, primer, workbook, reader, exam, guide, problems
- *analysis* – dictionary, word-list, grammar, sketch, field notes
- *register* – informal/conversational, formal, honorific, jargon, baby/caretaker talk, joking, foreigner talk
- *style* – ordinary speech, code-switching, play language, metrical organization, parallelism, rhyming, nonsense/unintelligible speech

In addition, audio (or video) recordings are generally at the centre of a documentation, and “should be associated with an orthographic or phonemic transcription, a translation in one of the major languages of the world, and/or glossings in a local lingua franca and English” (Wittenburg and Mosel 2002).

Nevertheless, due to a lack of settled conventions in the field, or perhaps in defiance of the recommendations of Himmelmann and others, documenters often characterise their documentation corpus in terms of number of hours of audio/video and the percentage of it that they have transcribed or annotated (all too frequently only 10 or 20 percent). Funding bodies can also impose quantitative specifications or expectations on the documentary work, such as number of hours recorded or transcribed (Dobrin, Austin and Nathan 2007).

However a survey of the goals and practices of documentary projects that ELDP[2] has sponsored indicates that in fact many projects have a specialised focus on particular linguistic or cultural phenomena or practices or genres[3]. This should be regarded as welcome: it is not realistic to expect documenters to do “everything”; and even if they did, their results are likely to be consequentially thin. As this trend suggests, the content of documentary recordings depends on many factors, including the particular situations, personalities and preferences of the researchers and language consultants (and their families and

[2] ELDP is another component of HRELP and is currently one of the world’s largest funders of endangered language research. See later in this paper for further information about ELDP.

[3] For HRELP-funded examples, see www.hrelp.org/grants/projects.

communities). Recordings and representations of specific phenomena will be of more interest to the researcher, their consultants, and the language community.[4] A more realistic view of documentation outcomes is that they are unique, situated, negotiated collections that depend on the specific people and processes that gave rise to them.

3. DATA AND ARCHIVING

The activities of documentary linguistics as described above suggest some degree of shared interest with corpus work. But the specific context of language endangerment limits any similarities. Although a corpus of a million words or more is recommended for analytical purposes, this cannot be attained for most endangered languages - in other words, for the majority of the world's languages. There are too many undocumented languages, and too few documenters. Languages situations inhibit the amount of data that can be collected, whether due to small numbers of speakers, a moribund state of the languages, or the conduct of documentation activities being attenuated by communities' sensitivities or their physical remoteness. Endangered languages are typically not written[5] so that there are few extant texts to collect and limited literacy traditions to draw on. Thus the content of documentations is likely to be local, particular, opportunistic, and uneven; quite the opposite of the large well-designed, balanced samples and hypothesis-driven nature of many corpus collections.

Archives increasingly play a role in documentary linguistics, providing not only preservation but several other services. Most language archives disseminate materials, functioning as specialist electronic libraries that are equipped to deal with the new genres of documentation. They also provide knowledge about changing technologies for recording, data management, and multimedia publishing. Ultimately, given the scale of language endangerment, language archives are likely to become the repositories of much of the world's linguistic and cultural heritage, and their holdings will provide the only possible basis for reviving many languages.

[4] Although pedagogical effectiveness is rarely taken into account; see Nathan and Fang 2008.

[5] See Csató and Nathan 2007 for a counterexample.

Current endangered languages archives have different emphases. Some are for local community use only, such as the archive of the Squamish Nation in Canada, some have regional coverage (e.g. AILLA, Paradisec) and others are international (DoBeS, ELAR). Some are associated with a research institute (LACITO, AIATSIS), while some are attached to documentation funding bodies (DoBeS, ELAR). Some archive only digital resources (e.g. DoBeS, ELAR), while others also hold paper and other "legacy" materials (ANLC). For further information about these and other archives, see the appendix.

For most of these archives, limited funding means decisions have to be made about which materials to curate and preserve. For ELAR, which is mainly a repository for ELDP grantees (see below), quality control is mainly achieved through the competitive process that leads to the successful award of funding. However this process has its own dynamic and may not be sustainable; for example, among ELDP applicants there is currently an escalation of the number of hours of audio and video recordings that many say they plan to make, presumably in order to better their chances of receiving a grant. However, many of the plans are totally unrealistic given the realities of the speakers, communities, and field situations. In the case of video, not only are documenters planning to overburden themselves (and their consultants), but it is now clear that many documenters are shooting poor quality video (poor both aesthetically and technically), and that the resulting large volumes of low-value data threaten to overwhelm our data storage resources in the medium term.

Fundamentally, archiving consists of managing relationships among providers, users, and the archive itself. For an endangered languages archive in particular, the relationship between the depositor and archive should not stop at the point of depositing, but should be ongoing because such languages and the information about them are rapidly changing; for example, we encourage depositors to supplement or update deposited materials.

4. AUDIO AND ARCHIVING

Fifteen years ago, while working in language education support in South Australia, I began to create interactive multimedia language learning materials. Looking for resources amongst fieldwork recordings, I was shocked by the typically poor quality of linguists' audio recordings. Eventually I realised that these fieldworkers were approaching recording from a different perspective. Recording was, to many of them, a “side effect”, an afterthought approached with little application of skill, or thought about the nature of the recording being made. Their principal results were those written in their field notes and noted in their minds; only occasionally later would the audio cassettes be used to jog their memories, or to serve as “proof” that they had actually done the field elicitations. Recording methodologies were unknown: many used cheap units and their cheap built-in microphones, as often as not placed in random positions on tables, frequently right next to the papers that linguists shuffle while doing their elicitation.

In one multimedia project, my colleague and I decided to include the text and audio for a language narrative (from an Australian Aboriginal language) that had previously appeared as an elicited text in her published grammar. She lent me the original audiotapes (reel-to-reel) that she had recorded in the 1970s so I could digitise the relevant segment to provide the audio component. However, no matter how hard I listened, I could not locate the stretch of audio that contained the story. Instead, I had to reconstruct it by editing together various fragments, repetitions, and rephrasings, which was, of course, just what she had previously done to create the published story text. In other words, her recordings were *evidence* of a story rather than a *performance* of it.

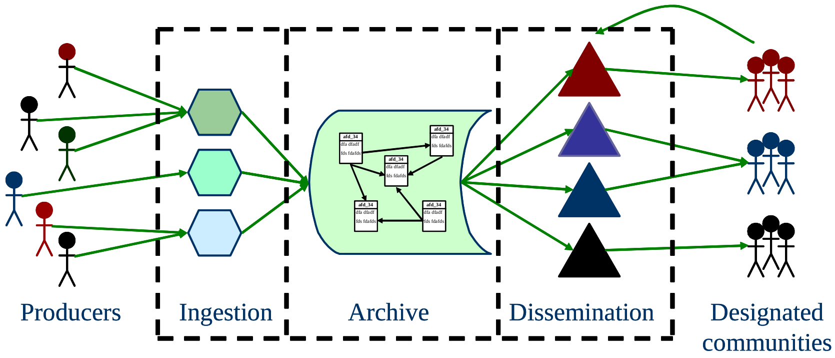
Cases like this show that audio played little part in the epistemology of linguistics (except in phonetics/phonology) before the arrival of documentary linguistics. The materials of linguistics - its data - were written materials, such as dictionaries, grammars, and texts. Audio was (where it played any part) mainly an inconvenience on the route to analysis. This view caused a tragic loss of much linguistic information that would be highly valued today; in Australia, some linguists were even instructed by their funders to reuse tapes (i.e. record over them), and to not “waste” tapes by recording narratives and conversations![6]

Subsequent developments improved this situation. Documentary linguistics brought new activities and reprioritised existing ones; in particular, it emphasised the collection and curation of primary data, most often audio (but also including video). Since the events that are recorded are often unique, it became clear that they should be captured in as much detail and quality as possible, and that in turn the recordings

[6] Personal communication, Luise Hercus.

must be properly archived for the long term. Newly established archives have increased field linguists' access to technical expertise in recording and data management (many of these skills arguably should already have been part of the field linguists' skill set, but at least the new developments have provided a means of addressing the deficits).

The influence of the broader digital archives environment has been positive; for example by emphasising the role of metadata and encouraging depositors to collect and manage it. Some archives, such as ELAR, are based on an architecture developed by the Open Archives Initiative (OAIS 2002), which provides a model extending beyond preservation to dissemination, and therefore defines audiences to be served ("designated communities"), and the kinds of formats and materials that each audience might need. By providing such centres for the discovery and dissemination of materials, today's archives are helping to fulfil Bird and Simons' accountability objective (Bird and Simons 2003:563, Thieberger 2004).



OAI model (Munro and Nathan 2005), after OAIS (2000)

In addition, ELAR at SOAS has emphasised mobilisation - the development of deposited materials into practical resources that can be used by language communities trying to combat the decline of their languages. The rationale for archive involvement in mobilisation is that preserving materials should not mean reducing communities' ability to use them when they need or wish to do so; in addition, archives often have the relevant technical expertise to adapt electronic materials. We currently do this type of activity through training and collaborative multimedia development work, and plan to increase our contribution in this area in the future.

Documentary linguistics has also benefited from changes in media and information technology. The technology that has seen the greatest improvement in terms of increased quality at lower prices in recent years is audio recording equipment. Only five years ago, language documenters were using minidisc, DAT, cassettes or direct-to-CD; only a very few early adopters were using solid state devices. The situation has changed so thoroughly that in a documentation workshop held at the Tokyo University of Foreign Studies early in 2008, most participants arrived equipped with their own Edirol R-09 solid state recorder! The opportunities provided by new high quality, compact digital recording equipment, powerful but cheap computers and software, new sources of advice and training, and the popularisation of audio processing, mean that it is now reasonable to expect fieldworkers to create high quality recordings. However, the field has been slow to respond by gaining the appropriate skills for making recordings at the quality levels that are now possible (and appropriate for documentation goals). The field currently experiences a state that I call the "Edison problem", which could be formulated like this: In 1878, the American inventor Thomas Edison gave the world his invention of the recording phonograph, and wrote his prediction that it could be used for "the preservation of languages". Imagine his frustration, if he were alive today, to find that despite huge advances in audio apparatus available to linguists (as well as the added benefits of reduced size, weight and price), recording quality remains patchy and there have been no notable developments in genres for presentation and usage of audio.

4.1 Archivism

Documentary linguistics relies extensively on electronic technologies. Audio and video recording, data management, and many other activities including transcription and lexicography, are all performed using electronic devices and computers. Recordings and data must be digitally archived.

A technology focus has had important benefits, such as raising awareness about data management, especially "portability" (Bird and

Simons 2003) and its various components such as consistency, explicitness, use of standards, and care for primary data. The degree that documenters can undertake data management methods that achieve portability will be a determining factor for the sustainability of digital language archives; most language archives have limited human resources for the conversion of incoming materials to archival formats.

It is thus true that the outcomes of documentation and archiving depend on the ways in which documenters deploy technologies.

However, many documenters, rather than taking a holistic, artisan-like approach to the skills involved in meeting their linguistic and humanitarian goals, have come to believe that their methodologies are largely governed by a selection of technical desiderata such as audio resolutions and file formats. I use the term "archivism" to describe such formulations of documentary linguistic practices that focus on particular technological or quantitative criteria.

The substitution of awareness of technical parameters for deeper understandings of the art and science of audio recording is easily found in documentation literature and amongst accounts from documenters that I meet at training and other events. For example, many have a basic awareness of audio file parameters and an abhorrence of compressed audio, but little or no knowledge of effective recording methods (especially about microphone types and handling, which are the greatest determiners of audio recording quality), acoustics, or managing noisy recording environments. One of our trainees had believed that the cheapest two-dollar microphone was sufficient because he worked in a very noisy environment! A general result of these technically-focused formulations is that a narrow range of properties such as recording hours, data volume and file parameters have become seen as reference points for the "quality" of documentations, or for meeting "best practice" (Austin, Dobrin and Nathan 2007:62). It is not surprising that Dietrich Schüller, Director of the Vienna Phonogrammarchiv[7] described linguists' audio recording methodology as some of the least scientific practice of all disciplines.[8]

[7] See http://www.pha.oeaw.ac.at/home_e.htm.

[8] ELAR Workshop: 'Audio Recording, Digitisation and Archiving,' by Dietrich Schüller, Phonogrammarchiv, Austrian Academy of Sciences. Held at SOAS, February 13, 2006.

5. SYMBOLIC INFORMATION

Audio materials are generally accompanied by some associated symbolic information. In music publishing, this symbolic material consists of song title, artists' names, publisher, and perhaps lyrics and other information. In documentary linguistics, it typically consists of metadata together with content- or time-related material such as a time-aligned transcription or annotations. While metadata, as generally understood, is distinguished from transcriptions due to its primary use in cataloguing, all symbolic information associated with language recordings can be considered to be metadata (Nathan and Austin 2005). In practice, metadata means different things to different people. To linguists, the term metadata is rather like a reminder to collect and manage contextual information about an event such as details about speakers, settings, equipment, rights, and permissions. Given documentation's emphasis on primary data for a range of communicative events, metadata might be thought to have priority over transcriptions, which can potentially be made later once the researcher's knowledge of the language increases, and which can continue to be worked on. However, in practice, making transcriptions is part of the documenter's language learning process in the field, and, in addition, documenters increasingly transcribe in collaboration with speakers (and/or train community members to transcribe). As a result, the anticipated order is reversed: transcribing tends to take place in the field setting and metadata creation is (unfortunately) often left till later.

For the archivist, symbolic information is crucial for the operation of the archive. Without symbolic data, custodians and users of digital media are plunged back into some kind of dark ages equivalent to the time before books were invented, when the only way to access information was to experience events in real time and hope to hear something useful! If the documenter never creates or provides sufficient metadata or transcription, the resource is left in the dark, barely findable and unusable, forever (or until someone else provides the symbolic information). Ideally, the richness of symbolic information should be proportionate to the potential value of the materials to users and to the high costs of digital storage. See the section on ELAR below for further information about metadata.

A disciplinary area that has a particular interest in symbolic endangered languages data is linguistic typology, where the focus is on large datasets from a variety of languages. The value of such data for typologists is greatest where they are classified using standard codes (e.g. for language names or morphological glossing) to make statistical comparisons easier. Typologists have strongly urged documenters to develop and apply standard ontologies for coding language phenomena. Although standards can provide a foundation for good practice, while thousands of languages remain undescribed it is premature to propose or prescribe standard ontologies. Human languages and the people who venture to describe them are so diverse and eccentric that flexibility, creativity and uncertainty need to be features of the documenter's representational apparatus.

6. REPRESENTATION AND PROTOCOL

At the Endangered Languages Archive (ELAR),[9] we use the term 'protocol' as a shorthand for the concepts and processes that apply to the respect and implementation of language speakers' rights and sensitivities. Protocol has long been part of corpus methodology; for example, recorded subjects are asked whether their identity can be revealed and measures such as anonymisation are taken. For endangered languages, protocol issues are heightened. Endangered languages communities are typically under social pressures, and vulnerable, so we have to enhance the way we deal with sensitivities and implement protocol in audio access and distribution. Protocol involves more than seeking permissions and applying anonymisation. In small communities it is almost impossible to be anonymous; many within the community know each other very well, so even the briefest remark can reveal someone's identity. This is exacerbated by the priorities of documentation; the most valuable recordings are those of casual conversation, which are most likely to be peppered with personal comments. Even though such materials are effectively anonymised to outsiders, if they are used within the community to support local language goals, they can have unintended consequences.

[9] See the following pages for further information about ELAR.

People whose voices have been recorded may express sensitivities and restrictions of various kinds - political, religious, personal, or ownership by themselves or some wider group. Therefore it is important that fieldworkers elicit and record protocol information and convey them along with the documentation, including to the archive.

The coding of the protocol information needs to be flexible and detailed enough to capture what is important to speakers, but at the same time be formalised enough to be able to be effectively implemented by the archive. At ELAR we researched and developed a protocol grid which has worked well so far (see www.hrelp.org/archive/depositors/depositform). Soon we will support the implementation of restrictions not only at the deposit level (i.e. to all items in a deposit) but to individual files and even parts of files. This is important because it would be against the spirit of our work to if depositors need, for example, to deny access to a one hour audio recording because within it there are one or two minutes of sensitive material. We have yet to implement the full range of protocol processes I have described here but plan to do so over the next 12 months.

Protocol information is not immutable: it changes over time. Language endangerment is inevitably connected with communities under stress, and sensitivities and permissions change from time to time, depending on cultural factors. For example, name taboos following death apply in many Australian Aboriginal communities, so that names should be suppressed for an appropriate period following a death, and then restored after sufficient time has passed. ELAR is thus building a web-based system for depositors to manage their protocol and other metadata.

It is worth noting that on the positive side, there are real advantages to the fact that audio (and video) can, unlike written data, directly represent individuals in an unmediated way. The ability to present direct voices and identities of speakers to end-users is a valuable aspect of multimedia language learning resources (Nathan 2006).

7. THE ENDANGERED LANGUAGES PROJECT AT SOAS

The Hans Rausing Endangered Languages Project (HRELP) was established in 2003 with a commitment of 20 million pounds (UK) from the Lisbet Rausing Charitable Fund (now called ‘Arcadia’) to document as many endangered languages as possible and to encourage the development of documentation skills. It has three components:

7.1 ELDP

The Endangered Languages Documentation Programme (ELDP) is providing approximately 15 million pounds (UK) over a 10 year period in competitive research grants to encourage the development of linguistic fieldwork in endangered languages and to support documentation of as many threatened languages as possible. ELDP is governed by an international selection panel; its grants are administered by the Research Office at the School of Oriental and African Studies (SOAS).

In its five years of operation, ELDP has funded projects in most corners of the world, including Taiwan. Some projects have aimed at comprehensive documentation of a spoken language, some have documented sign languages (e.g. 'Langue des Signes Malienne', Mali, Victoria Nyst, Leiden University), while others have focused on particular phenomena ranging from songs ('Arandic Songs project', Australia, Dr Myfany Turpin, University of Queensland) to ethnobotany ('Documentation of Betta Kurumba', India, Dr Gail Coelho, SOAS). Others have had a particular interest in methodological issues, such as revitalisation and pedagogy ('Kalmyk/Oirat: Development of teaching materials for Kalmyk national schools', Russia, Mrs Elena Indjieva, University of Hawaii), naturalistic discourse ('Natural Discourse of the Warm Springs Last Speaker of Kiksht', USA, Dr Nariyo Kono, Portland State University) and digital dissemination ('Digital Archiving Yami Language Documentation', Taiwan, Der-Hwa Victoria Rau, Providence University).

7.2 ELAP

The Endangered Languages Academic Programme (ELAP) runs postgraduate courses in language documentation at SOAS under the leadership of Professor Peter Austin. ELAP offers an MA in Language Documentation and Description, where there are two streams that students can follow; one focusing more on core linguistic aspects, the other on the skills needed by educationalists and activists. Many of the students go on to doctoral studies in Field Linguistics. Currently ELAP has 16 PhD candidates, one of them recently being the first in the programme to complete his doctorate. In addition, ELAP hosts post-doctoral fellowships, research associates, and runs an extensive programme of public workshops, seminars, training events, and publishing.

7.3 ELAR

The Endangered Languages Archive (ELAR) provides digital archiving and associated services for ELDP grantees and others working with endangered languages. We are focused on digital preservation and providing local facilities, but dissemination of materials is also a priority; currently, we are working on an innovative online dissemination system which will be operational in 2009. In addition, we also participate in various “mobilisation” projects to help create usable language materials for communities.

We are increasingly involved in delivering documentation training to various groups - ELDP grantees, ELAP students, and at international documentation training workshops including in France, Ghana, and Japan. ELAR partners ELAP in many activities, and also participates in various international collaborations including in the DELAMAN network, an umbrella body for archives engaged with endangered languages and cultures worldwide (see Appendix).

ELAR currently holds about 45 deposits with a total volume of approx 1 TB. The average deposit is about 25 GB. However, sizes vary widely, with a few much larger deposits, and the median size around 10GB. We expect the total volume to nearly double over the next year as more funded projects are completed. The following table illustrates some data types of interest for a representative sample of 60% of holdings:

Data type	**Files**	**Volume (MB)**
audio	6,312	360,411
image	2,221	28,592
video	895	208,995
text	781	32
msword	404	223
trs	246	5
eaf	176	33
pdf	134	196
lex	29	9
imdi	26	1
xls	19	1

Data types by number of files and volume (representative sample, about 60% of collection as at February 2008)

For its metadata, ELAR has taken a "middle path" approach. We have provisionally defined the archive's metadata as a set of about 40 elements, which are more comprehensive than the OLAC set (which slightly extends Dublin Core's 15 elements)[10] but less numerous than the approximately 70-element IMDI set created for language documentation by the Max Planck Institute, Nijmegen.[11]

On the other hand, we also hold depositors' metadata in a variety of formats. In the early days of ELAR's development, it was decided that because language documentation is an emerging rather than a mature field, it would be fruitful to observe what happens when documenters are encouraged to produce metadata that caters to their own research environments and needs. As a result, from a survey of approximately 40 early data deposits, we can now state that:

[10] See http://www.language-archives.org/OLAC/metadata.htm.

[11] See http://www.mpi.nl/IMDI/. Details of the ELAR set will become available on our website http://www.hrelp.org/archive.

- each documentation project can have its own unique “recipe” for metadata, depending on factors ranging from the language’s typology to preferences of researchers and consultants, to community values
- each language documenter has his/her own skills and priorities that influence what metadata they wish to encode and how they can best encode it
- since our goal is to maximise the quality and quantity of metadata for each deposit in its own terms, then it is wise to support diversity.[12]

8. CONCLUSION

As documentary linguistics has developed over the last ten years, it has benefited from the knowledge and experience of other disciplines. Perhaps documentation has now gathered enough experience to be able to offer useful advice to others. This survey of audio and archiving issues in documentation has attempted to identify issues which most spoken corpora will face, especially those concerned with endangered languages materials. Whatever might be around the corner - perhaps a “YouTube” model of archiving - we may discover together.

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[12] Of course this also imposes costs. To attain robust and portable formats for preservation (Bird & Simons 2003), we will need to convert and migrate various document formats. For example, many documenters currently find that Excel spreadsheets provide the right balance between their skills and their representational needs; these documents will need to be converted to marked up plain text for preservation.

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APPENDIX: LISTING OF SOME ENDANGERED LANGUAGES ARCHIVES

Aboriginal Studies Electronic Data Archive, Australian Institute of Aboriginal and Torres Strait Islander Studies. http://www1.aiatsis.gov.au/ASEDA/

Alaskan Native Language Center Archives (ANLC) University of Alaska. http://www.alaska.edu/uaf/anlc/

Archive of the Indigenous Languages of Latin America (AILLA), University of Texas. http://www.ailla.utexas.org/site/welcome.html

Digital Endangered Languages and Musics Archives Network (DELAMAN). http://www.delaman.org/

Dokumentation Bedrohter Sprachen Archive (DoBeS), Max Planck Institute Nijmegen. http://www.mpi.nl/DOBES

Endangered Languages Archive (ELAR), School of Oriental and African Studies. http://www.hrelp.org

Langues et Civilisation et Traditions Orale (LACITO), Centre National de la Recherche Scientifique. http://lacito.vjf.cnrs.fr/archivage/index.htm

Leipzig Endangered Languages Archive (LELA), Max Planck Institute Leipzig. http://www.eva.mpg.de/lingua/resources/lela.php

Pacific and Regional Archive for Digital Sources in Endangered Cultures (Paradisec), University of Melbourne/University of Sydney. http://paradisec.org.au/

Rosetta Project, Long Now Foundation. http://www.rosettaproject.org/