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# Workshop on Data Management Plans for Linguistic Research



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[dx.doi.org/10.1371/journal.pbio.1001779.g001](https://doi.org/10.1371/journal.pbio.1001779.g001)

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# Workshop venues

LSA Summer Institute, U Kentucky, July 29-30 2017

University of Oregon Department of Linguistics Colloquium, November 11 2017

LSA Annual Meeting, Salt Lake City, January 4 2018



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# Info Session 1: Welcome and workshop overview



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# Who we are

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# Aims for this workshop

To understand what a DMP is and why it's important.

To understand the components of a DMP.

To learn where to turn to fill in the gaps in our knowledge.

To draft a DMP for a real (or imaginary) linguistic research project.



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Susan

# What this workshop is not

This workshop is not a basic data collection class.

This workshop is not a basic data management class.

However, we *will*

remind you of digital best practices and

show you how to describe your plans for your digital data to satisfy a DMP.



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Susan

# Code of Conduct

We include in our definition of harassment the deliberate “scooping” or stealing of ideas from your colleagues without express written agreement and appropriate attribution.

This means that if you hear a great idea from another workshop participant and you want to use it, ask first. If this work is their intellectual property, they reserve the right to deny your request. For those concerned about their intellectual property, you are not required to share any such information and are free to use placeholders or dummy text in any documentation. However, idea sharing as happens in this workshop can not only improve the project, but also lead to fruitful collaborations and partnerships in the future.

[Link for more info & reporting info.](#)



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Lauren

# Schedule - Overview

7 Information Sessions followed by Working Sessions in small groups...

Overview of DMPs

Data collection

Legal and ethical considerations

Backup and storage

Documentation and metadata

Selection and preservation

Resources and responsibilities

...With time in between each section for drafting bullet points, asking questions and discussion.



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Overview - Andrea 9-9:30

Data collection - Andrea 9:30 - 10:15?

Legal - Lauren 10:15 - 11

Backup - Andrea - 11-11:45?

Documentation - Andrea 1:15-1:50

Selection - Lauren 2:00-2:30

Resources - Lauren 2:30-3



# What is a DMP?

A DMP is

- a written document
- outlining plans for handling (collecting, describing, organizing, processing, analyzing, preserving, sharing)
- all of the data resulting from a research project
- in the short term and the long term.



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# What is a DMP?

A DMP includes

- Detailed procedures for data collection
- All aspects of organization and processing *before your data leaves your lab*
- A *plan to have data leave your lab* so that others can find and access it in perpetuity
  - with proper attention to legal and ethical concerns



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Susan

# Why do we need DMPs?

Because digital data has  
a few problems with longevity.



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Andrea

Why do we need them? Why do funders require them? Why should I require them?

# Digital data problems with longevity

Three central problems need to be solved:

The **media** problem

The **format** problem

The **storage and access** problem



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# The media problem

The more advanced our technology becomes, the more ephemeral it is:

- Hard drives: 5 years <
- CDs/DVDs: 10 years <
- Cassette tapes: 30 years <
- Paper: 100-200 years (+) <
- Stone tablets: ∞



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# The media problem

Not only do media degrade...



...devices for reading them become obsolete!



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...requiring data rescuers and archivists to use machines like “Frank”



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“Frank” (“Frankenstein” Digital Forensics Machine) Photos by Ashley Taylor, Archivist, University of Pittsburgh. Used with permission.

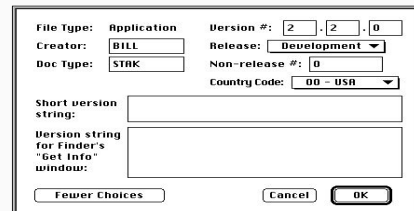
# The format (or encoding) problem

**Proprietary formats** are controlled by intellectual property law and are subject to the whims of the developers

- Cease development or support
- Charge fees to access data

Example: Hypercard dictionaries (eg Gwich'in)

- Data now ostensibly lost



A screenshot of a dialog box for Hypercard dictionary metadata. The fields are as follows:

File Type:	Application	Version #:	2 . 2 . 0
Creator:	BILL	Release:	Development
Doc Type:	STBK	Non-release #:	0
		Country Code:	00 - USA
Short version string:			
Version string for Finder's "Get Info" window:			
Fewer Choices		Cancel	OK



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# The storage & access problem

Data **cannot be effectively stored for longevity by individuals**, who

- Lack expertise in data migration to new formats
- Inevitably lose interest, retire, or die

Only an **archive** with an institutional commitment to migrating and backing up data is an effective locus of long-term storage



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# The storage & access problem

Data must be **discoverable** and (correctly, ethically) **accessible**.

Without proper metadata, we don't know anything about the data...

...or even that it exists!

Data that isn't accessible by anyone is useless.



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# A DMP addresses these problems

A DMP is your plan to protect your digital data.

It helps YOU.

It helps YOUR FUNDER.

It helps YOUR RESEARCH.



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Video:

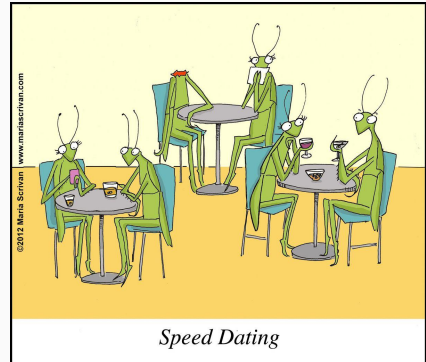
<https://www.youtube.com/watch?v=pbBa6Oam7-w&feature=youtu.be>

# Working Session 1: Speed data-ing!

Take a few minutes to think about your project.

- What is the nature of your research project?
- What research questions are you addressing?
- What kind of data will your project produce?

Then be ready to briefly summarize your study to your speed data-ing partners in **one minute!**



- Lauren
- Show the Google Doc Template to students now

# Info Session 2: Data Collection



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Andrea 10:15-11:15

# Thinking about your data for your DMP

DMPs are less about the *contents* of your data, and more about the *digital parameters of your data*.

NOT:

“I will collect sentences, paradigms, and grammaticality judgments.”

(That goes in your project description!)



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# Thinking about your data for your DMP

BUT RATHER:

“I will collect WAV audio recordings (44.1Khz/16bit) and TIFF images of my field notebooks.”

DMPs are about data types, file formats, resolution, quantity...

...and **convincing the funder** you know the current best practices for digital data.



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# Thinking about your data for your DMP

Helps to think about the *content* of your data to determine the digital parameters.

Language documentation → narratives, elicitation, grammaticality judgments, dictionaries, IGT → audio files, video files, images, text files, XML files, databases, metadata...

Laboratory phonetics → audio files, Praat text grids, R code, metadata...

Others?



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# Describing digital parameters of your data

What type(s) and format(s) will your data be in?

TYPES	FORMATS
Audio files	.wav, .mp3, .aiff...
Video files	.raw, .mpg, .mp4...
text	.txt, .xml, .pdf, .eaf...
database	.db, .fp7...



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# Describing digital parameters of your data

Selecting file formats:

You need to know which formats comply with the *best practices in your field*.

- Formats need to be selected with **longevity** in mind
  - Nonproprietary and/or open-source
  - High-resolution
  - As uncompressed as possible
  - Standards-compliant (eg Unicode)



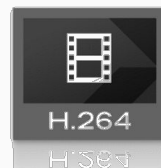
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Link to a few readings, websites. EMELD, Bird&Simons,

# Describing digital parameters of your data

Selecting file formats:

- Formats and software also need to facilitate **access**
- Balancing longevity with ease of access
  - Will you create both high-resolution and low-bandwidth versions? WAV and MP3?
  - What is current for archives? Eg Video formats



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Link to a few readings, websites. EMELD, Bird&Simons,

# Describing digital parameters of your data

What is the approximate *volume* of your data?

- In GB?
- In time?
- In number of files?
- Pages, tables, etc.



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# What standards/methods will you use to collect data?

Does your subfield have an accepted standard or method for data collection?

If so, cite it! **Demonstrate you know the standards.**

For example, in language documentation:

Bird, Steven, & Gary Simons. 2003. Seven dimensions of portability for language documentation and description. *Language* 79(3):557-582.

Himmelman, Nikolaus P. 1998. Documentary and descriptive linguistics. *Linguistics* 36: 161-195.



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# What equipment will you use?

Be as specific as possible!

*At least list specs* of your equipment.

- NOT “Digital recordings will be made.”
- RATHER: “Digital recordings will be made with a solid-state digital recorder with external XLR condenser lavalier mic, at minimally 44.1 kHz / 16bit resolution.”

If you can, list brands and model numbers.



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# How will you name and structure your files?

In file naming:

- Use a **unique ID** that is not dependent on file structure
- File names can be *semantic* or *non-semantic*
- No spaces or funny characters
- Select a convention and stick with it.
- **Check with your archive!**

Folder structure is for your convenience, but should not be used for file identification.



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## Folder structure and file naming



"Ahtna"



"Tazlina\_Village"



"Louisa\_Jones"



"fish\_story.wav"

Is this a good folder structure and file naming strategy?

No.

- Dependent on folder structure for identification.
- Could be many fish stories.
- Files can get moved.



## Folder structure and file naming



"Ahtna"



"Tazlina\_Village"



"Louisa\_Jones"



"aht-LJ-20170729-fishstory.wav"

How about this one?

Yes!

- File name is unique
- "Semantic" file name with a lot of identifying info for your convenience
- File structure also only for your convenience
- May be too long for some tastes (or servers)

## Folder structure and file naming

Or this one?

Yes!

- Embedded file structure not necessary
- Files will order alphabetically



"Ahtna"



"aht-LJ-20170729-fishstory.wav"

## Folder structure and file naming



"Ahtna"



Or even this one?

Yes!



"ABK-0001"

- File name is still unique!
- Non-semantic
- All catalog info is kept in your metadata catalog
- FILE NAMES NEVER REPLACE YOUR METADATA!

# How will you handle data versioning?



**Git** is a great tool for version control!

Free, open source, small, fast.

Keeps track of version changes across users or just you.

Designed for software dev but works on many file types.

<https://git-scm.com/>



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# How will you handle data versioning?

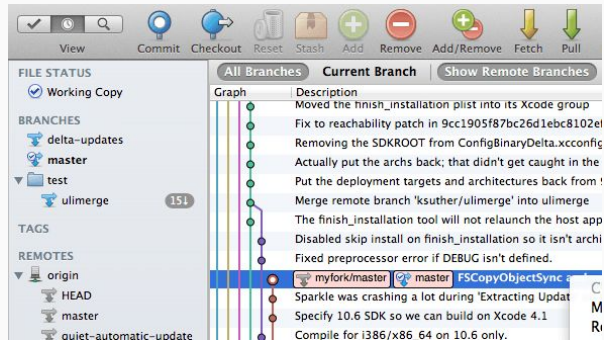


Use a GUI to make git even easier

- SourceTree ([link](#))
- GitHub Desktop ([link](#))
- TortoiseGit ([link](#))
- GitKraken ([link](#))

Also Pachyderm ([link](#))

Like git, but for data.



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SVN

# How will you handle data versioning?

Or a simple solution may fit your project:

Dates are a good versioning tool.

Use ISO format: YYYY-MM-DD

But watch out for international collaborators!

dataset\_2017-07-15.txt

dataset\_2017-07-16.txt

dataset\_2017-07-17.txt



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# What about quality assurance?



For some research, quality assurance procedures should be described.

- Inter-rater reliability (for coding)
- Periodic self-audits (for databases, metadata)
- Periodic informal presentation of findings to colleagues for feedback (for analytical results)
- Data entry validation workflow



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# Working Session

1. What **type, format, and volume** of data will you be producing?
2. Do your chosen formats and software enable **sharing, high-resolution preservation, and long-term access** to the data?
3. Are there any **existing data** you can reuse?



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# Working Session

## Guidance:

- Give a **brief description** of the data, including any existing data or third-party sources that will be used, in each case noting its content, type and coverage.
- **Outline and justify your choice of format** and consider the implications of data format and data volumes in terms of storage, backup and access (more on storage and backup later).



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# Working Session

4. What **standards and methods** will you use?
5. How will you name and structure your **folders and files**?
6. How will you handle **versioning**?
7. What **quality assurance processes** will you adopt?



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# Working Session

## Guidance:

- Outline **how the data will be collected/created** and which **community data standards** (if any) will be used.
- Consider **how the data will be organized** during the project, mentioning for example naming conventions, version control and folder structures.
- Explain how the **consistency and quality of data collection** will be controlled and documented.



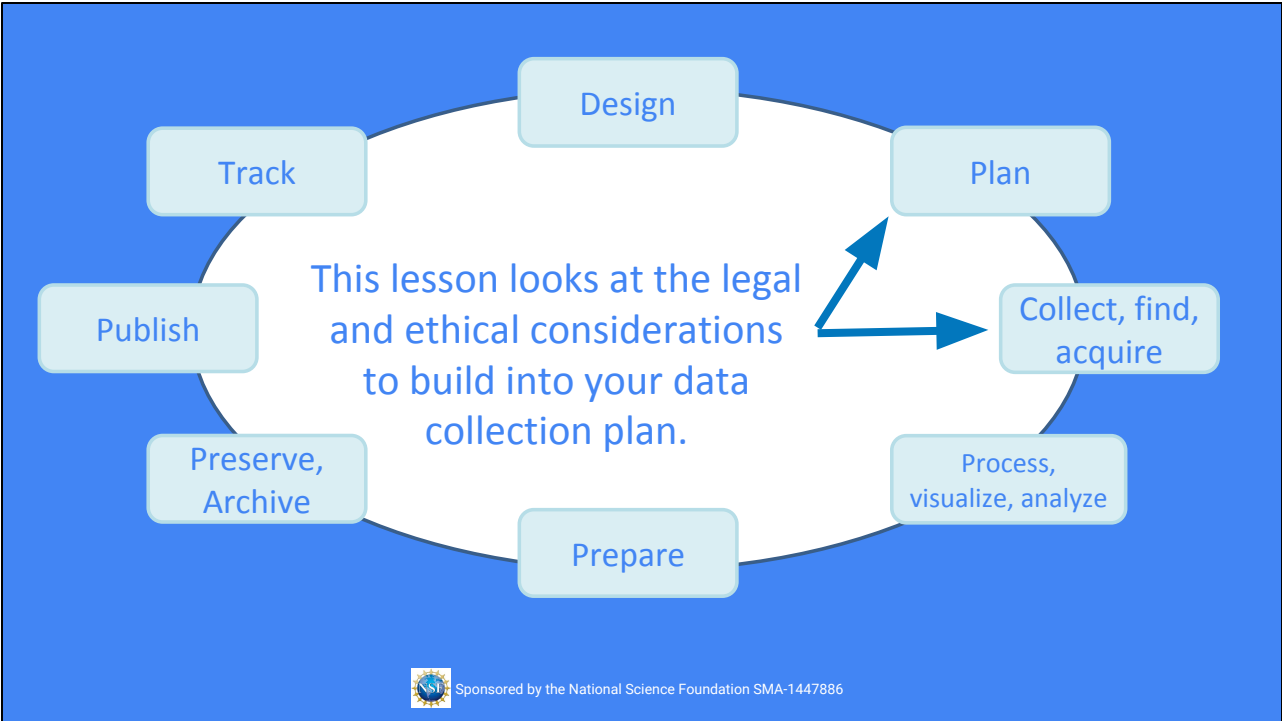
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# Info Session 3: Ethics and Legal Compliance



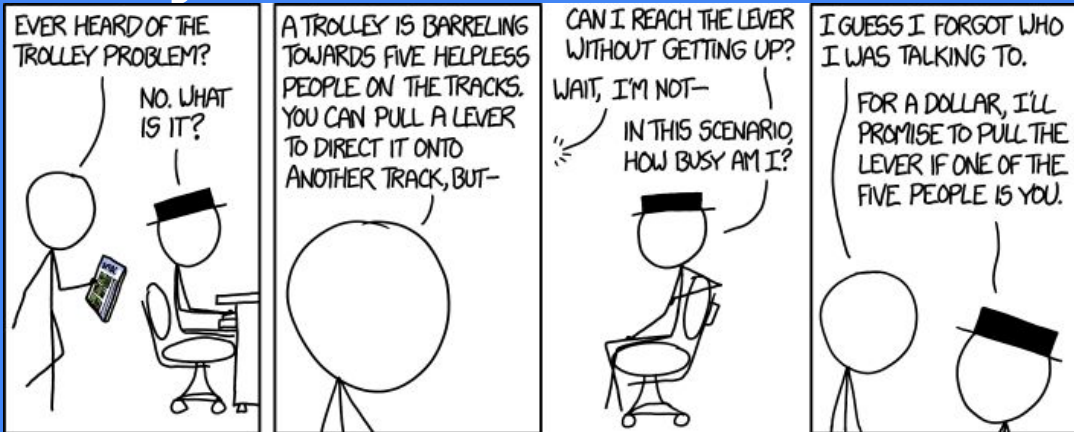
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Lauren



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# Why does this matter?



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Ethics, usually, everybody can understand. Most have to take a course on research ethics for your Institutional Review Board, and we are embedded in a culture of data sharing and ethics now. But legal compliance? A lot of folks aren't aware of the legal issues surrounding research and data, and some are too busy (or lazy, or profit-motivated, as in the xkcd comic) to think about ethics and legal compliance, and can run into issues. Not judging your reasons, but let me tell a short cautionary tale.

Back in 2007, I began a project that would turn into the data source for both my Master's Thesis and my Dissertation. It was an ethnography of online gamers and the language they used to create community. I did not give a second thought to how I gathered my data because it's data, right? And I'm gathering it, so it's mine, right? Over about 5 years, I collected data. I had about 1.5 million lines of in-game chat. That's well over a gig of text-based data. When the time came to finish my dissertation, I also wanted to share this immense chat log that I had gathered so that others could use this resource for their own projects.

In talking to a helpful librarian who was in charge of our repository, he said to me, "are you sure you own those data?" And I was sure I did, but he asked "Did you sign a Terms of Service agreement?" And I had. So I went to find it. Of course, the one I signed in 2007 didn't exist, but the one from 2012 I had signed and it had language that said it replaced all prior terms of service, and there it was.

Image from xkcd, licensed CC-BY-NC <https://xkcd.com/1455/>

Trolley problem info: [https://en.wikipedia.org/wiki/Trolley\\_problem](https://en.wikipedia.org/wiki/Trolley_problem)

#### 4. Ownership.

All rights and title in and to the Service (including without limitation any user accounts, titles, computer code, themes, objects, characters, character names, stories, dialogue, catch phrases, locations, concepts, artwork, animations, sounds, musical compositions, audio-visual effects, methods of operation, moral rights, any related documentation, "applets," transcripts of the chat rooms, character profile information, recordings of games) are owned by Blizzard or its licensors. The Game and the Service are protected by United States and international laws, and may contain certain licensed materials in which Blizzard's licensors may enforce their rights in the event of any violation of this Agreement.

"All rights and title in and to the service (including without limitation... moral rights, **any related documentation**, "applets," **transcripts of the chat rooms**, character profile information, **recordings of games**) are owned by Blizzard or its licensors."

[http://us.blizzard.com/en-us/company/legal/wow\\_tou.html](http://us.blizzard.com/en-us/company/legal/wow_tou.html)



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I had signed this and agreed to it - basically that all those transcripts I had recorded and were on my computer did not actually belong to me, but belonged to the company that owned the game, and I could not share them because it would violate the contract that I had signed. This also includes some of the videos that I had made of events that happened in the game.

I submitted a request to be allowed to share my data files - those 1.5 million lines of chat that are a rich source of language - but it was denied, of course. So now it just sits on my computer and this one clause means that I can't do anything with it. As Andrea said earlier, data that is not accessible is useless, and it's basically my fault. I had not planned for this in my work and I had not read these Terms of Service - nobody has time to read those contracts, right? But when it comes to your research, you should know your situation as you go into it so that you can prepare, unlike me.

# Don't be like 2007 Lauren.

Know your  
rights & responsibilities.

- What is copyrightable?
- What is the definition of copyright in your jurisdiction?
- Who owns the data you are using?
- What are you legally allowed to do with those data?
- What are the ethical considerations particular to your data?
- How will all of these impact your long-term plans?

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So I urge you, don't be like 2007 Lauren and know your rights and your responsibilities. Being in this workshop is a great start. Here's what kinds of things we'll cover in this session, and then you'll get to work seeing what your own situation is.



# What is copyright?



- US Copyright Office: “Copyright protects ‘original works of authorship’ that are fixed in a tangible form of expression.”
- Copyright is the right to do the following to these works:
  - Reproduce & distribute
  - Make derivative works
  - Perform and display
- “Copyright Basics” from the US Copyright Office, Circular 1.  
<https://www.copyright.gov/circs/circ01.pdf>



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Let's start by making sure we're all on the same page. Copyright is the legal framework that will most likely intersect with the work you are doing. Copyright, in the words of the US Copyright Office, protects original works of authorship that are fixed in a tangible form.

Copyright gives the owner the right to do the following (or to assign others to do the following): reproduce the work and distribute it, make derivative works, and perform and display the work (including broadcasts, e.g. over the radio or online).

The US Copyright Office has this fantastic circular on the basics, if you want to read more. We'll go over some of the most important information in the next few slides.



# What is not subject to copyright?

- Work that is not fixed in a tangible form (e.g. speech that is not recorded)
- Titles, names, short phrases, slogans, familiar symbols
- Ideas, methods, processes, discoveries, devices, contents
  - Distinguished from the **expressions of these**, e.g. an article about your method of cake baking is subject to copyright, but not the actual method or the recipe (contents) itself.
- Common property, e.g. measurements of the state of the world
  - Most **quantitative data** falls into this bucket.
  - “Common property” can also cover some aspects of Traditional Knowledge



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So let's think about what kinds of things are NOT subject to copyright. The phrase used in the definition is 'original works of authorship', but what is excluded? Obviously, something that's not fixed in a tangible form, because being fixed in a tangible form is part of the definition. This includes speech that is not recorded, for example.

Things that we use all the time cannot be subject to copyright, like titles, names, short phrases, familiar symbols. You can't copyright a word, for example, or someone would be getting rich off of copyrighting "the". You can trademark a product or service name, but that's a different story and operates under different rules that we don't have time to get into here.

You can't copyright ideas, methods, processes, discoveries, devices, or contents. This is why companies like Kentucky Fried Chicken so closely guard their 'secret recipe' - because they cannot copyright it, so they must keep it secret or everyone would be making chicken like KFC. You can copyright an expression of this, for example if you write an article about a new cake that you made, but the ingredients and method are not subject to copyright.

Finally, common property and measurements of the state of the world are not subject to copyright. This 'measurements' part means that most quantitative data fall into this bucket. Common property, interestingly, also covers some aspects of Cultural Heritage or Traditional Knowledge, which we'll get into momentarily.

There are some restrictions on Copyright. One of the important ones is Fair Use.

# Doctrine of Fair Use



Fair Use is a doctrine of copyright law that allows for reuse of copyrighted works in ways that are considered fair—such as **criticism, comment**, news reporting, **teaching, scholarship**, and **research**. There are 4 factors:

- The purpose and character of the use, including whether such use is of commercial nature or is for nonprofit educational purposes
- The nature of the copyrighted work (e.g., whether it is factual or creative in nature)
- The amount and substantiality of the portion used in relation to the copyrighted work as a whole
- The effect of the use upon the potential market for or value of the copyrighted work

More info: <http://pitt.libguides.com/copyright/fairuse>



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We don't have a lot of time to go into Fair Use, but basically this doctrine of copyright law allows for reuse of copyrighted works for things like criticism, comment, teaching, scholarship, and research. This is what allows instructors to use short video clips to illustrate a point; for example, if anyone listens to John McWhorter's Lexicon Valley podcast, he uses tv and radio clips all the time to show dialect or word use under the Fair Use doctrine.

There are four factors of Fair Use to determine this. We don't have a lot of time, so if somehow this applies to your data and you are reusing someone else's stuff, we can talk individually about how Fair Use might apply to you.

"Fair Use is a Right" image licensed under CC-BY from the [Association for Research Libraries](#).

# International Copyright



Make sure you know the law where you are.

Doing fieldwork in another country? Check in with a copyright specialist before you go to make sure you don't run afoul of local laws.

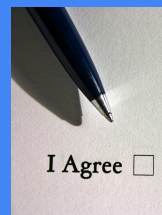
- Search IP Laws and Treaties worldwide with WIPO Lex
  - <http://www.wipo.int/wipolex/en/index.jsp>
- Ask librarians at your institution or your host institution!
  - Scholarly Communications Librarian
  - Copyright Librarian
- General Counsel at your University is also a resource.



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Let's acknowledge that copyright varies from place to place. Most countries have agreed on basic terms of Copyright, but there may be some variation that might be important if you are, for example, doing fieldwork in another country. Look this up before you go, or if you've already gone, look it up now. You can search IP Laws and Treaties on this search engine from the World Intellectual Property Organization. There are also people at your university or your host university who can help. Many academic libraries now have copyright specialists - look for someone with a title like this. Librarians generally tend to reply more quickly and more friendly than General Counsel, so I usually recommend going to the library first. You may also be able to find guidance from an archive or repository that you plan to submit to.

# Copyright and Contracts



Copyright law is the default and can be overridden by contracts.

These can include **Work for Hire** contracts (in which the material you create under employment belongs to the employer - check with your University!), **grant requirements**, or **Terms of Service** (contracts for using a particular platform or tool).

Know in advance what contracts you are working under & where to find them.

If you hire a translator, transcriber, or other person to work with you, spell out who owns copyright in THEIR contract clearly!



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As was illustrated in my opening cautionary tale, copyright is the default, but can be overridden by contracts that you sign. These contracts can be things like a Work for Hire contract (check on this with your University), grant requirements, or Terms of Service. Know in advance what contracts you are working under and where to find them.

Additionally, if you happen to hire someone to help you with your data, like a translator or a transcriber, then spell out clearly in your contract with them who owns the work that they do. If it's not spelled out, then the translator will have a share in the copyright of anything that you collaboratively create.

# Copyright and Linguistics



- Spoken and written language is usually an 'original work of authorship'.
- A lexicon is a list of the contents of language - not subject to copyright
  - Though your organization, layout, and description that may accompany this wordlist *are* subject to copyright.
- Vowel measurements are not subject to copyright
  - But your awesome plot of them *is*.
- Text mining newspapers, books, online language *may be subject to copyright*.
  - Read Terms of Service carefully. Some allow for use of these corpora for "research" or "academic/educational purposes."
- Traditional Knowledge, e.g. folktales? Special case:



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Specifically for linguistics, here are some examples of the kinds of data that might be subject to copyright or not. There is a lot more detail about this in the surprisingly snarky article by Newman, 2007, in the extra readings folder.

Spoken and written language is usually an original work of authorship, and when you fix it in a tangible form, copyright comes into play.

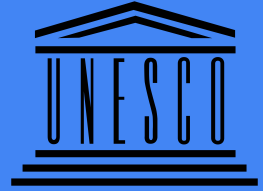
However, a lexicon is a list of the contents of language, and we've already discussed that you can't copyright words. You could copyright the organization, layout, and description of a lexicon. This follows the popular example of a court ruling that the information in a phone book can't be subject to copyright, but the layout and organization can.

Vowel measurements are a measurement of the state of the world, and cannot be copyright. However, your awesome plot of them could be considered an original work of authorship.

For those doing text mining of newspapers, books, or online language, this may be subject to copyright; however, the providers of these may have special licenses for research or academic/educational purposes. Make sure to read those Terms of Service, unlike the me of 2007!

Finally, for those who might be doing ethnography or field research and recording informants doing thing like telling stories or talking about the history of their culture - Traditional knowledge is a special case.

# UNESCO Universal Declaration on Cultural Diversity (2001)



- Traditional knowledge (including language, stories, history) is a public good and should not be subject to intellectual property right.
- However, the individual performer (of a story, language, etc.) should be acknowledged, credited, and their rights protected.
- Therefore, be **clear** about your intended use of their works and get their permission for your use.
- Profits made off of this kind of work should be directed back to the community that the work came from.
- Read the whole thing: <http://unesdoc.unesco.org/images/0012/001271/127160m.pdf>



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It has a whole UNESCO Declaration about it - the Universal Declaration on Cultural Diversity. This was part of a response to the fact that the recording of Traditional Knowledge was usually done by people from outside of the culture, and could then be used for profit or personal gain at the expense of the people who shared that knowledge. You can read the whole thing, but the basic knowledge for you to keep in mind is this:

-Traditional knowledge is a public good, and should not be subject to copyright.

-However, the individual who is performing the knowledge, whether it's a story or a language, should be considered an author and their work acknowledged, credited, and protected.

-Therefore, be clear in your consent form about your intended use of their work and get their permission.

-If you happen to make any profit off of this work, the profit should be directed back to the community.

There is a LOT MORE to think about here, but we just don't have time to go deeply into it. Susan, one of my co-presenters, has a whole course she taught on the topic, and I've linked the slides on a Resource page later in this deck.

<http://unesdoc.unesco.org/images/0012/001271/127160m.pdf>

# LSA Ethics Statement



"Some communities regard language, oral literature, and other forms of cultural knowledge as **valuable intellectual property** whose ownership should be respected by outsiders; in such cases **linguists should comply with community wishes regarding access, archiving, and distribution of results**. Other communities are eager to share their knowledge in the context of a **long-term relationship of reciprocity and exchange**. In all cases where the community has an investment in language research, **the aims of an investigation should be clearly discussed with the community and community involvement sought from the earliest stages of project planning.**"

(excerpt from the end of section 3, emphasis added)



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When it comes to ethics in using traditional work, the LSA has a statement about it that should guide your thoughts on this. You can read this yourself, but importantly, the community's wishes are of highest importance, and clarity from both sides is something to strive for.

[http://www.linguisticsociety.org/sites/default/files/Ethics\\_Statement.pdf](http://www.linguisticsociety.org/sites/default/files/Ethics_Statement.pdf)

Just because you CAN make data open, doesn't mean you should. Take the case of Emil Kirkegaard at Aarhus University, who discovered that profile information on OK Cupid, a dating site, could be discovered through its API. He scraped it and released all of the data, not anonymized, including sexual preference!, against the users' expectations and wishes. The only reason they don't also share the photos is that it would 'take up too much storage space'. It was legal according to OK Cupid's TOS, and the data were \*technically\* public.

<https://www.forbes.com/sites/emmawoollacott/2016/05/13/intimate-data-of-70000-okcupid-users-released/#4568ffb61e15>

Slide originally from Susan Smythe-Kung:

[https://docs.google.com/presentation/d/1dej0hFWAYmtwRnxC92JVRSjk6XzbtBaeE5oxGZjJiFQ/edit#slide=id.g1d71d9b277\\_0\\_0](https://docs.google.com/presentation/d/1dej0hFWAYmtwRnxC92JVRSjk6XzbtBaeE5oxGZjJiFQ/edit#slide=id.g1d71d9b277_0_0)



# Sharing Data



Once you determine who owns the data, understand and plan for what you can **do** with the data. Data that isn't accessible by anybody is useless.

- Gain consent from participants at the outset for the preservation and sharing of data.
  - Include in your consent form that data will be archived and made publicly available, not just “used for research purposes” or “reproduced in scholarly works”.
- Will you need to anonymize the data to share it? How will you do this?
- Are you collecting any sensitive data?
  - Security of storage and transfer - repository / archive staff can help you prepare for this.
- Will you be able to make your dataset open? Check [this decision tree!](#)



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Finally, once you know who owns your data, you can make a plan for what you want to do with your data. This will come up again later in the sharing and preservation section, but here's a taste.

-Include in your consent form language about preservation and sharing of data.

-Think about whether you are going to need to anonymize data in order to share it or cite it. What do you need to do here? What are the community's wishes on this?

-In the event that you are collecting sensitive data, you (as the owner) have a responsibility to securely store and transfer it.

Image by John R. McKiernan, licensed under CC-BY, available at <http://whyopenresearch.org/gallery>

## More Resources

- Intellectual Property Issues in Cultural Heritage (IPinCH) <http://www.sfu.ca/ipinch/>
- Susan Smythe Kung's Bibliography: Consent, Copyright, IP, and Traditional Knowledge <http://bit.ly/IPTKbib>
- Newman, Paul. 2007. Copyright Essentials for Linguists. *Language Documentation & Conservation* 1(1): 28-43. Available from <https://scholarspace.manoa.hawaii.edu/bitstream/10125/1724/6/newman.pdf>
- Linguistic Society of America's Ethics resources <https://www.linguisticsociety.org/resource/ethics>
- Copyright Crash Course at UT Libraries <http://guides.lib.utexas.edu/copyright/>
- "Issues of consent, copyright, intellectual property and traditional knowledge: What they mean for digital language archives" Slides by Susan Smythe Kung <https://goo.gl/F3CXqM>



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Here are more resources that you can consult as you think about these issues.

# Working Session

- For everyone: What parts of your data are subject to copyright or not?
- Choose one of the following, depending on your data situation:
  - Are you working under any contracts?
    - Identify any contracts that may apply, find them, and skim through for an “Ownership” section.
  - Are you working in different countries that may have different laws?
    - Identify a page to read at [WIPO Lex](#) and/or a person at your institution who you can ask for help.
  - Do you have any ethical considerations?
    - List any potential anonymization or privacy concerns and brainstorm on methods for working with them.



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Finally, let's get to work.

Everyone, thinking about your data collection, what parts of it are subject to copyright, and what are not?

And then, depending on your data situation, at least one of the next three situations may apply to you. Are you working with any contracts that you need to know about that change the ownership of your data? Are you working in different countries that have different laws? Do you have any ethical considerations with your data?

We have about 20 minutes to think through this, so you will have a start for this section of your Data Management Plan.

# Info Session 4: Storage and Backup



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Andrea 2:15-3:15

# Storage and Backup

Data must be **protected during collection and processing** (“in the field and lab”)

Protected for integrity

Protected for security and access

This is not the same as your plans to keep data safe, secure, and accessible after it leaves your lab

Although they may overlap in execution.



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# Storage and Backup for data integrity

Your data is vulnerable during collection and processing!

Electronic/digital dangers:

Broken drives, power surges, viruses

Environmental dangers:

Water damage, fire damage, insects, mold

Human dangers:

Theft, loss, overwriting, dropping/crushing



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A good rule to  
remember



**LOCKSS:**

**Lots Of Copies Keep  
Stuff Safe!**

<https://www.lockss.org/>

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# Storage and Backup for data integrity: LOCKSS



Your DMP should describe how you plan to utilize LOCKSS during collection and processing:

*How will you redundantly backup your data?*

In the field:

Multiple hard drives? Flash cards?

Where will they be stored?



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One in your cabin...



...one in your car...



...and one at the cultural center.



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# Storage and Backup for data integrity: LOCKSS



In the lab:

Will you use IT-managed storage at your university?

IT-managed storage usually has built-in LOCKSS procedures. Confirm this.



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# Another approach to LOCKSS: The 3-2-1 Principle



(At least) 3 copies on

(At least) 2 types of storage media\* with

(At least) 1 off-site

\*Different brands of hard drive, or a hard drive and flash storage, or a hard drive and DVDs, or....



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# What about cloud storage?



Fine for convenience and sharing with collaborators.

Not to be considered primary backup, ever (not even worth mentioning in DMP)

Considerations: data ownership, cost, security, going out of business (eg Wuala).

Higher security: SpiderOak, Tresorit. Easier, more common: Google Drive, DropBox, iCloud



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# Storage and Backup for data integrity: Other questions to think about

Do you need to include **money in your budget** for backup storage?

Purchasing hardware; paying fees

Who is responsible for regular backup?

What is your field-to-lab data transfer protocol?

How will data be recovered in the event of an incident?



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# Storage and Backup for data security



What are the risks to security?

For language data: usually *confidentiality* is the biggest risk.

You should be guided by your IRB (see *Ethics*).

Plans to anonymize participants, if warranted.

Plans to secure the anonymization key.



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# Storage and Backup for data security



If necessary, how will you control access to keep data secure?

Data can be password protected.

Don't forget to share passwords with the research team.

For more sensitive data, tougher standards can be followed, eg. [ISO 27001](#):  
"provides a model for establishing, implementing, operating, monitoring,  
reviewing, maintaining and improving an information security management  
system."



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# Working Session

1. How will data be stored and backed up during the research?
  - a. Do you have sufficient storage, or will you need to include charges for additional services?
  - b. How will the data be backed up?
  - c. Who will be responsible for backup? For recovery?
  - d. How will the data be recovered in the event of an incident?



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# Working Session

## Guidance:

- State how often the data will be backed up and to which locations. How many copies are being made?
- Storing data on laptops, computer hard drives or external storage devices alone is very risky. The use of robust, managed storage provided by university IT teams is preferable.
- Similarly, it is normally better to use automatic backup services provided by IT Services than rely on manual processes.
- If you choose to use a third-party service, you should ensure that this does not conflict with any funder, institutional, departmental or group policies, for example in terms of the legal jurisdiction in which data are held or the protection of sensitive data.



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# Working Session

## 2. How will you manage access and security?

- a. What are the risks to data security and how will these be managed?
- b. How will you control access to keep the data secure?
- c. How will you ensure that collaborators can access the data securely?
- d. If creating or collecting data in the field how will you ensure its safe transfer into your main secured systems??



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# Working Session

## Guidance:

- If your data is confidential (e.g. personal data not already in the public domain, confidential information or trade secrets), you should outline any appropriate security measures and note any formal standards that you will comply with, e.g. ISO 27001.



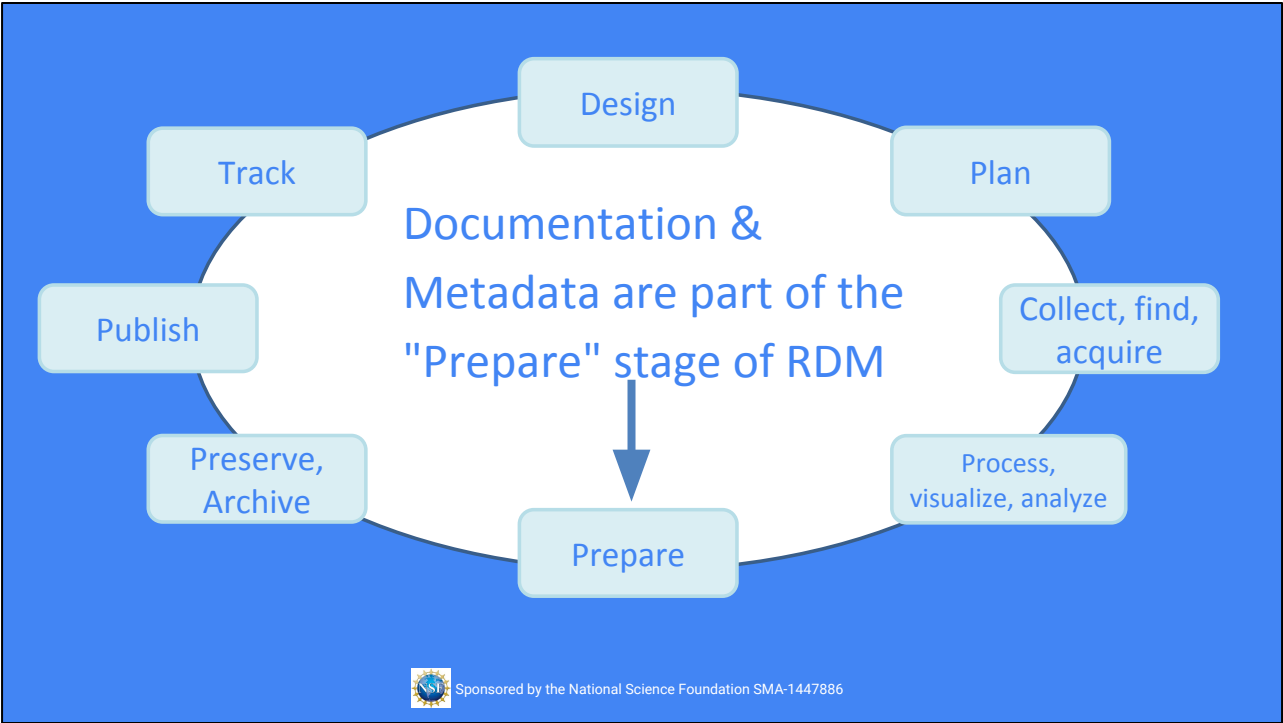
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# Info Session 5: Documentation and Metadata



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Susan 3:45-4:45



# Documentation



Documentation is any sort of digital or analog document(s), written or recorded, online or off, that provide important, contextual information. For example:

- user guides
- readme files
- white papers
- FAQs
- protocols
- manuals
- lab books
- hardware and software configurations
- workflows
- etc.

# Documentation

Documentation for a research project will include

- an overview of the project,
- the methodology for various components of the project,
- worklogs or logbooks kept during the project,
- protocols,
- lists,
- etc.

Document daily! Or at least as often as necessary. You will not remember the details forever (or even the next day!).



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# Metadata

- Metadata is structured information that describes, explains, locates, or otherwise represents the research data.
- Metadata make it easier to find, retrieve, (re-)use, manage, understand, and cite the data. Metadata can be descriptive, technical, administrative, or structural.
- Metadata creation is best done by the data collector / creator at the time of data collection.

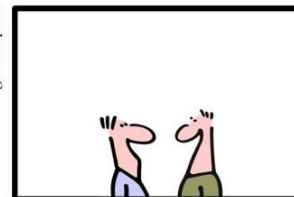


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## SIMPLY EXPLAINED: METADATA



geek & poke



- The best person to create metadata is the person who collected the data!
- Metadata creation is best done simultaneously with data collection, keeping in mind that future viewers will have no idea what your files are or what your project was if you don't tell them.
- Cartoon credit: Oliver Widder. (2010, April 23). What's Metadata? Geek and Poke cartoon series.  
<http://www.datamation.com/cnews/article.php/3878261/Tech-Comics-Whats-Metadate.htm>.



# Types of Metadata: Descriptive

Descriptive metadata are used for discovery, identification and retrieval (e.g., names, dates, languages, locations, keywords).



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# Types of Metadata: Technical

Technical metadata are the technical details about a file (e.g., size) or the production of that file (e.g., sampling rate, recording equipment or programs).



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# Types of Metadata: Administrative

Administrative metadata include details about how to manage the file (e.g., intellectual property, restrictions)

## **Level 1. Public access**

Users have full access to Level 1 files after agreeing to our [Terms and Conditions](#) and logging in.

## **Level 2. Password**

Level 2 files are password protected. They might have an associated hint that is meant to give access to the depositors' colleagues. These files cannot be made public access for a variety of reasons.

## **Level 3. Time limit**

Level 3 files are password protected until a specified date at which time access will change to Level 1. Example: 2050-01-01 (January 1, 2050.) This option is used for resources that are sensitive only for a period of time; for example, the lifetime of the narrator or the five years it takes a student researcher to finish his/her thesis.

## **Level 4. Depositor control**

Users must contact the depositor or a representative of the speech community directly to ask for permission to access Level 4 files. When you click on the file name, the contact person's email address will appear. If you write to the contact person and he/she does not respond, please [contact us](#).

# Types of Metadata: Structural

Home » Collections » Hup Collection of Patience Epps » Adjective tone set (P) » JUP004R007I001.mp3

## JUP004R007I001.mp3

[View](#) [Manage](#)

### Object Details

Language(s)	Hup
Language PID(s)	ailla:119685
Content type	primary text
Date Created	2004
Date Archived	2010-04-29
Technical Description	
Length	0:2:16
Encoding Specifications	kpbs 64
Platform	pc, soundforge or audacity
Original Medium	audio:DAT

Structural metadata explains how files are organized in relationship to each other.

[Home](#) » [Collections](#) » [Hup Collection of Patience Epps](#) » [Adjective tone set \(P\)](#) » [JUP004R007I001.mp3](#)



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# What information is needed for data to be read & interpreted in the future?

## Documentation

- **Programs:** title & version, proprietary vs. open source, settings, filters, template, etc. used for your study.
- **Methodology:** detailed description of what you did so you or someone else can reproduce (or understand) it later.
- **Experiments:** tools, tests, protocols used.

## Metadata

- **Who:** data creator/researcher, other research participants like speakers, videographers, transcribers, etc.
- **What:** title of data set
- **When:** data of creation / experiment
- **Where:** location of data creation

# How will you capture or create Documentation and Metadata?

**Documentation:** Keep documentation notes as you go in a work log or log/lab book, clearly label all files.

**Metadata:** spreadsheet, text files, notebook or log/lab book, database program for metadata (e.g., SayMore, ToolBox, Arbil, CMDI Maker, FileMaker Pro)

## **Capture techniques:**

- date stamps (cameras, databases & other digital files)
- audio/video record key metadata at the beginning of every track



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audio/video metadata openers: not foolproof; it's easy to forget to do it on EVERY track; they might get edited out

Ask class for other ideas.

# What Metadata standards will you use and why?

- Dublin Core (DC) >> OLAC
- Metadata Object Description Schema (MODS) of LOC
- Metadata Authority Description Schema (MADS) of LOC
- International Standard for Language Engineering (ISLE)
- ISLE Meta Data Initiative (IMDI) of the MPI

Each archive/repository uses a specific metadata schema that you should follow at the time of data creation - CHECK WITH YOUR INTENDED ARCHIVE!



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Common metadata schema used in soc. sciences & humanities in general & in linguistics in particular.

# Working Session: Documentation & Metadata

Imagine that 15+ years from now, someone comes upon the data from your project in an archive, and with that in mind, answer these questions:

- What documentation and metadata need to accompany your data so that future person can understand what it is and the context of your project?
- What documentation is needed for the future person to replicate or reuse your data?
- How will you create or capture this documentation and these metadata now (at the time you create these data)?



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# Discussion: Documentation & Metadata

Share results of work session.

Q&A



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# Info Session 6: Selection, Preservation, and Sharing



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Lauren 9-10

## Librarians and repository staff can help!



As I think you might have found out by now, librarians and archivists can help. There's a fun video here from TROLLing about archival Klingon data that you can watch.

[https://www.youtube.com/watch?v=uEf0c0NT9\\_A](https://www.youtube.com/watch?v=uEf0c0NT9_A)

This lesson looks at  
preservation of research  
data when it leaves your lab

Design

Plan

Collect, find,  
acquire

Process,  
visualize, analyze

Prepare

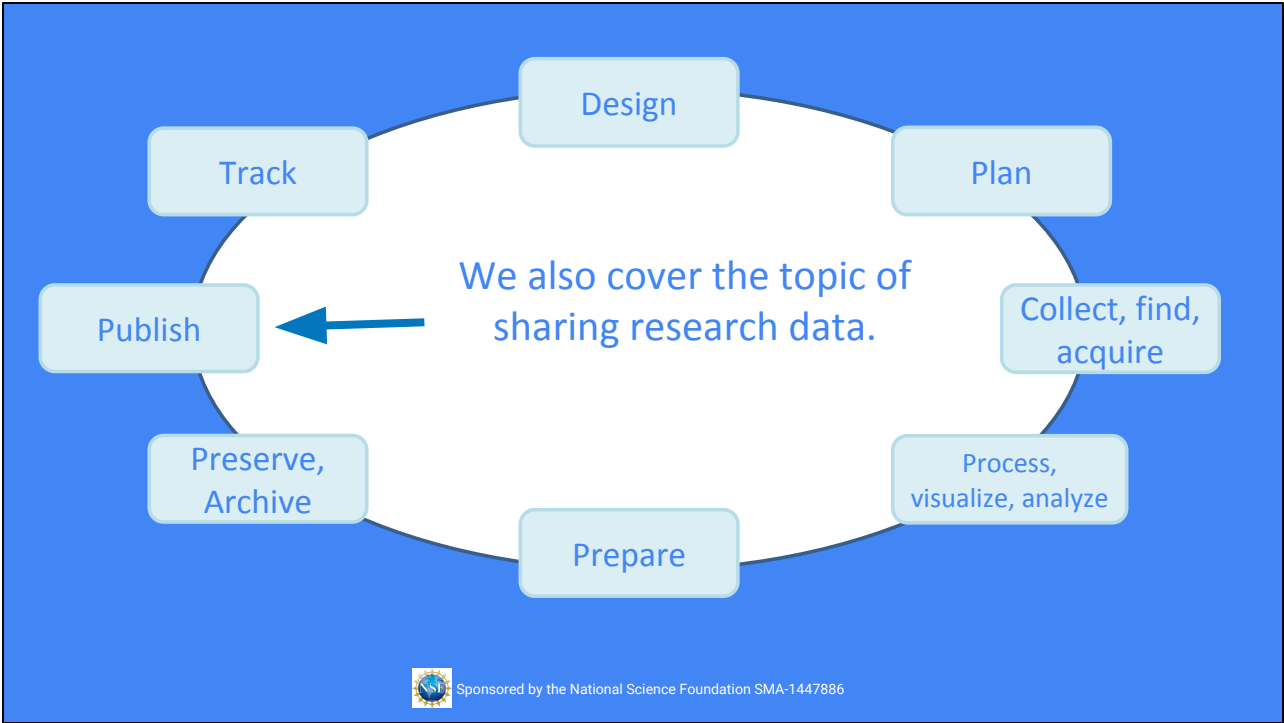
Preserve,  
Archive

Publish

Track



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# Selection

Which data should be retained, shared, and/or preserved?



<https://www.healthdata.gov/insights/health-data-privacy-considerations>

The first part of this session is deciding which of your data should be retained, shared, and preserved. Because not all data might be fit for outside consumption.

# Selection

Some questions to consider:

- Do you need to retain or destroy any data due to contractual/legal/ethical obligations?
- How might other scholars reuse your data?
- How does the speaker community (if applicable) want the data to be shared?



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Here are some framing questions to help you decide which parts of your data you will select for preservation. This will help you focus your efforts on the data that will be maximally useful, and save yourself some headache later. If you think about this now, you'll know what dataset to focus on and what to do, so you aren't trying to 'clean up' your data at the very end of the project (when you may have forgotten - what did these file names mean??)

First, will you need to retain or destroy any data for contractual/legal/ethical obligations?

How would your community want the data to be shared?

What would other scholars find useful about your data?

Image by John R. McKiernan, licensed CC-BY, available at <http://whyopenresearch.org/gallery>

# Selection

Envision how the data may be reused by you and others.

- Validate/replicate research findings
- Conduct new studies (in the same or different fields)
- Build a corpus or other resource
- Teaching materials

ACCORDING TO THIS POLLING DATA, AFTER KIRK AND PICARD, THE MOST POPULAR STAR TREK CHARACTER ARE DATA.



ANNOY GRAMMAR PEDANTS ON ALL SIDES BY MAKING "DATA" SINGULAR *EXCEPT* WHEN REFERRING TO THE ANDROID.



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Here is another way to think about how to select the data that you preserve. Try to envision how the data might be reused by people in the future. What other projects might your data be useful for? You can be creative about it - try to be!

Shared data can be used to replicate findings, which is good practice for new scholars and generally helpful to the scientific discipline - reproducibility is key!

Data could also be used to conduct new studies or create resources for future study.

Teaching materials are also a good thing to use data for. Do your data illustrate a particular phenomenon that could be a useful lesson in a Linguistics 101 class? Could it be a phonology problem?



# Selection

Think not just about linguists like you, but other disciplines!

- Could a syntactician find examples of a linguistic phenomenon in your language documentation data to use in their paper?
  - Could your data be reused in a language learning app?
- Will you be collecting narratives that could be a source for historians or sociologists?
- Would phoneticians like to use your sociolinguistic interview recordings?
- If you collect lexical/taxonomic information about native medicines and cultural objects, would a botanist, pharmacist, zoologist, biologist possibly find information about these useful? Could it be harmful?

Obviously you can't envision all possibilities, but preserving and sharing more kinds of data opens up more possibilities.



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During your selection, think about the use of your data for other disciplines, either sub-disciplines in linguistics or even totally different disciplines. For example, if you are conducting interviews for a sociolinguistic study about vowels, could those interviews also be oral histories? Could they serve as a corpus? Could the recordings serve other purposes? Could your language documentation data be used to create a language learning app? But don't just think about the benefits, but also the potential harm. For example, there are some cases of indigenous medical knowledge that have been preserved in data sets, which have then been patented and monetized by the pharmaceutical industry. If you look at these slides in the speaker notes, I have a citation to an article that discusses these issues and some legal knowledge that might be helpful.

Citation for a discussion of some harms for release of indigenous pharmacological information with some legal advice:

McGonigle, I. V. (2016). Patenting nature or protecting culture? Ethnopharmacology and indigenous intellectual property rights. *Journal of Law and the Biosciences*, 3(1), 217–226. <http://doi.org/10.1093/jlb/lsw003>

Image from xkcd, licensed CC-BY-NC: <https://xkcd.com/1429/>

# Preservation

What is the long-term plan for the dataset?



Center for Digital Data Science and Information at UCSD

Now once you've selected your data, you should find out how to preserve it.

## A few definitions

A “repository” originally referred to a physical location where documents were stored. In the digital age, “repository” means a software platform with associated online storage for digital materials. Repositories are usually associated with a discipline, collection, or institution.

An “archive” has somehow catalogued and organized this collection, and often has a place where you can interact with these materials, either online or physically.

These two terms often refer to the same thing\*.

\* But they never refer to a regular website, or a folder on your computer...



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# Preservation



Archives and repositories are the best way to preserve your dataset.

These are usually found in university libraries or run by research groups.

Depending on your field, a Digital Language Archive (DLA), a Linguistics Data Repository, or a General Data Repository may be the right choice for you.

There are also Institutional Repositories, although these may or may not have the capacity for data.



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When we say preservation, we don't just mean taking care of the USB drive or the hard drive that you keep your data on. An archive and/or repository, usually run by a university library or research group, is the best choice. These groups have infrastructure to ensure the long-term care of your data, and sharing of it if you need. Repositories and archives also have dedicated staff to help with your data.

There are some types of repositories, which we can talk about - a digital language archive (DLA) (usually for language documentation), a linguistics data repository (for other kinds of linguistics data), and a general data repository (houses many different kinds of data sets).

There are also institutional repositories, which are housed by universities in their library usually, but these may not have data infrastructure. Best to ask your librarians for help if you go that route.

# Advice for Archiving Data

- Repository staff won't process your data for you - build in time and resources into your DMP for this work!
- Find out the file and metadata requirements of your intended repository and attempt to integrate these as you collect and work with your data.
- Ask repository staff for any documentation or guides they might have available *early*.



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Here is some general advice, given by many archivists, to keep in mind before you start your work.

-repository staff won't process data for you. You should build in time/resources for this in your DMP/grant.

-As we've said previously (yesterday), ask your archivist that you want to work with about the file and metadata requirements! They may have guides or documentation that can help you. Citing these in your DMP will help!

## Kinds of Data Repositories

### Subject-specific Data Repositories

- Tromsø Repository of Language and Linguistics: [TROLLing](#)
- Linguistics re3data repositories: [re3data.org](#)
- Open Access Directory's [list of subject repositories](#)
- [ICPSR](#) for Social Science Data
- [Linguistic Data Consortium](#)

### Subject-agnostic Data Repositories

- [Dryad](#)
- [FigShare](#)
- Data Archiving and Networked Services ([DANS](#))

### Institutional Repositories

- These may or may not have infrastructure to support data. Contact a librarian at your university to ask about your Institutional Repository.
- Go to your library's website and search for the repository or archive.

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Here are some other kinds of data repositories. There are some subject repositories here that you can see. I highly recommend TROLLing, they have fantastic staff and a very interoperable repository. There are some other lists available here, for the broader social sciences too.

There are also subject-agnostic data repositories like Dryad and figshare and DANS. These are dedicated data repositories for data from any field and can facilitate cross-field use.

Finally, there are institutional repositories, usually housed by a university library. These may not have infrastructure to support data, but they might! Knowing about your institutional repository is a good idea for self-archiving other stuff anyway, so you should find out about this regardless of whether that's where your data wind up.

This slide borrowed from Susan Smythe-Kung's presentation, "[Issues of consent, copyright, intellectual property and traditional knowledge: What they mean for digital language archives](#)"

## Kinds of Data Repositories

### Dedicated “digital language archives”

- Any member of the Digital Endangered Languages and Musics Archive Network ([DELAMAN](#))...
  - The Archive of the Indigenous Languages of Latin America ([AILLA](#))
  - The Endangered Language Archive ([ELAR](#))
  - The Language Archive ([TLA](#))
  - Kaipuleohone Language Archive ([U of Hawai'i at Manoa](#))
  - Alaska Native Language Archive ([ANLA](#))
  - American Philosophical Society ([APS](#))
  - ...
- Archivo Digital de Language Peruanas ([Pontificia Universidad Católica del Perú](#))
- National Anthropological Archives ([NAA](#))

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Here are some examples of different kinds of repositories. This slide was made by Susan, so if you have questions about any of these, she and Andrea might be able to answer your questions.

This slide borrowed from Susan Smythe-Kung's presentation, "[Issues of consent, copyright, intellectual property and traditional knowledge: What they mean for digital language archives](#)"

# Sharing

Be as open as possible, as closed as necessary.



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Beyond preserving your data, you want to think about access. One mantra that can help is to be as open as possible and as closed as necessary. What are the benefits for sharing data?



# Sharing

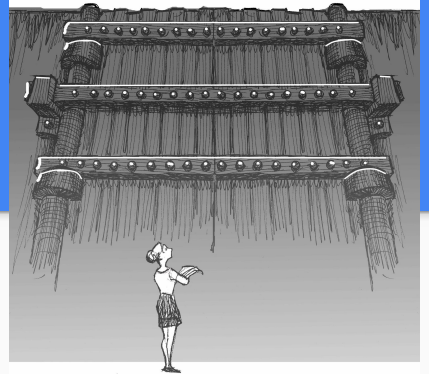
Sharing data helps to preserve the health of our field.

Data sharing helps with

- Reproduction of scholarly work.
- Advancement of new studies without the need to collect new data.
- Collaboration on future projects.
- Cross-disciplinary work.
- Citations and overall elevation of your scholarly profile.
- Creating accessible cultural and historical resources for the community.



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Many people fear that by sharing their data, they will be ‘scooped’. This is an inherently negative view of the scientific enterprise. While others may use your data as part of their own studies, if you share the data you get citation counts and possible future collaborators for projects. The dataset that you worked so hard to collect and preserve will have a longer life ahead of it. Finally, you can create accessible cultural and historical resources for your community, potentially.

Image by John R. McKiernan, licensed CC-BY, available at [whyopenresearch.org](http://whyopenresearch.org)

# Sharing: Questions to Consider

- Are there ethical or legal restrictions on what you can share?
- Are any sensitive data anonymized properly?
- How will you license your data?
- Where (e.g. which repository) will you share your data?
- Will you need any access restrictions for privacy/ethics, or can your dataset be Open? Check [this decision tree](#).
- How will you track use of your dataset?
- Should you use a particular format or arrangement to facilitate a potential reuse project?



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When sharing, there are some questions to consider.

First, think about some of those ethical and legal constraints that we talked about yesterday. You may have some restrictions there to think about; you can also think about how you will (or can) license the data that you share.

If you are working with potentially sensitive data, how will you anonymize it?

Will you need access restrictions? There's a handy decision tree to help you here.

Finally, how will you track the use of your dataset? (Using a DOI and a service like ImpactStory are good ideas!) And do you have any potential reuse cases in mind that you can anticipate?

# Work Session

Find a repository for your data.



Now let's have a work session on this topic where you can find a repository for your data.

This might be best done in groups according to discipline so you can work together to investigate and share your results.

# Work session instructions

Find a potential repository for your data set.

Answer the following questions for your DMP:

- What is the repository name and why is it appropriate for your data?
  - What is their contact information?
- What considerations (e.g. file formats, naming, organization) will you be able to implement during data collection?
- What are the potential costs for long-term storage or preparation of the dataset that you should figure in to your grant request?



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Here are some framing questions - I might add, also find contact information for that repository where you can ask questions if you need it.

# Info Session 7: Resources, Responsibilities & Timeline



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Susan 10:15-11:15

# Data Management Responsibilities & Resources & Timeline

## **Responsibilities:**

Who will be responsible for implementing your DMP and for ensuring that it is followed, reviewed, and revised?

## **Resources:**

What resources will be required to implement your DMP?

## **Timeline:**

What is your timeline for managing--and especially for archiving--your data?

Who is going to be responsible for implementing the DMP and ensuring that it is followed, reviewed, and revised? Usually you, the PI.

You need to know:

- what resources will you need?
- what is the timeline that you're working with?

# Responsibilities

DM activities include:

- Data creation/capture
- Metadata creation/production
- Data quality control (archival master files vs. access copies)
- Version control
- Storage and backup
- Data archiving
- Data sharing



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# Work session instructions: Responsibilities

- Brainstorm some responsibilities or steps for each of the DM activities from the previous slide.
- Who will be responsible for each activity? Name names!

For collaborations or group projects:

- How will responsibilities be split across collaborators/sites?
- Will data ownership and DM responsibilities be part of an agreement, contract or MOU between partners?



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# Resources

Resources that you might need include:

- Software
- Hardware
- Physical storage
- IT-administered storage (university server, cloud, etc.)
- Data repository
- Technical expertise
- Other workers to organize/transcribe/translate



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# Resources

## Where to seek help:

- Your library
- Your department or college
- Your Office of Sponsored Projects



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# Work session instructions: Resources

- Brainstorm the types of resources you might need for your project.
- Justify why they are needed.
- Where will you find/get these resources?



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# Timeline

- Contact your archive to determine when they can accept your data.
- Clearly lay out the timeline that you will (attempt to) follow as you collect, analyze, and archive your data.
- Keep in mind that you might want to archive your data in phases (raw data, derivative data, etc.)



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# Work session instructions: Timeline

Consider these questions in plotting your timeline:

- How long will your project last? (e.g. 1 year, 2 years, 3 years, etc.)
- Does the archive have limited times when it will accept data?
- When will you archive your data?
- Will you archive all of your data at once? Will you archive yearly or on some other schedule?



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# References

Archive of the Indigenous Languages of Latin America. (2002) AILLA Citation Guidelines. Available from <http://ailla.utexas.org/site/citation.html>.

DCC. (2013). Checklist for a Data Management Plan. v.4.0. Edinburgh: Digital Curation Centre. Available online: <http://www.dcc.ac.uk/resources/data-management-plans>.

Oliver Widder. (2010, April 23). What's Metadata? Geek and Poke cartoon series. Available from <http://www.datamation.com/cnews/article.php/3878261/Tech-Comics-Whats-Metadata.htm>.



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# Helpful Links

## Helpful Links

Stebbins, Michael. Feb. 22, 2013. Expanding Public Access to the Results of Federally Funded Research, posted on The White House Blog, accessed on Feb. 13, 2017 from

<https://obamawhitehouse.archives.gov/blog/2013/02/22/expanding-public-access-results-federally-funded-research>

Piwowar, H. A., Vision, T. J., & Whitlock, M. C. (2011). Data archiving is a good investment. *Nature*, 473(7347), 285–285.

<http://doi.org/10.1038/473285a>

Copyright and Intellectual Property Toolkit, by Lauren Collister

<http://pitt.libguides.com/copyright>

Pitt guide to data management, including modules

<http://pitt.libguides.com/managedata/DMP>



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# Helpful Links

## **Helpful Links**

Sample NSF Data Management plans:

<https://www.dataone.org/data-management-planning>

DCC Checklist for a DMP

[http://www.dcc.ac.uk/sites/default/files/documents/resource/DMP/DMP\\_Checklist\\_2013.pdf](http://www.dcc.ac.uk/sites/default/files/documents/resource/DMP/DMP_Checklist_2013.pdf)

UT-Austin DMP guide:

<http://www.lib.utexas.edu/datamanagement/plan>

NSF - SBE Directorate DMP requirements:

[https://www.nsf.gov/sbe/SBE\\_DataMgmtPlanPolicy.pdf](https://www.nsf.gov/sbe/SBE_DataMgmtPlanPolicy.pdf)



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# Helpful Links

## Helpful Links

NSF DMP FAQ

<https://www.nsf.gov/bfa/dias/policy/dmpfaqs.jsp>

Bibliography for Issues of Consent, Copyright, Intellectual Property and Traditional Knowledge:  
What They Mean for Digital Language Archives by Susan Smythe Kung

[https://docs.google.com/document/d/1zBt69YcCBunTSct\\_DdytNLqtE-IL3iK35VO6ld3zI54/edit](https://docs.google.com/document/d/1zBt69YcCBunTSct_DdytNLqtE-IL3iK35VO6ld3zI54/edit)



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Please fill out our evaluation survey!

<http://bit.ly/DMP-workshop-eval>



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