

Designing a metadata ecosystem for language research based on Research Object Crate (RO-Crate)

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Australian Research Data Commons



The Language Data Commons of Australia (LDaCA) and Australian Text Analytics Platform (ATAP) projects received investment (<https://doi.org/10.47486/DP768> and <https://doi.org/10.47486/PL074>) from the Australian Research Data Commons (ARDC). The ARDC is funded by the National Collaborative Research Infrastructure Strategy (NCRIS).

ARC LIEF LE210100013 (2021-2024) Nyingarn: a platform for primary sources in Australian Indigenous languages



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

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and Research Network



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THE UNIVERSITY OF
SYDNEY



With thanks for their contribution:



AIATSIS





Pacific and Regional Archive for Digital Sources in Endangered Cultures

Running for 20 years

1,337 languages represented

675 collections

37,510 items

405,289 files

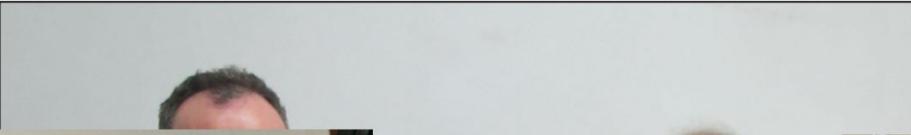
15,540 hours (audio)

2,465 hours (video)

193 TB

October 2022





PARADISEC ACCESS

**PARADISEC
collection**

**37,510 items
405,289 files**

Delivery to source community

Item 1 (20 files)

Item 2 (2 files)

Item 3 (4 files)

Item 4 (7 files)

Problem : no catalog accompanies the files



<https://language-archives.services/about/data-loader>



AUSLAN CORPUS ACCESS

ELAR: limited search capability, non-standard metadata schema, no ability to index annotation files, no bulk download

Language

- Adelaide dialect (174)
- Brisbane dialect (165)
- Melbourne dialect (173)
- Northern dialect (333)
- Perth dialect (170)
- Southern dialect (517)
- Sydney dialect (168)

Person

- AAM1, male, aged 34 (9)
- AAM2, female, aged 42 (8)

	S_SubscriberAccess
	AAM1A1c3 – Recall event – Recollection S_SubscriberAccess
	AAM1A1c4a – Name signs – Attitudes survey S_SubscriberAccess
	AAM1A2c6ii – Canary Row cartoon – Bowling ball U_UserAccess
	AAM1A2c6iv – Canary Row cartoon – Birdcage U_UserAccess
	AAM1A2c7b – View story in Auslan, re-tell in Auslan – Vale U_UserAccess
	AAM1A3c8a – VMP verbs of motion production U_UserAccess
	AAM1A3c8b – NVP noun verb pair production U_UserAccess
	AAM1A3c9a – Sign order elicitation task – Volterra U_UserAccess

Language Data Commons of Australia

Auslan corpus

c2a

2 Collections with 288 well described items

Aggregations

ELDP

Contains: Dataset RepositoryCollection

auslan

Contains: Dataset RepositoryCollection

Items:

2006-03-14 - Session c2a - re-telling

Contains: Dataset RepositoryObject

Languages: Auslan

Member Of: ELDp

LDaCA: rich metadata-first search, portable RO-Crate metadata, indexed annotations, bulk downloading of search results

TAP Data

Australian TextAnalytics Platform

Search...

Collections Notebooks

A COrpus of Oz Early English (COOEE)

Material to be included had to meet with a regional and a temporal criterion. The latter required texts to have been produced between 1788 and 1900 in order to become eligible for COOEE. It was mandatory for a...

Language	Access
English : 4071	Attribution 4.0 International (CC BY 4.0)
Linguistic Genre	
Private Written : 610	Public Metadata
Public Written : 405	
Government English : 195	Indexed
Speech Based : 147	
Modality	
Orthography : 4071	
File Formats	
text/plain : 2714	

[More](#)

Farms to Freeways Example Dataset

This data set was exported from an Omeka Repository as an example of a DataCrate. It contains the Collections and Items from the repository but does NOT have the exhibitions. The DOI resolves to an archive of the...

Language	Access
English : 136	Attribution 3.0 Australia (CC BY 3.0 AU)
Linguistic Genre	Public Metadata
Interview : 34	
Modality	Indexed
Orthography : 68	
Speech : 34	
File Formats	
audio/mpeg : 68	
application/pdf : 34	
text/csv : 34	

[More](#)

© 2022 LDaCA Program LDaCA

File

Annotation Of Decisions of NSW Supreme Court

Modality Orthography [i](#)

Language English

Encoding For text/plain

mat

Size 25 KB

License Attribution 4.0 International (CC BY 4.0)

Click Open To See More

Help ATAP Data

flood

2 Collections with 60 well described items

Collections

A COrpus of Oz Early English (COOEE)

Contains: Dataset

Farms to Freeways Example Dataset

Contains: Dataset RepositoryCollection

Items:

Text 1-247 1825 Australian, The - text

Contains: File DerivedText

Languages: English

Member Of: A COrpus of Oz Early English (COOEE) [64](#)

From: Text 1-247 1825 Australian, The

...Rowe made various appointments with this deponent and **Flood**, (whose husband, John **Flood**, has a similar claim) to office, under a promise...

Text 3-302 1874 Ranken, William H. Logan - text

Contains: File DerivedText

← Interview with Judith Eastwell - Transcript of interview with Judith Eastwell full text trans

time	speaker	speakerID	text	notes
INTERVIEW NO. 33 DATE OF INTERVIEW: 5/3/92 MR S. JUDITH EASTWELL [Interview taken in the Post Office at Quakers Hill.] 36 Lalor Road QUAKERS HILL. 2 763.				

Jupyter Notebook interface showing a session titled "cooeee". The top navigation bar includes tabs for "ATAP Data", "cooeee - Jupyter Notebook", "Home Page - Select or create a notebook", and "vars.env - Jupyter Text Editor". The main menu bar has options like File, Edit, View, Insert, Cell, Kernel, Widgets, Help, and a "Code" dropdown. A toolbar below the menu includes icons for file operations like Open, Save, Run, and Download. The code editor shows two cells:

```
In [9]: # Types of PRIMARY_OBJECTs ie [PRIMARY_OBJECT, X]. What kinds
for entity in ldaca.crate.contextual_entities + ldaca.crate.da
    if 'RepositoryObject' in as_list(entity.type):
        item = ldaca.crate.dereference(entity.id)
        primary_object_types.append(item.as_jsonld())

```

```
In [10]: import pandas as pd # this means we will refer to pandas as 'pd'
primary_objects_dataframe = pd.json_normalize(primary_object_t
primary_objects_dataframe
```

Out[10]:

	@id	@type	name	dateCreated	
0	arc://name,cooeee-corpus/item/1-001	RepositoryObject	Text 1-001 1788 Phillip, Arthur	1788	'https://data.atap.eu...
1	arc://name,cooeee-corpus/item/1-002	RepositoryObject	Text 1-002 1788 Phillip, Arthur	1788	'https://data.atap.eu...
2	arc://name,cooeee-corpus/item/1-003	RepositoryObject	Text 1-003 1788 Phillip, Arthur	1788	'https://data.atap.eu...
3	arc://name,cooeee-corpus/item/1-004	RepositoryObject	Text 1-004 1788 Phillip, Arthur	1788	'https://data.atap.eu...
4	arc://name,cooeee-corpus/item/1-005	RepositoryObject	Text 1-005 1788 Phillip, Arthur	1788	'https://data.atap.eu...
...
1352	arc://name,cooeee-corpus/item/1-421	RepositoryObject	Text 4-421 1897	1897	...

Downloading a file from the ReST API

In [15]:

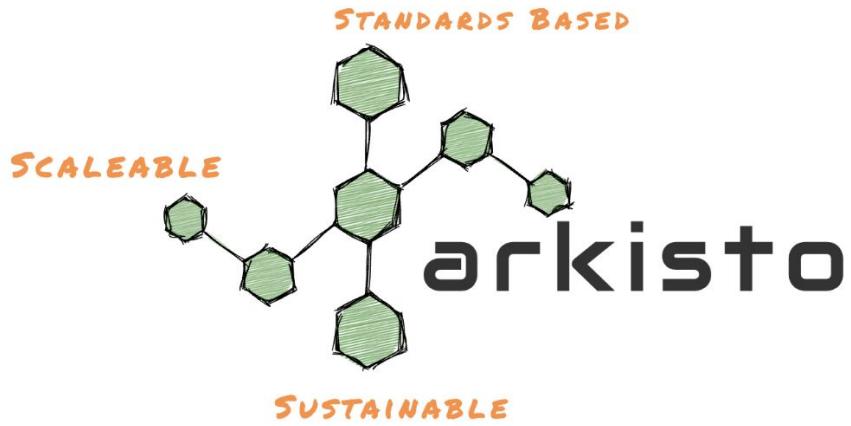
```
import requests
headers = {"Authorization": "Bearer %s" % API_TOKEN}
response = requests.get(url=url, headers=headers)
print(response.text)
```

<source><g=f><o=b><age=40><status=1><abode=09><p=nsw><r=prw><tt=pc><1-061> Governor King who has now the command, will make many regulations for the security, & Colony – and likewise some attention to the rising generation, to which hitherto none if we ever hope for worth or honesty in this settlement, we must look to them for it, e mortals. A school is now establishing on a very extensive plan, for the reception ren whose parents are not proper for such a charge, under the management of the Govr en are to be entirely secluded from the other people – and brought up in habits of re nches of manufactories will be by means of this seminary put on foot particularly ma the latter to be procured from the Fleece of a remarkable fine breed of Spanish Sheep, the former from the Flax which grows spontaneous in the Woods. This with their ed erent Trades, and the Girls Housewifery and the use of the needle, will be full emplo s me great satisfaction – as there are now above a thousand children in the place. I at the time when the young Men will become useful members of Society and the Women fa ryone must hope for our success in so laudable an undertaking – and if no material in all soon have it on a permanent establishment – I hope when an opportunity offers to een months since we left England, and I have not heard from any Friend I have. – Col ly taken up with his two capacities, particularly under the present circumstances, e the Field with the Men, and I am often lonely enough, and sometimes perhaps fancy th however with respect to My Dear Sister I am always easy, under your protection I can only to add Col. P. best respects. [I] f any thing more happens before the sailing o my sister.

<\1-061><\n=f><\n=><\age=40><\status=1><\abode=09><\n=nsw><\r=prw><\tt=pc>

./{collection id}/{item id}

```
|   └── {metadata.xml}  
|  
|   └── file1.wav  
|  
|   └── file2.wav  
|  
|   └── file3.mp3  
|  
|   └── ... etc ...|
```



A scalable, standards based platform
for sustainable data.

The basis of Arkisto is that the long-term preservability of well-described data is
always the first consideration.

Data on an Arkisto deployment is always available on disc (or object storage) with a complete description *independently* of any services such as websites or APIs. Once the data is safe and well described, Arkisto has a flexible model for how data can be accessed using a variety of services.

Arkisto is built on top of [Research Object Crate \(RO-Crate\)](#) and the [Oxford Common File System Layout \(OCFL\)](#).

With Arkisto there is no messy data migration.

```
{  
  "conformsTo": "http://purl.archive.org/language-data-commons/profile"  
}
```

Addressable
resources



<https://orcid.org/0000-0001-2345-6789>

ID? Title? Description?



Who created this data?



What parts does it have?



When?



What is it about?



How can it be reused?



As part of which project?



Who funded it?



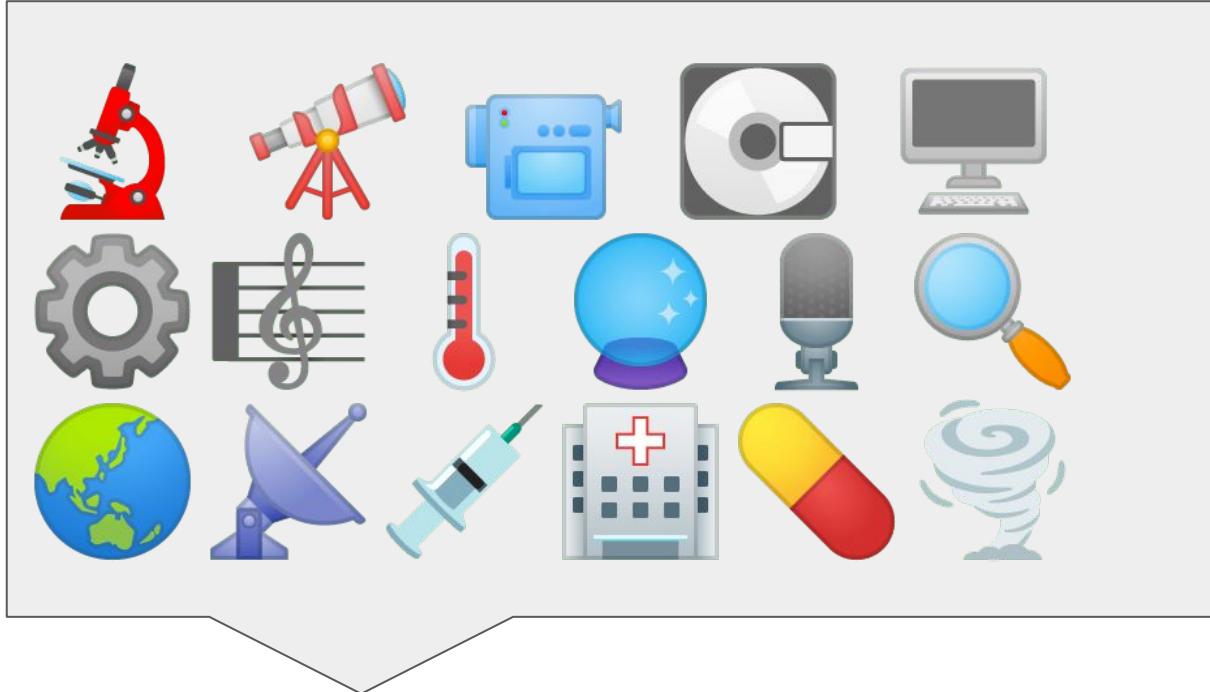
How was it made?



Local Data



https://en.wikipedia.org/wiki/Scanning_electron_microscope



Recordings in South Efate

Download all the metadata for Recordings in South Efate in JSON-LD format
[Check this crate](#)

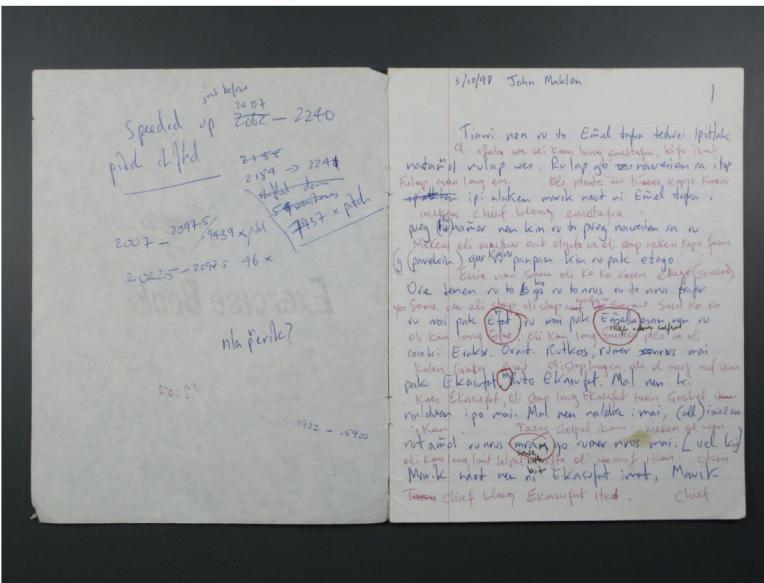
Browse files Recordings in South Efate

@id	/
name [?]	Recordings in South Efate
@type	<ul style="list-style-type: none">DatasetRepositoryObject
description [?]	NT1-98007. Text #047 (speaker is John Maklen). Text title: History of villages before Erakor; Ti Erramango); Text #049. Text title: Asaraf (speaker is John Maklen);Text #050. Text title: Mumu Erakor—the spirit who lives at Erakor (speaker is John Maklen);Text #038. Text title: The need. There are time-aligned transcripts of this item and handwritten transcripts by Manuel Wayane
memberOf [?]	https://catalog.paradise.org.au/collections/NT1
additionalType [?]	item
collector	Nick Thieberger
contentLanguages	<ul style="list-style-type: none">BislamaSouth Efate
countries	Vanuatu
dateCreated [?]	2012-09-27T10:08:01.000Z
dateModified [?]	2018-05-17T04:13:04.000Z
depositor	Nick Thieberger
digitisedOn	Mon Jan 01 2001 00:00:00 GMT+100 (Australian Eastern Daylight Time)
hasPart [?]	<ul style="list-style-type: none">NT1-98007-001.jpgNT1-98007-002.jpgNT1-98007-003.jpgNT1-98007-004.jpgNT1-98007-005.jpgNT1-98007-006.jpgNT1-98007-007.jpgNT1-98007-008.jpgNT1-98007-009.jpgNT1-98007-010.jpgNT1-98007-011.jpgNT1-98007-012.jpgNT1-98007-013.jpgNT1-98007-014.jpg

Recordings in South Efate

Download all the metadata for Recordings in South Efate in JSON-LD format
[Check this crate](#)

Download: NT1-98007-001.jpg



@id	NT1-98007-001.jpg
name [?]	NT1-98007-001.jpg
@type	File
encodingFormat [?]	image/jpeg
contentSize [?]	1658368
dateCreated [?]	2012-09-27T10:08:01.000Z
dateModified [?]	2018-05-17T04:13:04.000Z

Versions: v1

Metadata

Content

Recordings in South Efate

[Open \(subject to agreeing to PDSC access conditions\)](#)

Item Identifier NT1/98007

Collection NT1

NT1-98007. Text #047 (speaker is John Maklen). Text title: History of villages before Erakor); Text #048 (speaker is John Maklen. Text title: Mantu the flying fox and Erromango); Text #049. Text title: Asaraf (speaker is John Maklen); Text #050. Text title: Mumu and Kotkot (speaker is John Maklen); Text #051. Text title: Natopu ni Erakor—the spirit who lives at Erakor (speaker is John Maklen); Text #038. Text title: The need for respect (speaker is lokopeth) Stories can be seen at NT8-TEXT. There are time-aligned transcripts of this item and handwritten transcripts by Manuel Wayane scanned as jpg files.

**Contributors**

Nick Thieberger - collector, depositor, recorder Kalsarap Namaf - speaker
Ilokopeth - speaker John Maklen - speaker Waia Tenene - speaker

Publisher

University of Melbourne

Countries

Vanuatu (VU)

Cite As

Nick Thieberger (collector, depositor, recorder), Kalsarap Namaf (speaker), Ilokopeth undefined (speaker), John Maklen (speaker), Waia Tenene (speaker), 1998. Recordings in South Efate. Item NT1/98007 in the PARADISEC Collection, paradisec.org.au. <https://dx.doi.org/10.4225/72/56F94A61DA9EC>.

[Show OCFL inventory file](#) [Show RO-Crate](#) [Show Data files](#)

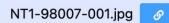
Versions: v1

Metadata

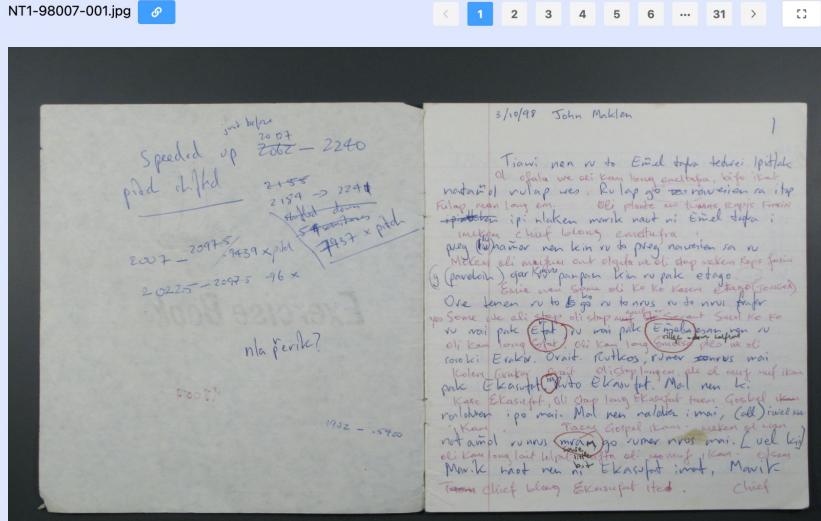
Content

You have agreed to the conditions of access for viewing the content of this item. To review the conditions [click here](#).[Images](#) [Audio](#) [XML Files](#)

NT1-98007-001.jpg



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The structure an RO-Crate MUST follow is:

```
<RO-Crate root directory>/  
|   ro-crate-metadata.json      # RO-Crate Metadata File MUST be present  
|   ro-crate-preview.html       # RO-Crate Website homepage MAY be present  
|   ro-crate-preview_files/    # MAY be present  
|       | [other RO-Crate Website files]  
|   [payload files and directories] # 0 or more
```

Dataset

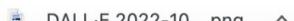
A Schema.org Type

Thing > CreativeWork > Dataset

[more...]

A body of structured information describing some topic(s) of interest.

Property	Expected Type	Description
Properties from Dataset		
distribution	DataDownload	A downloadable form of this dataset, at a specific location, in a specific format.
includedInDataCatalog	DataCatalog	A data catalog which contains this dataset. Supersedes includedDataCatalog , catalog . Inverse property: dataset
issn	Text	The International Standard Serial Number (ISSN) that identifies this serial publication. You can repeat this property to identify different formats of, or the linking ISSN (ISSN-L) for, this serial publication.
measurementTechnique	Text or URL	<p>A technique or technology used in a Dataset (or DataDownload, DataCatalog), corresponding to the method used for measuring the corresponding variable(s) (described using variableMeasured). This is oriented towards scientific and scholarly dataset publication but may have broader applicability; it is not intended as a full representation of measurement, but rather as a high level summary for dataset discovery.</p> <p>For example, if variableMeasured is: molecule concentration, measurementTechnique could be: "mass spectrometry" or "nmr spectroscopy" or "colorimetry" or "immunofluorescence".</p> <p>If the variableMeasured is "depression rating", the measurementTechnique could be "Zung Scale" or "HAM-D" or "Beck Depression Inventory".</p> <p>If there are several variableMeasured properties recorded for some given data object, use a PropertyValue for each variableMeasured and attach the corresponding measurementTechnique.</p>
variableMeasured	PropertyValue or Text	The variableMeasured property can indicate (repeated as necessary) the variables that are measured in some dataset, either described as text or as pairs of identifier and description using PropertyValue .
Properties from CreativeWork		
about	Thing	<p>The subject matter of the content.</p> <p>Inverse property: subjectOf</p>
abstract	Text	An abstract is a short description that summarizes a CreativeWork .



OLAC Linguistic Data Type Vocabulary

Date issued: 2002-06-28

Status of document: WithdrawnRecommendation.

This version: <http://www.language-archives.org/REC/type-20020628.html>

Latest version: <http://www.language-archives.org/REC/type.html>

Previous version: <http://www.language-archives.org/REC/type-20020612.html>

Abstract: This document specifies the controlled vocabulary of language resource types used by OLAC. The linguistic data type vocabulary describes the nature of the content of a resource from a linguistic standpoint.

Editors: Heidi Johnson (<mailto:ailla@ailia.org>)

Helen Aristar Dry (<mailto:hdry@linguistlist.org>)

Changes since previous version: Adds: transcription/phonemic, transcription/kinesic, annotation/translation, annotation/phonological, annotation/semantic, annotation/eye-gaze, annotation/facial-expression, description/phonological, description/kinesic, description/pedagogical, description/comparative, dataset/kinesic.

Deletes: transcription/eye-gaze, transcription/facial-expression, transcription/translation, transcription/phonological, transcription/semantic, description/eye-gaze, description/facial-expression, dataset/eye-gaze, dataset/facial-expression. Genre Type section.

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 - o [transcription](#)
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 - [transcription/orthographic](#)
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 - [transcription/kinesic](#)
 - [transcription/musical](#)
 - o [annotation](#)
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 - [annotation/prosodic](#)
 - [annotation/gestural](#)
 - [annotation/kinesic](#)
 - [annotation/morphological](#)
 - [annotation/part-of-speech](#)
 - [annotation/syntactic](#)
 - [annotation/semantic](#)

Language Data Ontology

This is an experimental language data ontology based on OLAC terms for use in the ATAP and LDaCA projects

Classes

[PrimaryText](#) | [Annotation](#) | [CollectionEvent](#) | [CollectionProtocol](#) | [DerivedResource](#) | [OrganizationBasedLicense](#) | [OrganizationDepositLicense](#)
| [OrganizationReuseLicense](#) | [PersonSnapshot](#)

Properties

[annotationOf](#) | [annotationType](#) | [annotator](#) | [author](#) | [channels](#) | [collectionEventType](#) | [collectionProtocolType](#) | [compiler](#) | [consultant](#) |
[dataInputter](#) | [depositor](#) | [derivationOf](#) | [developer](#) | [doi](#) | [editor](#) | [geoJSON](#) | [hasAnnotation](#) | [hasDerivation](#) | [illustrator](#) | [indexableText](#) |
[interpreter](#) | [interviewee](#) | [interviewer](#) | [recorder](#) | [register](#) | [researchParticipant](#)
[hasCollectionProtocol](#) | [isDeldentifier](#)

DefinedTerms

[Coded](#) | [Dialogue](#) | [Drama](#) | [Elicitation](#)
[Orthographic](#) | [PartOfSpeech](#) | [Phonetic](#)
[Song](#) | [SpokenLanguage](#) | [Syntactic](#)
[WrittenLanguage](#) | [WhistledLanguage](#)

DefinedTermsSets

Class: PrimaryText

Property: linguisticGenre

A linguistic classification of the genre of this resource

Values expected to be one of these types:

Used on these types:

[<https://purl.archive.org/language-data-commons/terms#PrimaryText>] |

Values expected to be one of these defined terms:

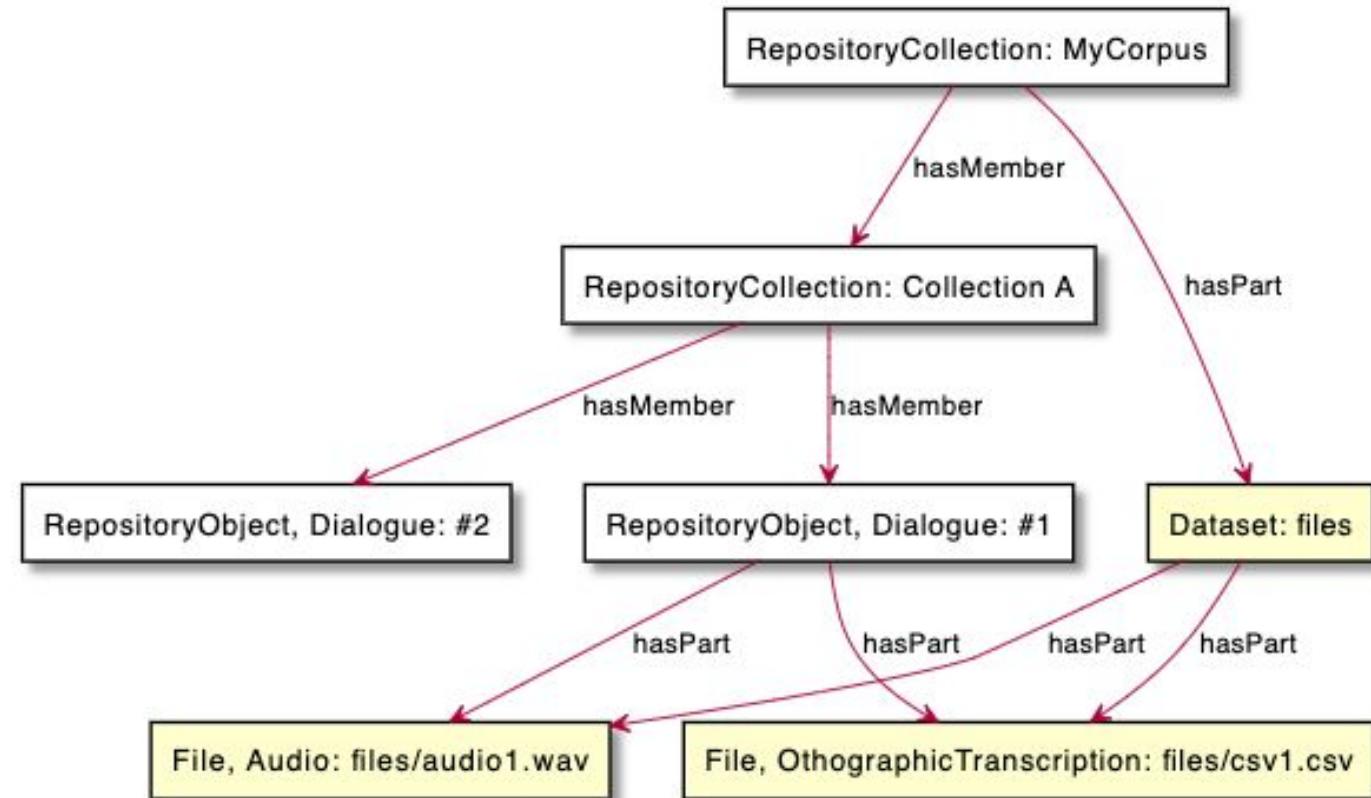
[[Formulaic](#)] | [[Thesaurus](#)] | [[Dialogue](#)] | [[Oratory](#)] | [[Report](#)] | [[Ludic](#)] | [[Procedural](#)] | [[Narrative](#)] | [[Interview](#)] | [[Drama](#)] | [[Informational](#)] |

This is a primary resource: the object of study, such as a literary work, film, or recording of natural discourse

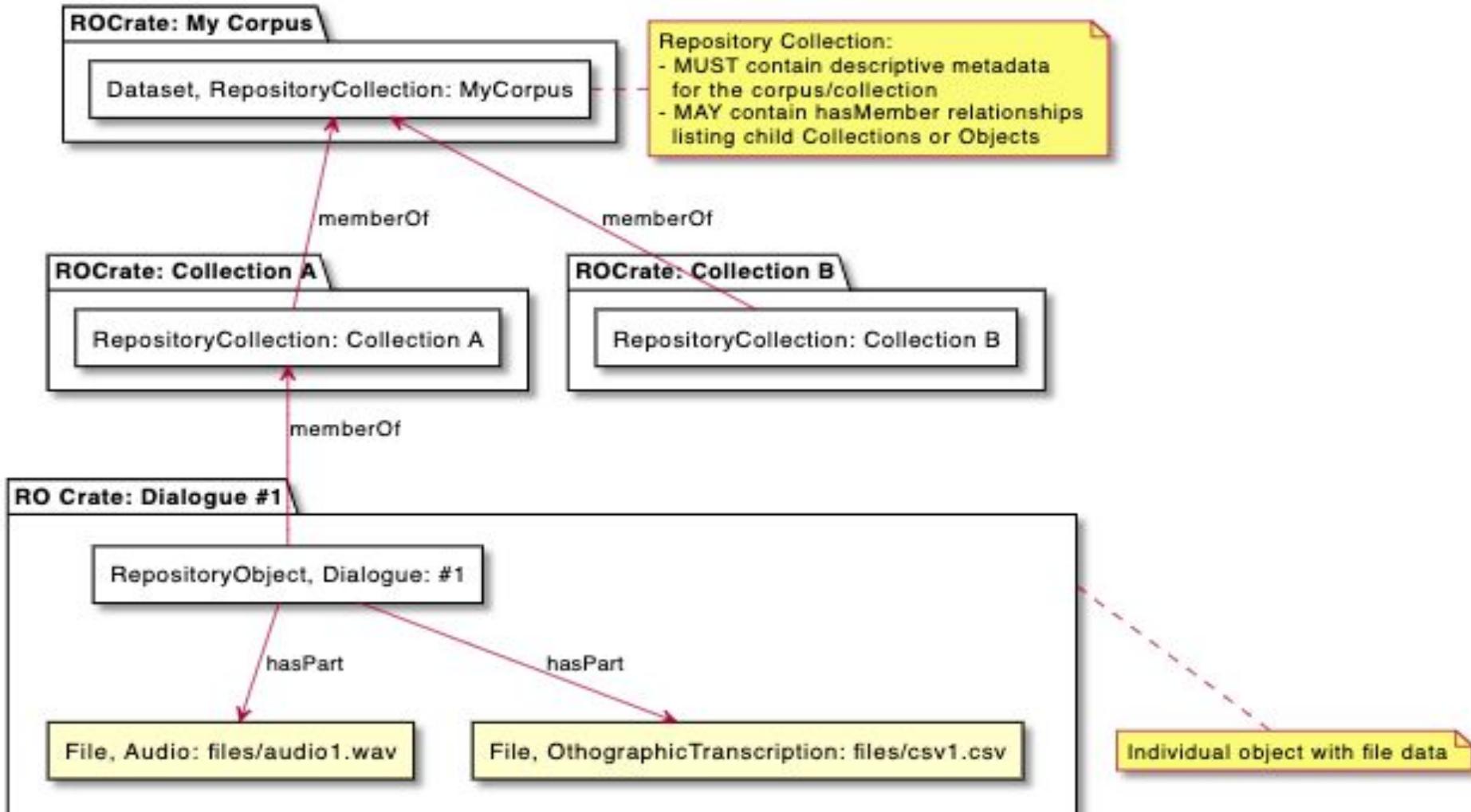


Self contained corpus crate with all resources

ROCrat: My Corpus



Complete corpus collection metadata-only crate w/ links to object packages



[Use another service](#)

Resource: local:/home/pt/working/language-research-technology/corpus-tools-sydney-speaks/template



Profile: Language Data Commons top level Collection (corpus) (0.1)

[Build the Collection](#)[Manage Collection Data Files](#)[Browse Collection Entities](#)[Manage Templates](#)[Load Root Dataset](#)[About](#)[Main](#)[Related items](#)[Collection Structure](#)[Space and Time](#)

...

Conforms To

A link to the Text Commons RO-Crate profile for collections

URL: <https://purl.archive.org/language-data-commons/profile#Collection>

Description

An abstract of the collection. Include as much detail as possible about the motivation and use of the collection, including things that we do not yet have properties for

The Sydney Speaks Collection brings together three sub-corpora of recorded spontaneous speech: Sydney Speaks 2010s, Sydney Social Dialect Survey, and NSW Bicentennial Oral History Collection. The Sydney Speaks 2010s Corpus speakers include a cross-section of Sydney's residents, consisting of recordings



Author

[+ Person](#)[+ Organization](#)

Person: Catherine Travis



Sydney Speaks

online via the State Library of NSW and the National Library of Australia. We thank the National Library of Australia for granting us extended access to this collection.

[Open metadata in a new window](#)

@id [arcp://name/sydney-speaks/corpus/root](#)

Temporal Cover 1900
age

Citation Sydney Speaks Corpus Manual [PDF]

Conforms To <https://purl.archive.org/textcommonse#Collection>

Funder ARC

Author Catherine Travis

Publisher Australian National University

Identifier ATAP

Sub Collections: 3

[Sydney Speaks 2010s](#)
[Sydney Social Dialectal Survey](#)
[NSW Bicentennial Oral History Collection](#)

Sydney Speaks 2010s

@id

[arcp://name/sydney-speaks/subcorpus/SYDS](#)



Temporal Cover 2010-2019
age

Conforms To <https://purl.archive.org/textcommonse#Collection>

Identifier ATAP

Items in Collection: 169

- [2018-05-02 - interview with Enrico Ontario - alias - \(Male, 53\)](#)
- [2019-05-16 - interview with Toby Angeliz - alias - \(Male, 21\)](#)
- [2017-07-23 - interview with Angela Wang - alias - \(Female, 24\)](#)
- [2018-11-07 - interview with Elaine Ossani - alias - \(Female, 19\)](#)
- [2016-05-25 - interview with Tessa Hopkins - alias - \(Female, 52\)](#)
- [2019-01-31 - interview with Craig Beer - alias - \(Male, 31\)](#)
- [2017-07-04 - interview with Julia Amoroso - alias - \(Female, 20\)](#)

2018-05-02 - interview with Enrico Ontario - alias - (Male, 53)

LDaCA Hub Help

Mr Moises Sacal Bonequi, member of group:
sy-speaks/licence/A/

[sydney-speaks/SYDS/item/83](#)

i

[archive.org/textcommons/profile#Objecte,sydney-speaks/schema/csv](#)

aro - alias - status when interviewed 2018-05-02

2

d excerpts can be played in public settings

[Sydney Speaks License A](#)
Public Metadata — Indexed

Access

Collection Level Metadata License
(can display metadata)

[Read more](#)

[Sydney Speaks License E](#)

Public Metadata

Indexed

Member Of

Sydney Speaks

Content

Language

English : 427

Linguistic Genre

Demo

Starting repository: Australian-Text-Analytics-Platform/farms-to-freeways/main

If a repository takes a long time to launch, it is usually because there needs to be content for the first run.

jupyter

Loading Farms to Freeways from the API and ro-crate metadata file

```
import requests
import json
import os

url = "https://datacite.org/api/v2.0/sets/4a36543d-1a2e-4a2c-8f3b-1a2e436543d4/contents"
```