Data curations by the Dutch Data Curation Service

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Keywords: language resources; sustainable infrastructure; data curation; research data management

1. Introduction

In line with developments we see at the European level, in CLARIN-NL (Odivk 2010) substantial efforts are made to contribute towards the development of an infrastructure that will support the sharing and re-use of resources, and that will open up new avenues of research as it allows for combining various resources in new and unforeseen ways. Apart from work on the implementation of the technical part of the infrastructure, there are several resource curation and/or demonstration projects which should bring this infrastructure to life and promote its actual use. The Data Curation Service (DCS) hosted at the Centre for Language and Speech Technology in Nijmegen is a centre of expertise set up to assist researchers, especially those without the time, money, or know-how, in preparing their data for delivery to one of the CLARIN centres that operate as hubs in the CLARIN infrastructure (Oostdijk & van den Heuvel, 2012). Data curation involves digitizing data (where necessary), converting the data so as to conform to CLARIN accepted standards or preferred formats, providing metadata and adding documentation. The DCS acts as intermediary between the researcher and the eventual data centre.

In this contribution we focus on the data curations that were carried out by the DCS so far, and show the diversity of language resources taken care of.

2. Data curation

In the two years that the CLARIN-NL DCS has now been operational, its focus has been on the curation of data collections residing with and used by individual researchers or research groups in the Netherlands. Candidates for curation are identified and for each it is assessed as to (1) whether it is desirable to have the resource curated and (2) whether successful curation is feasible. A more elaborate description of how these criteria can be operationalized is given in Oostdijk et al. (2013).

Most of the data collections targeted by the DCS are collections that were compiled in projects that were already finished and of which many did not receive any follow up, so that in effect the data were at risk of being lost. Curation of such collections can be challenging, especially when they were created in a context where little or no thought was given to the idea of sharing or re-use.

Often IPR has not been settled or if it has, the arrangements did not anticipate the distribution or wider use of the data. Typically data formats are diverse, metadata and documentation incomplete. Since settling IPR for already existing collections was deemed problematic, the DCS has refrained from taking on the curation of resources for which any IPR issues remained to be settled.

The curation of resources involves various actions which can be summarized as follows:
- Data collection: obtaining and agreeing upon the complete and final set of data;
- IPR check: so as to make sure the data can be published in CLARIN context
- Conversion of data formats into standard formats of CLARIN;
- Anonymization of the data; this is typically done in transcriptions, metadata and file names;
- Finding an appropriate CMDI metadata profile (http://www.clarin.eu/CMDI) and modifying it where necessary;
- Filling the metadata profile with the metadata belonging to the database;
- Writing documentation and the curation report; the curation report addresses the above issues and describes the steps taken to curate the resource along these lines;
- Packaging and delivery at a CLARIN data centre. The data centre takes care of adding persistent identifiers and storage of the curated database.

3. Curated language resources

So far a variety of language resources have been curated by the DCS. We will report on the curation of the databases by grouping them into several categories following the language resources typology presented in Gavrilidou et al. (2012):

1. Lexical resources: Dialect databases
2. Multimodal and multilingual corpora: Language acquisition databases
3. Oral/spoken corpora: IPNV interviews

3.1 Lexical resources: Dialect databases

The dialect resources were delivered in various formats including exports of MySQL, MS Access, and FileMaker
Pro. None of these formats is an accepted CLARIN format, the LMF format, however, is. LMF stands for Lexical Markup Framework and is an XML standard which is typically suited to capture hierarchical lexicon structures (Francopoulo, 2013). We departed from a first LMF model used in the COAVA project¹ and made an extended version of this. Our LMF model is based on three head features associated with Lexical Entry.

- **Form**
- **Sense**
- **Location**

Two further features are Definition and Context (both positioned under Sense). Each feature is linked to an ISOcat² data category (see Windhouwer & Wright, 2013) as shown in Table 1. Only Form Keyword is mandatory.

<table>
<thead>
<tr>
<th>LMF feature</th>
<th>Corresponding ISOcat element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Keyword=</td>
<td>278 keyword</td>
</tr>
<tr>
<td>Form Representation Keyword=</td>
<td>278 keyword</td>
</tr>
<tr>
<td>Form Representation Lexvariant=</td>
<td>5585 lexical variant</td>
</tr>
<tr>
<td>Form Representation Morphologicalvariant=</td>
<td>5758 morphological variant (new, defined by DCS)</td>
</tr>
<tr>
<td>Form Representation GrammaticalInformation=</td>
<td>2303 grammatical unit</td>
</tr>
<tr>
<td>Form Representation Dialectform=</td>
<td>1851 geographical variant</td>
</tr>
<tr>
<td>Form Representation Phoneticform=</td>
<td>1837 phonetic form</td>
</tr>
<tr>
<td>Form Representation standardizedform=</td>
<td>1851 geographical variant</td>
</tr>
<tr>
<td>Sense lemma-id=</td>
<td>288 lemma identifier</td>
</tr>
<tr>
<td>Sense Lemma=</td>
<td>286 lemma</td>
</tr>
<tr>
<td>Sense Meaning=</td>
<td>464 sense</td>
</tr>
<tr>
<td>Definition Definition=</td>
<td>168 definition</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMF feature</th>
<th>Corresponding ISOcat element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition sourcelist=</td>
<td>5759 source list (new, defined by DCS)</td>
</tr>
<tr>
<td>sourcebook=</td>
<td>471 source</td>
</tr>
<tr>
<td>Definition sourcelistnumber=</td>
<td>5760 source list number (new, defined by DCS)</td>
</tr>
<tr>
<td>sourcebookpage=</td>
<td>4126 pages</td>
</tr>
<tr>
<td>Context Timecoverage=</td>
<td>3664 Time coverage</td>
</tr>
<tr>
<td>Context Example=</td>
<td>3778 example</td>
</tr>
<tr>
<td>Context Comment=</td>
<td>4342 Comment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LMF feature</th>
<th>Corresponding ISOcat element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location Place=</td>
<td>3759 source</td>
</tr>
<tr>
<td>Location Area=</td>
<td>3814 region</td>
</tr>
<tr>
<td>Location Subarea=</td>
<td>3814 region</td>
</tr>
<tr>
<td>Location informant-id=</td>
<td>3597 speaker id</td>
</tr>
<tr>
<td>Location kloke=</td>
<td>3651 Kloeke geo-reference</td>
</tr>
</tbody>
</table>

Table 1: LMF features in the LMF model for dialect databases and corresponding ISOcat elements

We could capture all dialect databases in this framework. All databases were converted to Excel which was considered the intermediary format. Excel files can be converted and imported by tools that are typically used by dialectologists. Care was taken that all data was encoded using UTF-8. The databases were exported as tab separated text files and converted to LMF by means of a Perl script. Phonetic transcriptions (as found to occur in the WBD (Dictionary of the Brabant Dialects³) and the WLD (Dictionary of the Limburgian Dialects⁴) were preserved in SIL IPA.

Metadata for each lexical database was entered in the WND profile⁵, a CMDI profile created for the COAVA project (Cornips et al. 2011).

In this way the following dictionaries were curated:
- WLD and WBD part III (Dutch dialect dictionaries from Brabant and Limburg)
- Woordenboek Gelderse Dialecten, Rivierengebied
- Woordenboek Gelderse Dialecten, Veluwe

¹ [http://www.meertens.knaw.nl/coavasite/](http://www.meertens.knaw.nl/coavasite/)
² [http://www.isocat.org/](http://www.isocat.org/)
³ [http://dialect.ruhosting.nl/wbd/index.htm](http://dialect.ruhosting.nl/wbd/index.htm)
⁴ [http://dialect.ruhosting.nl/wld/index.htm](http://dialect.ruhosting.nl/wld/index.htm)
identifiers and stored. Meertens Institute where they were assigned persistent all curated dialect databases were transferred to the -

format in such a way that each file could be uniquely 

export function. The database was restructured into 
files were renamed in the same structure, using a fixed 
sessions with the structure Task/L1/Speaker/Cycle. All 
converted to ELAN 7 transcription files by using ELAN's 
signal and the annotation. The files were 
format, which is a text-based format with both the speech 

The data was stored on 135 DVDs in PRAAT6 collection 

3.2 Multimodal and multilingual corpora: Language acquisition databases 

LESLLA 
The LESLLA corpus was collected between 2003-2005 in 
the framework of the research project Stagnation in L2 
acquisition: under the spell of the LI? sponsored by 
NWO (the Dutch Organisation for Scientific Research). 
The corpus contains valuable data for studying 
low-educated second language and literacy acquisition, 
but had been lying idly on the shelf ever since the project 
came to an end.
The main research question in the project was to what 
extent the first language impeded the acquisition of 
the second language in the tutored context of a language 
course. The participants in the original study had to carry 
out five tasks which all involved spoken language but 
varied from strictly controlled to semi-spontaneous. The 
recordings took place in three cycles of about 6 months 
each. In each cycle the tasks were repeated by each 
participant. The recordings of one cycle were done in 
three separate sessions (in order to avoid an overload for 
the participant). Thus there were 9 recording sessions per 
participant over a period of 1.5 years.
The data was stored on 135 DVDs in PRAAT5 collection 
format, which is a text-based format with both the speech 
signal and the annotation. The files were split into MS riff 
wave files and PRAAT TextGrids. The TextGrids were 
converted to ELAN7 transcription files by using ELAN’s 
export function. The database was restructured into 
sessions with the structure Task/L1/Speaker/Cycle. All 
files were renamed in the same structure, using a fixed 
format in such a way that each file could be uniquely 
identified by its name. As only first names were used in 
the database there was no need for anonymisation.
The metadata profile for LESLLA was adapted from the 
DBD (see below, next section). The metadata was stored 
in an MS Excel file and CMDI files were created using a 
python conversion script.
The data has been made available through one of the 
CLARIN data centres: the Max Planck Institute in 
Nijmegen. For the time being it is available in IMDI6 
format and at the end of 2014 it will be available in 
CMDI format.

DBD/TCULT 
The Dutch Bilingual Database (DBD) is a rather 
substantial collection of data (over 1,500 sessions) from a 
number of projects and research programmes that were 
directed at investigating multilingualism. It comprises 
data originating from Dutch, Sranan, Sarnami, 
Papiamentu, Arabic Berber and Turkish speakers. At the 
basis of the collection lies the research project TCULT 
(1998-2002) in which intercultural language contacts in 
the Dutch city of Utrecht were studied. Many more 
bilingual datasets collected over the period 1985 – 2005 
were later added to the database.

The DBD corpus was stored at the Max Planck Institute 
with the metadata in IMDI format. During the curation 
process, missing CHAT10 files (i.e. files that belonged to 
the database but had not before been included), were 
added. Because all data was already in CLARIN approved 
format, there was no need for any data conversion.

A new DBD metadata profile was set up in CMDI, based 
on the existing IMDI profile. A shell script was created to 
convert the IMDI files to CMDI files. Where necessary 
information was made consistent and missing information 
(e.g. about file sizes) was added. New ISOcat elements 
were introduced that were submitted to the ISO 
committee for formal approval.
The database will be available at the MPI in CMDI at the 
end of 2014.

3.3 Oral/spoken corpora: IPNV interviews 
The IPNV Corpus is a corpus originally compiled by the 
Veteraneninstituut (VI). It comprises a collection of more 
than 1,100 (recorded) interviews with veterans who were 
involved in wars and other military actions that the Dutch 
military forces took part in. The average duration of an 
interview is 2.5 hours. Most interviews are with veterans 
of World War II, the decolonization wars with Indonesia 
and New Guinea, the UN action in Korea, the UN observe 
mission in Lebanon, UN missions in Cambodia and 
former Yugoslavia, and the NATO missions in Iraq and 
Afghanistan. Some 100 interviews are with veterans who

6 http://www.Praat.org
7 https://tla.mpi.nl/tools/tla-tools/elan/
8 http://www.mpi.nl/IMDI/
9 https://corpus1.mpi.nl/ds/asv/?openpath=node:1893295
10 http://childes.psy.cmu.edu/
were involved in small-scale observation, monitoring and humanitarian missions. In the INTER-VIEWs project\textsuperscript{11} 246 of the interviews were curated: the audio recordings (in riff wav format) of the interviews were transferred to DANS\textsuperscript{12} and the metadata were made available in CMDI/ISOcat format adopting the profile \textit{OralHistoryInterview} in CLARIN’s component registry. The data and metadata can be accessed through the DANS EASY system.

For the remaining interviews all recordings are in WAV format as well. They have also been transferred to DANS by the Veteraneninstituut. With these data, some metadata (at least covering Dublin Core categories) is available. The Veteraneninstituut has provided additional metadata (in an MS Access database) such that the metadata are comparable (and thus compatible) with the metadata for the 246 interviews that were curated in the INTER-VIEWs project.

Around 950 interviews were curated (including an update of the 246 previously curated interviews). All corresponding CMDI metadata files were delivered at DANS. DANS has been authorised to publish various aspects of the metadata in accordance with their agreement (Convenant) with the Veteraneninstituut.

4. Conclusion

So far the DCS has focused on existing data collections which means that most of its efforts have been directed at trying to make the resources conform to CLARIN preferred formats, allowing for their integration in the larger CLARIN infrastructure and the application of various services offered within this infrastructure. Thus one could say that the DCS has been working on curating a backlog of resources that were created in the past. In the near future, however, we expect the task of the DCS to change in the light of the evolving vision of an infrastructure for language resources. In a recent position paper presented at LREC2014 (Oostdijk & Van den Heuvel, 2014), we have described our view on the future role for researchers and other stakeholders in the data curation process in the evolving language resources infrastructure.

5. Acknowledgement

The research for this paper was funded by CLARIN-NL (http://www.clarin.nl) under grant numbers CLARIN-NL-10-025 and CLARIN-NL-11-005.

6. References


\textsuperscript{11} Project funded by CLARIN-NL under grant number CLARIN09-015.

\textsuperscript{12} DANS (Data Archiving and Networked Services) is one of the Dutch CLARIN centres. See also \url{http://www.dans.knaw.nl}