KinOath, Kinship Software Beta Stage of Development

The kinship archiving software under development by Peter Withers at the Language Archive, MPI, Nijmegen
Introduction

• KinOath is a kinship application under development by Peter Withers at the Language Archive of the Max Planck Institute for Psycholinguistics Nijmegen.
• Its primary goal is to connect kinship data with archived data, such as audio, video or written resources while also being closely integrated with the archive software such as Arbil.
• Beyond this goal it is designed to be flexible and culturally nonspecific, such that culturally different social structures can equally be represented.
Application Overview

There are two main parts to the application:

• Web Application
• Desktop Application

• Each of these can link to archived or external data
Current State of Development

• The desktop application is in beta stage
• The web application is still under development

• This talk will show examples of how the current beta of the desktop application can be used and also discuss features that are planned or in development
Beta Stage of Development Means:

• Usability testing has begun and the interface is being refined
• Most features are present, but not all features fully functional
• Formal software testing has not begun so there will be bugs
• Public beta release will be very soon

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Core Aspects

• Graphical representation of the data is an important part of the application and the diagrams produced are intended to very flexible and of publishable quality.

• Kin type strings are used throughout the application for constructing and searching data sets.

• The representation of kin terms is also integrated into the application allowing comparative diagrams of kin terminology.
Publishable Diagrams

• All the diagrams produced are in a vector format of publishing quality
• All diagrams can be exported into PDF format
• The working files are vector graphics files that can be viewed in a web browser
Flexible Data Structure

• The Clarin Component Registry can be used
  • http://catalog.clarin.eu/ds/ComponentRegistry
  • http://www.isocat.org/

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Multiple Data Types

• The data structure designed in the component registry can be used on the kin diagrams
• Multiple data structure types are be possible on the same diagram
Adding Relations

Relations can be constructed either via the context menu or by dragging the blue dots with the mouse.
Creating Custom Symbols

- Custom symbols can be inserted into a kin diagram and used like any existing symbol.
- Currently there is no simple way to add them via the user interface.
- In the interim time this can be achieved by using an external editor such as Inkscape and adding the new symbol manually.

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Selecting Custom Symbols

• The symbols are placed on the diagram based on the data for that individual
• Any number of symbols can be used on a diagram
• For instance "*:Kinnate/ *:Entity[:Gender='male']" can be associated with the symbol "rhombus"
• Note that the table data is extremely flexible and could equally be "*:Kinnate/ *:Entity[:caste='Y']"
• Additional overlay symbols will be available in the future
Gedcom Import

- All Gedcom fields are imported
- This simple example is from the Wikipedia Gedcom page
- For testing the “GEDCOM 5.5 Torture Test Files” are used
Resource Files

- Like manually created resource links, imported GEDCOM resources files are available both on the diagram and via the diagram tree.
Kin Type Queries

• Kin type queries consist of kin types followed by search parameters

E[Margaret of_Sweden]

• This example will show any entity that contains the string “Margaret of_Sweden” on the diagram, in this case there is only one match
Kin Type Query Syntax

- The kin types following a query will add any matching kin, for example the daughters of Maria

```
x[Maria Cristina of_Austria]D
```

- Maria Cristina of_Austria
  - Maria de_las_Mercedes
    - Jan 1, 1880 - Jan 1, 1904
  - Maria Theresa
    - Jan 1, 1882 - Jan 1, 1912
Dragging to the Query Text

- The queries can be constructed by dragging values from the table below (when entities are selected) onto the query text

E[INDI.NAME=Louis_II the_Stammerer //]

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME</td>
<td>Louis_II the_Stammerer //</td>
</tr>
<tr>
<td>TITL</td>
<td>King of France</td>
</tr>
<tr>
<td>SEX</td>
<td>M</td>
</tr>
<tr>
<td>BIRT.DATE</td>
<td>846</td>
</tr>
<tr>
<td>DEAT.DATE</td>
<td>879</td>
</tr>
</tbody>
</table>
Kin Type String Queries

- Multiple queries can be used per kin type
- Queries can use = contains, == exact match, > greater than, < less than

E[DateOfBirth<0850][INDI.TITL=King of France]CC

Louis_II the_Stammerer //
Dec 28, 0845 - Dec 28, 0878

Charles_III the_Simple //
Dec 28, 0878 - Dec 27, 0928

Louis_III //
Dec 28, 0862 - Dec 28, 0881

Carloman //
- Dec 28, 0883

Louis_IV d'Outre-Mer //
Dec 27, 0919 - Dec 27, 0953

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Kin Type Definitions

- The kin types used in the application can be customized
- Each kin type can use any string and any symbol
- These custom kin types are stored in the diagram file

<table>
<thead>
<tr>
<th>Kin Type String</th>
<th>Relation Type</th>
<th>Symbol Type</th>
<th>Display Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET</td>
<td>none</td>
<td>circle</td>
<td>Ego Female</td>
</tr>
<tr>
<td>Em</td>
<td>none</td>
<td>triangle</td>
<td>Ego Male</td>
</tr>
<tr>
<td>Fa</td>
<td>ancestor</td>
<td>circle</td>
<td>Father</td>
</tr>
<tr>
<td>Mo</td>
<td>ancestor</td>
<td>triangle</td>
<td>Mother</td>
</tr>
<tr>
<td>Br</td>
<td>sibling</td>
<td>triangle</td>
<td>Brother</td>
</tr>
<tr>
<td>Si</td>
<td>sibling</td>
<td>circle</td>
<td>Sister</td>
</tr>
<tr>
<td>So</td>
<td>descendant</td>
<td>circle</td>
<td>Son</td>
</tr>
<tr>
<td>Da</td>
<td>descendant</td>
<td>circle</td>
<td>Daughter</td>
</tr>
<tr>
<td>Hu</td>
<td>union</td>
<td>circle</td>
<td>Husband</td>
</tr>
<tr>
<td>Wi</td>
<td>union</td>
<td>circle</td>
<td>Wife</td>
</tr>
<tr>
<td>Pa</td>
<td>ancestor</td>
<td>square</td>
<td>Parent</td>
</tr>
<tr>
<td>Sb</td>
<td>sibling</td>
<td>square</td>
<td>Sibling</td>
</tr>
<tr>
<td>Sp</td>
<td>union</td>
<td>square</td>
<td>Spouse</td>
</tr>
<tr>
<td>Cn</td>
<td>descendant</td>
<td>square</td>
<td>Child</td>
</tr>
<tr>
<td>F</td>
<td>ancestor</td>
<td>triangle</td>
<td>Father</td>
</tr>
<tr>
<td>M</td>
<td>ancestor</td>
<td>circle</td>
<td>Mother</td>
</tr>
<tr>
<td>B</td>
<td>sibling</td>
<td>triangle</td>
<td>Brother</td>
</tr>
<tr>
<td>Z</td>
<td>sibling</td>
<td>circle</td>
<td>Sister</td>
</tr>
<tr>
<td>S</td>
<td>descendant</td>
<td>triangle</td>
<td>Son</td>
</tr>
<tr>
<td>D</td>
<td>descendant</td>
<td>circle</td>
<td>Daughter</td>
</tr>
<tr>
<td>H</td>
<td>union</td>
<td>triangle</td>
<td>Husband</td>
</tr>
<tr>
<td>W</td>
<td>union</td>
<td>circle</td>
<td>Wife</td>
</tr>
<tr>
<td>P</td>
<td>ancestor</td>
<td>square</td>
<td>Parent</td>
</tr>
<tr>
<td>G</td>
<td>sibling</td>
<td>square</td>
<td>Sibling</td>
</tr>
<tr>
<td>E</td>
<td>none</td>
<td>square</td>
<td>Ego</td>
</tr>
<tr>
<td>C</td>
<td>descendant</td>
<td>square</td>
<td>Child</td>
</tr>
<tr>
<td>F</td>
<td>none</td>
<td>circle</td>
<td>Female</td>
</tr>
<tr>
<td>+</td>
<td>none</td>
<td>square</td>
<td>Any Relation</td>
</tr>
</tbody>
</table>
Freeform Diagrams

• Freeform diagrams are constructed simply by entering kin type strings
Freeform Diagram Syntax

• `<KinType>::<id>;<label>;<label...>;<DOB>-<DOD>::<KinType...>`

• `EM:Jane;1721-1803:`

• `f:#3;Jane;1721-1803:F:Alfred:SD:Betty;Smith:`
Freeform Diagram Syntax

• By using the <id> preceding individuals can be referred to later in the string
• Here id #75 is used as a back reference to the first individual
• f:#75;N75:DDHMDSWMMM:#75:
Example: Matrimonial Rings

Matrimonial rings as suggested by Olivier Kyburz
Example: Charles II of Spain
Potential Interoperability

There are a number of opportunities for interoperability with other software

• Sharing data via the desktop application or via the web service
• Post or pre processing with R or SPSS
• A plugin framework to allow third party code gain access to the data and the graphical output features
R and SPSS

- The queries as used in the diagram can also be used via the web application.
- This can be used in R and SPSS as a data source.

- This web service is not yet publicly available but it functions as follows:
  `<webservice-url><kintype-query>`
  where the kintype-query for example would be E[Bob]MMZ

- Usage in R would be as follows:

```r
dataFrame <- read.table("http://mpi.nl/tls/kinship:8080/kinoath-rest/
library(kinship)
attach(dataFrame)
pedigreeObj <- pedigree(id, dadid, momid, sex, affected)
plot(pedigreeObj)
```
Linking Archive Data

• Because this kinship application shares a lot of code with Arbil (explained in next side), there is great flexibility in the metadata that can be consumed by it

• Many of the advantages of the Clarin metadata structures are available including the Data Category Register

• In order to link archive data many of the archive search tools found in Arbil are used

• Not all of these are ready for demonstration but they operate in a similar way as used in Arbil
Archive Intro

- Arbil demo...
Creating Archive Links

- By using the archive metadata to create kin entities the manual data entry is reduced.
Archive Links on the Diagram

• When added to a kin diagram the linked archive data are accessible from the kinship diagram

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinname.Entity.UniqueIdentifier.LocalIdentifier</td>
<td>7cc0b96597442447f689cfe6bad28457</td>
</tr>
<tr>
<td>Kinname.Entity.Name</td>
<td>Brian Smith</td>
</tr>
<tr>
<td>Kinname.Entity.DC8</td>
<td></td>
</tr>
<tr>
<td>Kinname.Entity.sex</td>
<td>male</td>
</tr>
<tr>
<td>Kinname.Entity.permissions</td>
<td>CV</td>
</tr>
</tbody>
</table>
Kin Terms

- Kin terms can be entered into a diagram
- A freeform diagram can be generated from these kin terms
- In the future these kin terms can be overlaid onto an existing diagram

Hawaiian kin term data from http://umanitoba.ca/faculties/arts/anthropology/tutor/kinterms/hawaiian.html

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Comparative Kin Terms

- Multiple groups of kin terms can be shown on one diagram
- In this case some of the Japanese vocative and referential kin terms are shown on the diagram

Japanese Kin Terms

Data sourced from http://ja.wikipedia.org/wiki/親族 and subsequent links

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Conclusion

- KinOath desktop is now in beta stage and already has many features with many yet to come:
  - Create publishable-quality kinship diagrams;
  - Query the internal kinship database constructing diagrams with links to archived data;
  - Provides an efficient way to construct kinship diagrams including matrimonial rings;
  - Create kin term diagrams with multiple kin term groups or language groups on the diagram;
  - Provide a link from a published diagram back to the source data in the archive;
  - Be financially accessible to everyone (free).