Automatic Merging of Pedigree Information

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Sue Dintelman and Tim Maness

Pleiades Software Development, Inc.

Source of Duplicates

- **Common Ancestry Trees**
  - Most large pedigrees have branches that intermarry
- **Combining Data Sources**
  - Working with other family members to build a common genealogy
  - Utilizing on-line or other sources to expand your genealogy

Current Solutions

- **Not automated**
- **Utilize limited clustering options**
- **Utilize limited family information (Parents' names)**

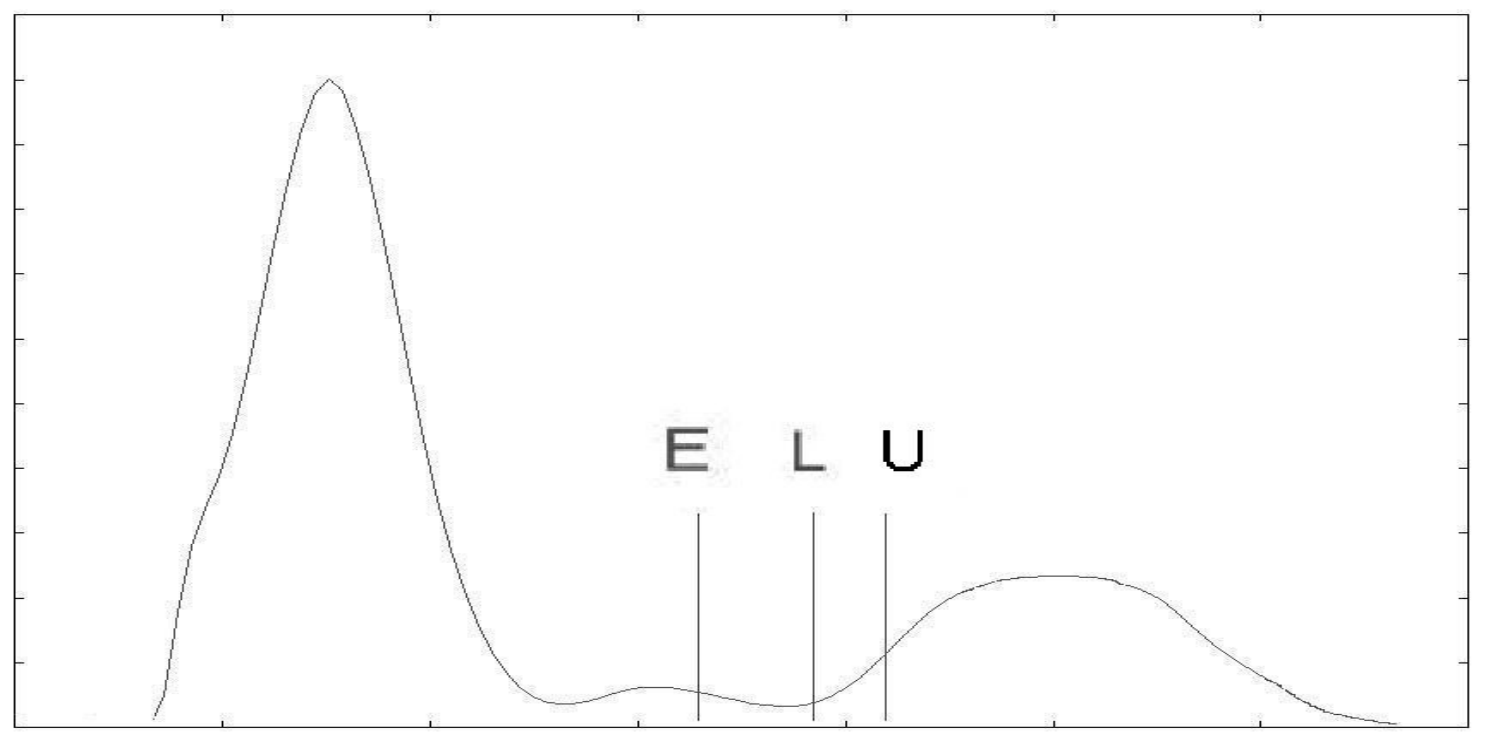
Goals for Merge Utility

- **Automatic**
- **Fast**
- **Accurate**
- **Eliminate duplicates in a single family database**
- **Combine multiple family databases**

Record Linking Background

- **Decide if two records are for the same individual**
- **Use sum of weights for a comparison of each common field in the records**
- **Use a cut off score to choose “true” links**

Sample Scores



Problems Linking Individuals in Family Data

- **Few fields that can actually be compared (name, birth date and place, death date and place)**
- **Many names will be similar or identical because of naming conventions**
- **Many places will be the same because these are families**

Advantages Linking Individuals in Family Data

- **Family members provide additional field values for comparison**
- **Additional family information helps prevent incorrect matches**

Other Record Linking Considerations

- **Misspellings of names and places**
- **Incorrect dates**
- **Initial inconsistencies**
  - Any family database with 20+ generations has some type serious inconsistency

The Process

- **Data preparation**
- **Find initial duplicates**
- **Use a recursive process to find other duplicates**

Data Source Preparation

- **Find loops (an individual is his own ancestor)**
- **Find inconsistent information (a person is born before his parents)**
- **Identify connected components**
- **Pre-process names, places and dates**

Generate Duplicate List

- **Cluster using last name variation**
  - Transducer
- **Compute score**
  - Individual component
  - Family component
- **Choose the links with the highest scores**

Merge Duplicates

- **For each pair of duplicates:**
  - Combine data
  - Recursively consider the relatives of the duplicates
- **Add any new duplicates to the list**

New Duplicate

- **Misspelling:**
  - Jones, Jerrolyn, Mary
  - Jonesanderson, Jerrolyn, Mary
- **Duplicate sib:**
  - Kimball, Lanette 3/4/1905
  - Kimball, Lannette 0/0/1905

The Merge Reports

- List of people who merged
- List of new people
- List of parent problems

Example Parent Problem

Jonathan Anderson, born 07/07/1848 Nauvoo, Hancock, OH

Spouse: Maria Babcock, born 08/09/1852 Nauvoo, Hancock, OH
(five children Ann, John, Alex, Samantha, Elizabeth)
Mother: Emily Adams, born 02/19/1823 Pomphret, Chautauqua, NY

Father: Jonathan P. Anderson, born 10/28/1824 Wartrace Creek, Bedford, TN

Jonathan Anderson, born 07/07/1848 Nauvoo, Hancock, OH

Spouse: Maria Babcock, born 08/09/1852 Nauvoo, Hancock, OH
(five children Ann, John, Alex, Samantha, Elizabeth)
Mother: Theresa Johnson, born 04/17/1825 New York City, NY
Father: Jonathan K. Anderson, born 08/15/1820 Weakly, TN

GenMerge

- Automates finding and eliminating duplicates in a single data source or when combining data sources
- Fast
- Accurate
- Allow review of inconsistencies