Domino: Extracting, Comparing, and Manipulating Subsets across Multiple Tabular Datasets

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What is Domino?

- Designed for datasets with many different heterogeneous subsets that share identifiers
- Visualize subsets and the relationships between them
For example…

<table>
<thead>
<tr>
<th>Artist Name</th>
<th>Album Name</th>
<th># Copies</th>
<th>Country</th>
</tr>
</thead>
</table>

**Artist**

<table>
<thead>
<tr>
<th>Name</th>
<th>Origin</th>
</tr>
</thead>
</table>

**Studio Album**

<table>
<thead>
<tr>
<th>Artist Name</th>
<th># Albums</th>
</tr>
</thead>
</table>

**Country**

<table>
<thead>
<tr>
<th>Country Name</th>
<th>Continent</th>
<th>Population</th>
</tr>
</thead>
</table>

**Album**

<table>
<thead>
<tr>
<th>Artist Name</th>
<th>Album Name</th>
<th># Copies</th>
<th>Country</th>
</tr>
</thead>
</table>

The diagram shows the relationships between Artist, Album, Studio Album, and Country.
Blocks

- Represents a subset
- Three types
  - Partitioned
  - Numerical
  - Matrix
Blocks

- You can perform set operations on blocks (union, intersect, difference, etc.)
Block Relationships

• A relationship degree defines how strongly related two blocks are

• Based on whether blocks share an item type, sorting, and partitioning method
Block Relationships

• Four types of relationship degrees:
  - None
Block Relationships

• Four types of relationship degrees:
  • None
  • Weak
Block Relationships

- Four types of relationship degrees:
  - None
  - Weak
  - Medium
Block Relationships

• Four types of relationship degrees:
  • None
  • Weak
  • Medium
  • Strong
Block Relationships

- Weak and medium relationships can be shown at three levels

- Item
Block Relationships

- Block relationships for weak and medium relationships can be shown at three levels
  - Item
  - Group
Block Relationships

- Block relationships for weak and medium relationships can be shown at three levels
  - Item
  - Group
  - Block
Domino

- Implementation uses Caleydo (Java, OpenGL)
Idioms

- Colour (different partitions)
- Width encoding of the block relationship bands
- Spatial position of blocks conveys relationship
- Parallel and rectilinear layouts
Idioms

• Juxtaposed views
• Highlighting between views
• Filtering (different relationship granularities)
• Zooming/panning
Comments

• Can be confusing with all the blocks put together
• Overlapping lines between blocks can be hard to read
• Examples given in the paper can be confusing
Comments

• Letting people choose could be good or bad

• A study on how whether the user created visualization is a complete display of info or actually just focuses on the target task could be interesting
Recap
Questions?