Visualizing Clickstream Data as Discrete-Time Markov Chains

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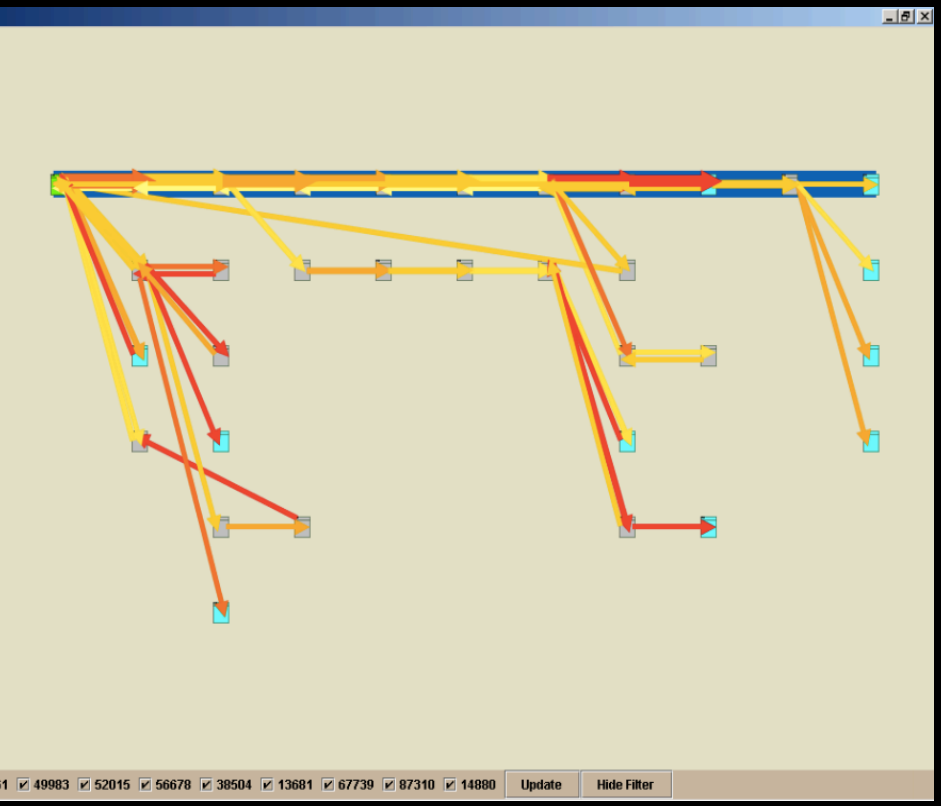
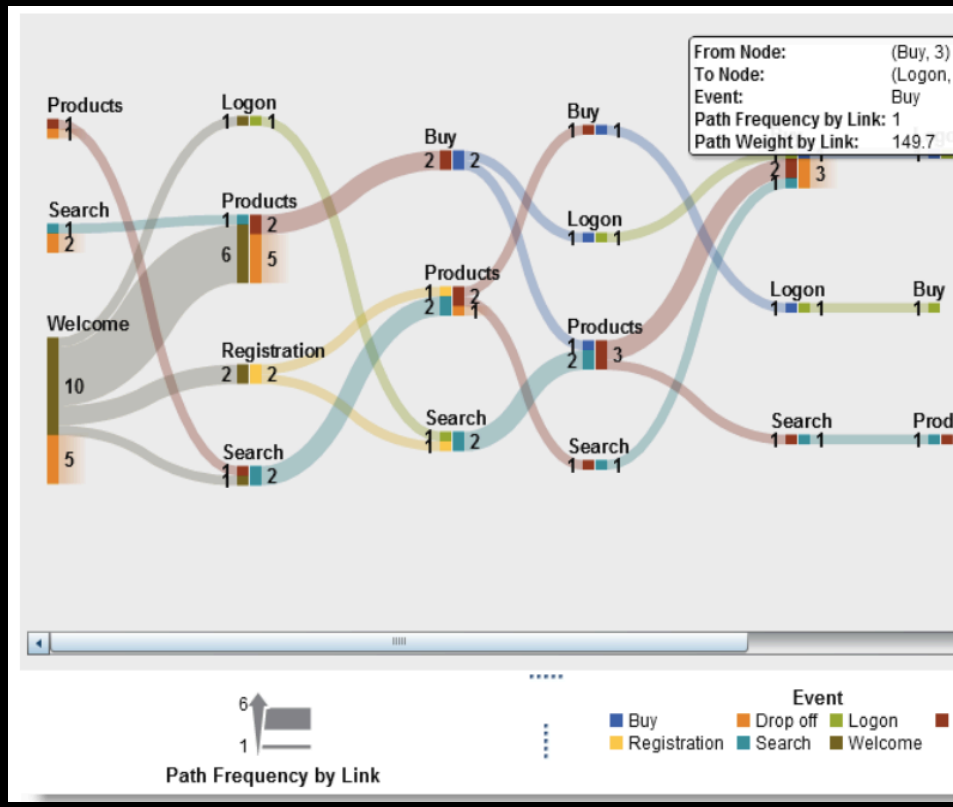
The Problem

WebQuilt



Waterson et al., 2002

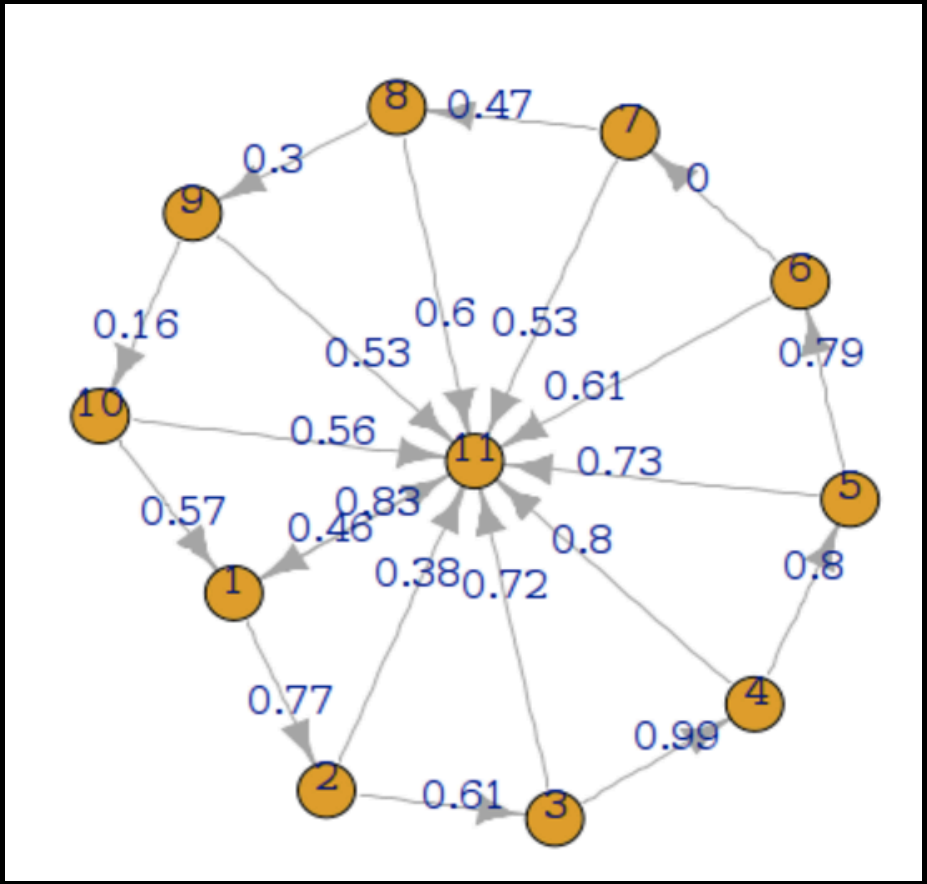
SAS Visual Analytics



Schulz et al., 2015

The Problem

Markov Chain Plot in R



Our Solution

1. Convert raw clickstream data to transition matrix.
2. Construct Markov Chain object in R.
3. Compute chain properties: irreducibility, periodicity, distribution invariance, etc.
4. Build edge list for interstate nodes.
5. Visualize chain as a directed graph with D3 wrappers in RShiny Dashboard.
6. Add interactive features.

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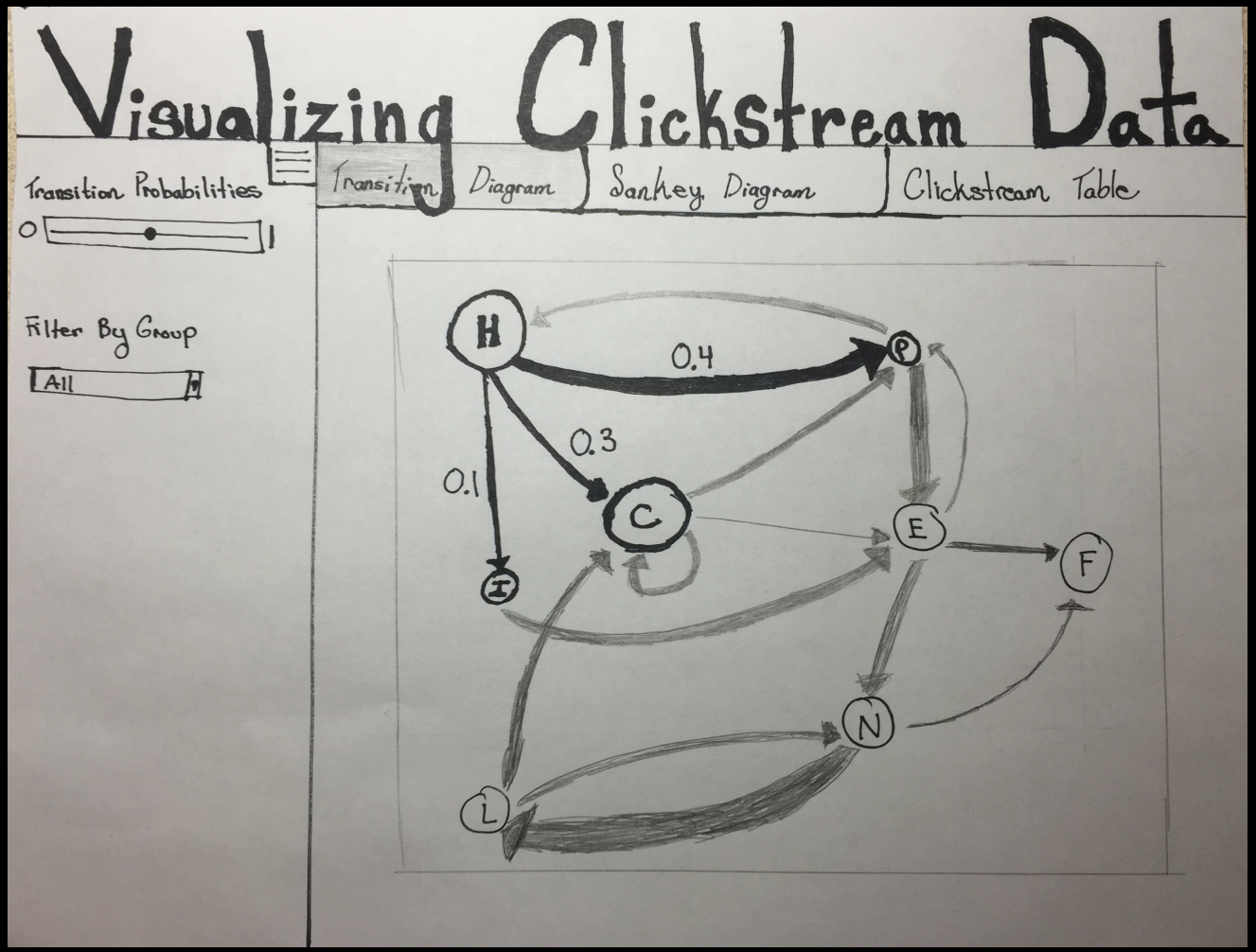
Storyboard Sketch



Our Questions

1. What additional filters can we add?
2. What metrics can we use to evaluate our tool against others?
3. What usability functions would make it most intuitive?

Danke schön!