

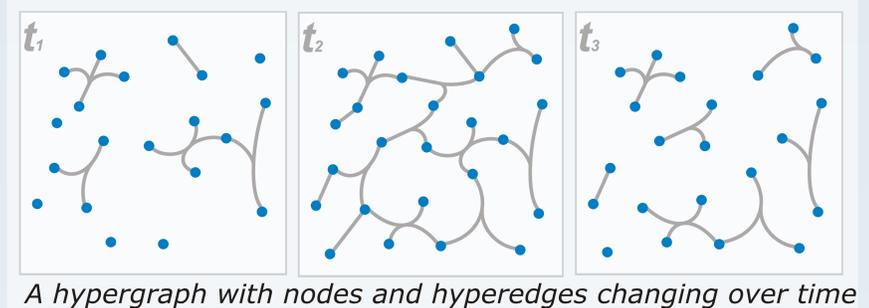
Exploring Time-Varying Hypergraphs

Time-Varying Hypergraphs

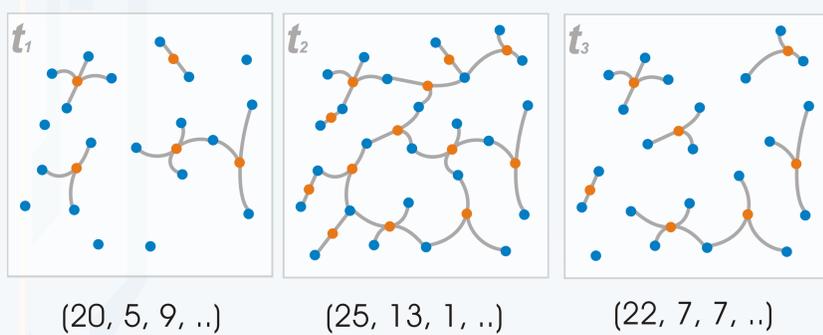
The visual exploration of time-varying hypergraphs poses two main challenges:

- (1) the complex hypergraph structure with edges connecting any number of nodes
- (2) time-variance in all its aspects: changes of structure and attribute values

We address both challenges in two steps, which leads to a novel approach to visually explore time-varying hypergraphs.



Addressing Complex Structure and Time Variance in Two Steps



1st step

Transforming the hypergraph at each time point into a bipartite graph by generating one node for each hyperedge.

2nd step

Computing descriptive measures to summarize the graph structure and its attribute values at each time point.

A Visualization for Time-Varying Hypergraphs

Overview

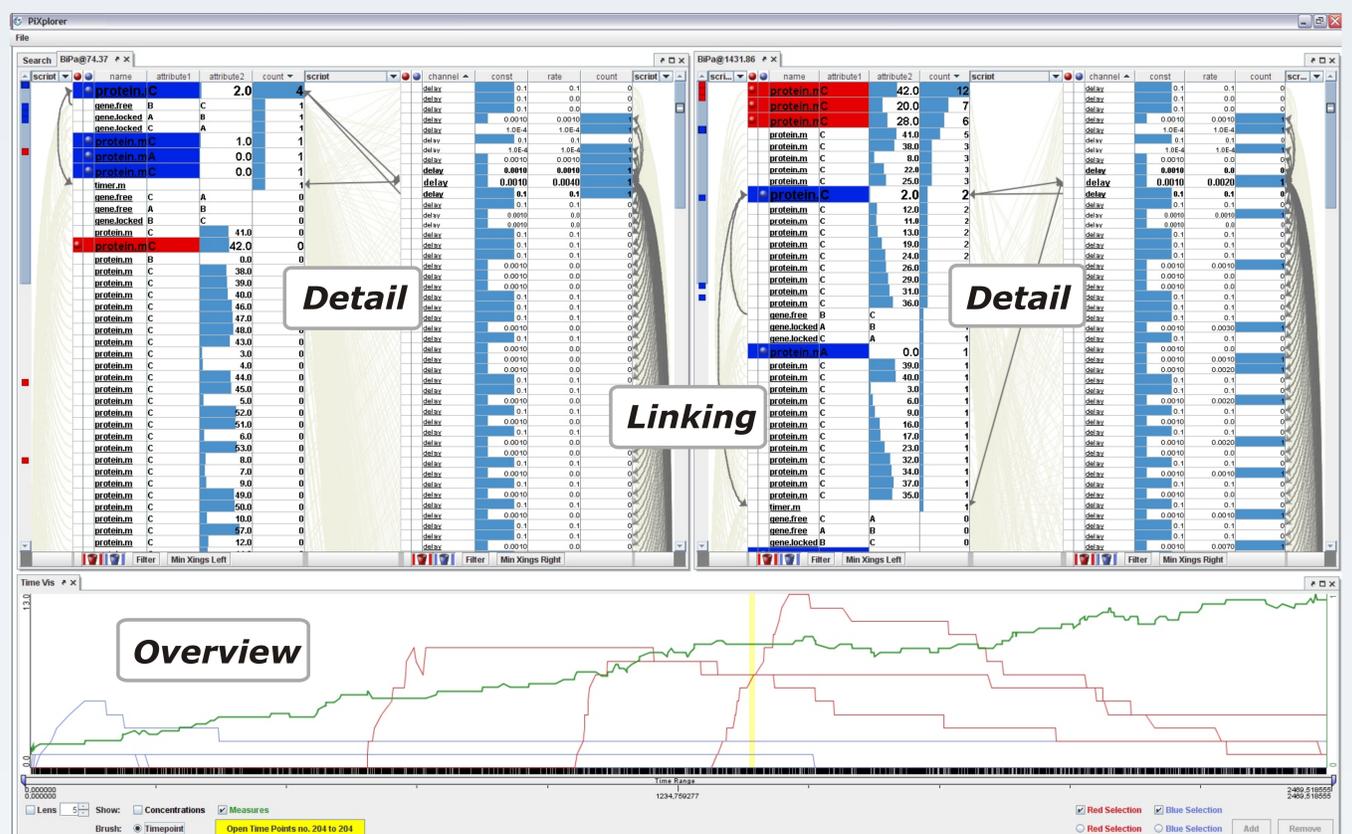
High-level view of all time points at once: the graphs are represented by their precomputed measures, e.g., structural complexity, to identify time points of interest

Detail

Table-based visualization for bipartite graphs at single time points for detailed inspection

Linking

of interaction between multiple detail views for comparison of different time points



University of Rostock, Germany
Faculty of Computer Science and Electrical Engineering

Mathias John, Hans-Jörg Schulz, Heidrun Schumann,
Adeline Uhrmacher, Andrea Unger

