



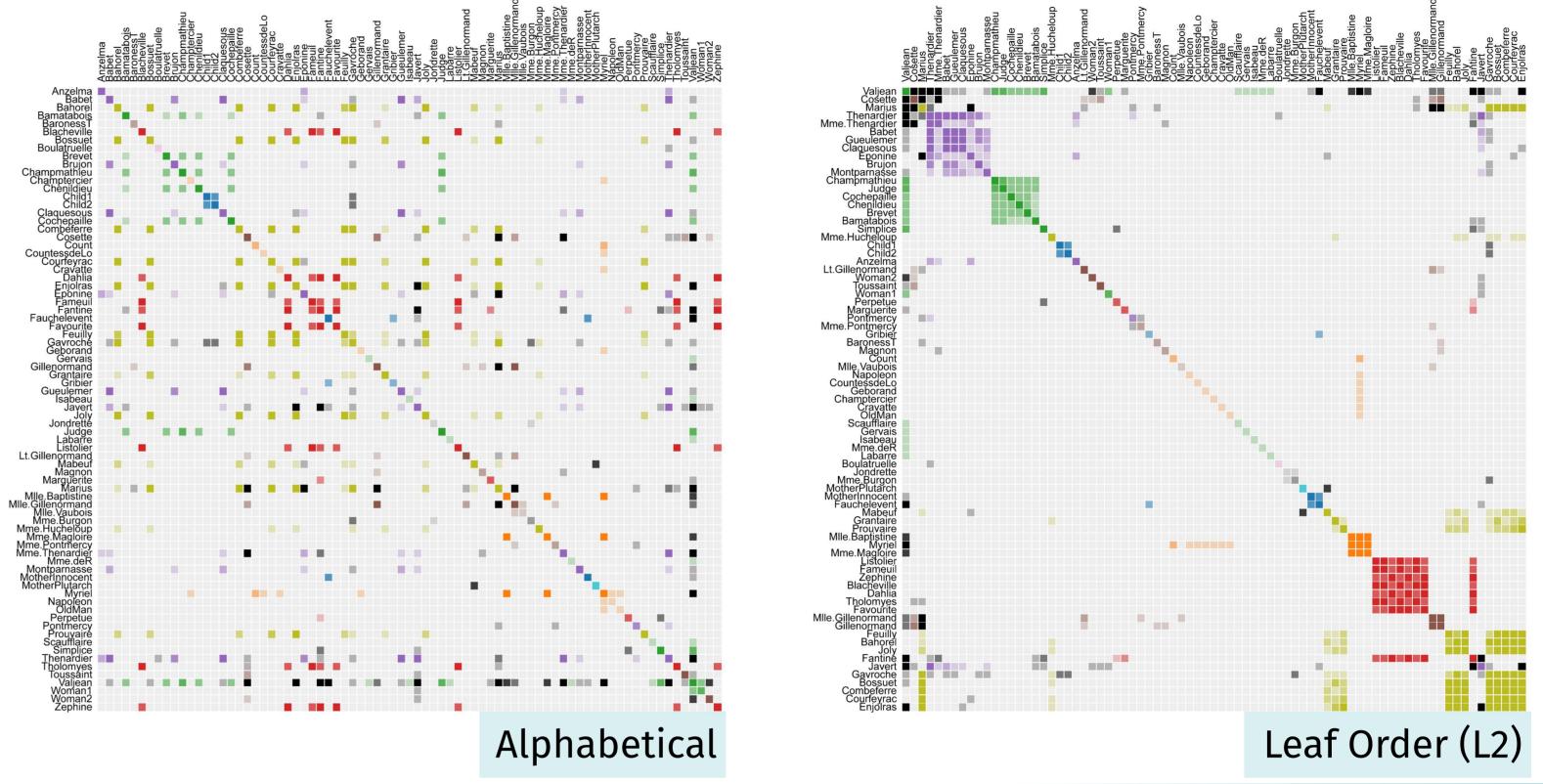
Reordering for Matrix Visualization with Reorder.js

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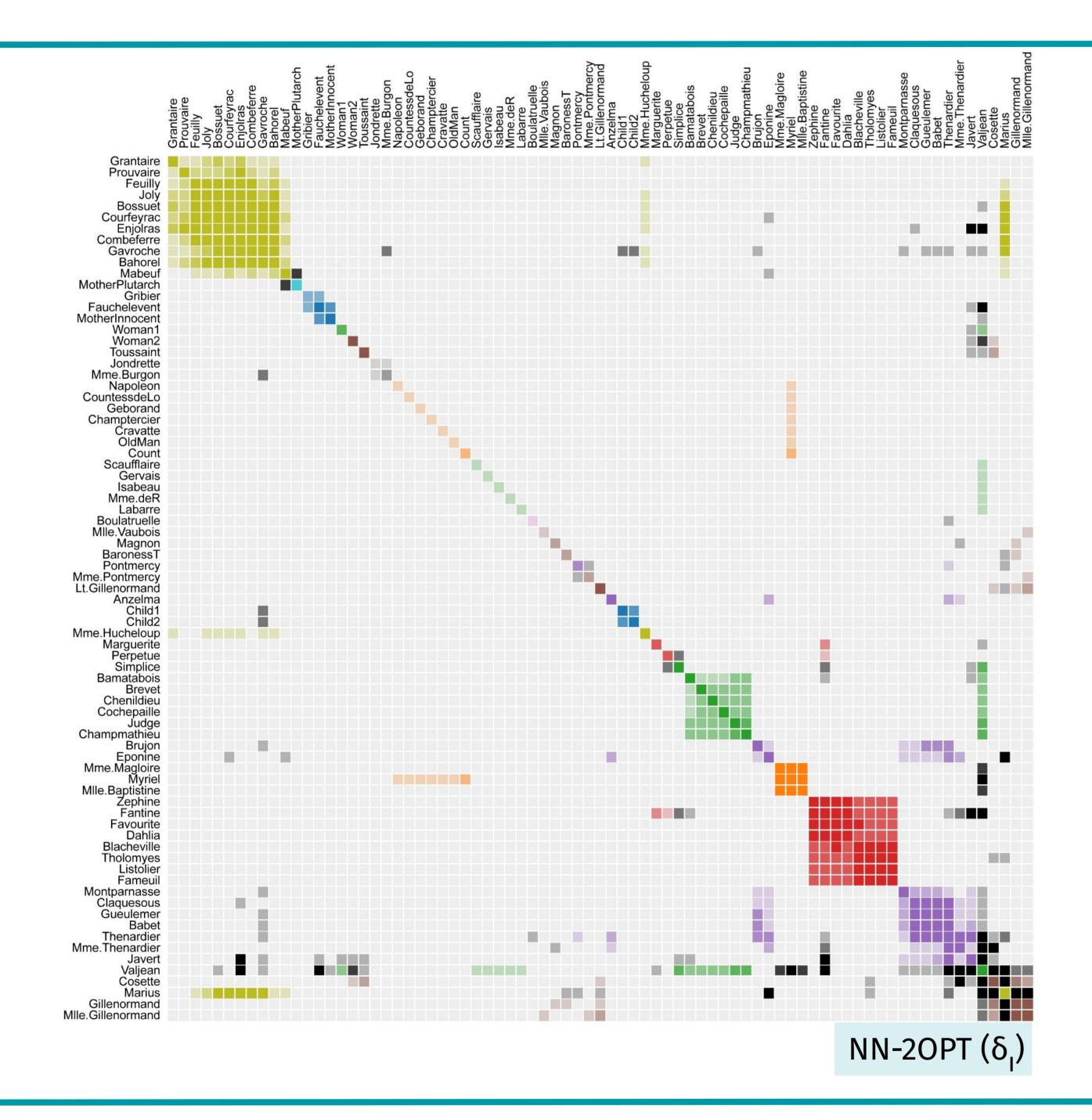
Reordering of matrix visualizations entails assigning an order to the rows and columns to reveal a structure of the underlying graph. Matrix visualizations are extremely useful for analyzing large network data, but rely heavily on qualitatively good orders of the rows and columns.

Since 2017, the Javascript library *Reorder.js* provides algorithms for reordering matrices, tables, and parallel coordinates, as well as quality measures.

Character co-occurrences in the novel "Les Misérables". Each color represents a chapter and colored cells indicate the co-occurrence of two characters in the same chapter. The darkness of the cell indicates the frequency of co-occurrence of the character in the same chapter.



Reorder.js has been recently **extended** with new state-of-the-art algorithms and measures, including methods for effectively reordering multiple matrices simultaneously.



New additions

Simultaneous Reordering

Computing a simultaneously good quality vertex order for multiple matrices sharing the same vertices.

Traveling Salesman with NN-2OPT

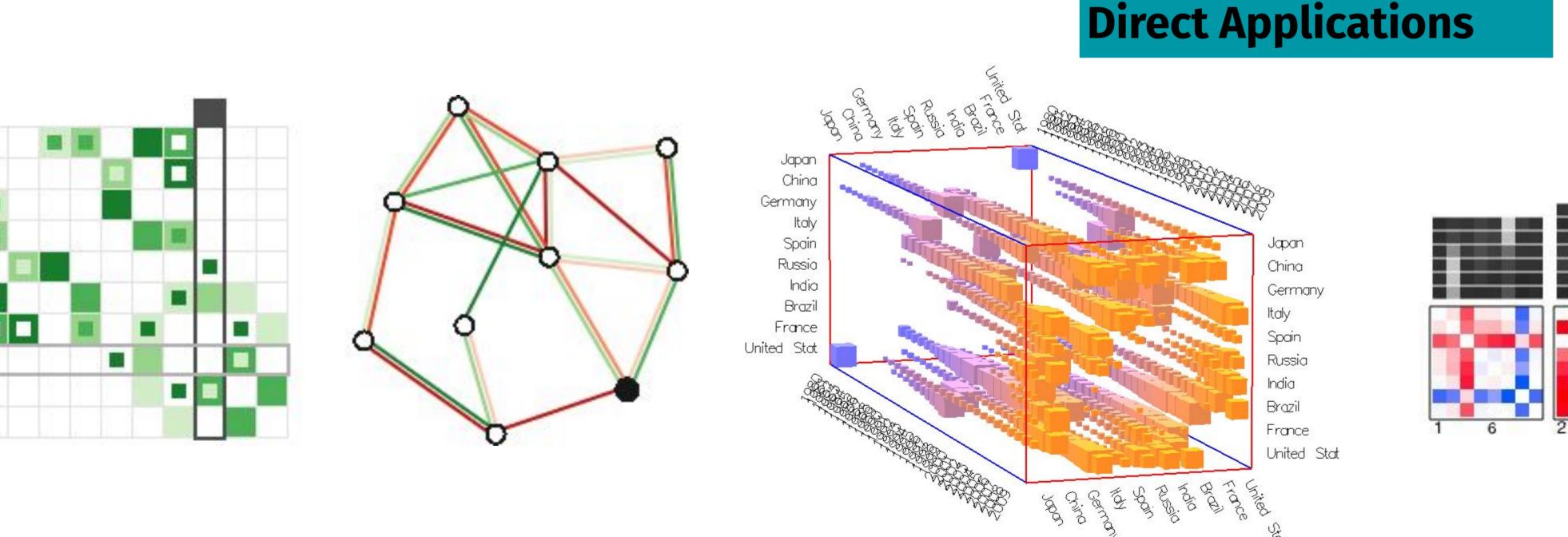
Finding an order of rows/columns given a distance/similarity measure is effectively solving the Traveling Salesman Problem (TSP); we implement the popular TSP heuristic of Nearest Neighbour followed by 2-OPT.

More Quality measures

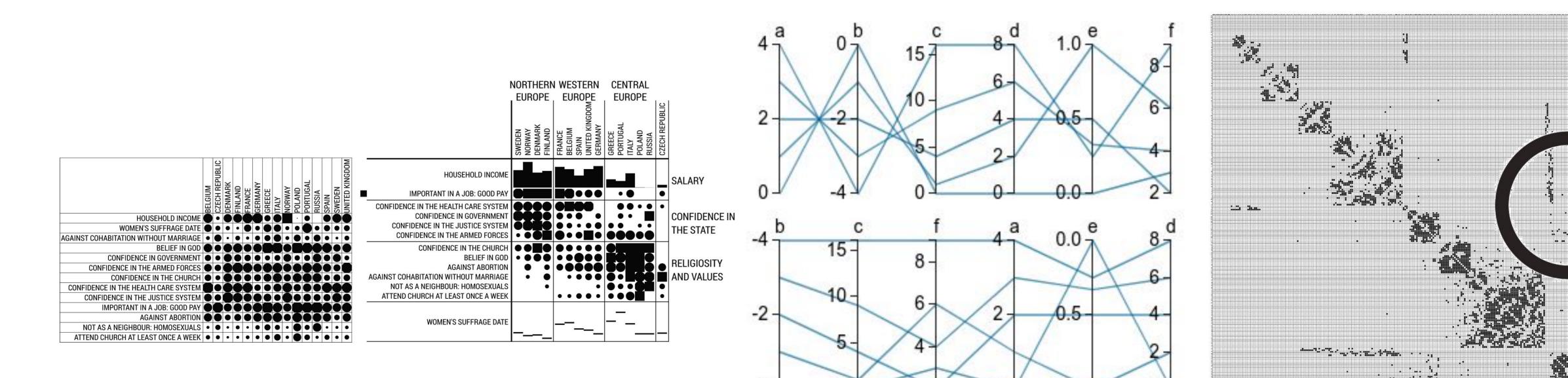
Providing additional quality measures of matrix visualizations. These include: Profile, Linear Arrangement, and Moran's I.

Moran's I-based distance (δ_{I}) Adding a distance measure which, when minimized, optimizes for Moran's I.

For more details about the background algorithms, see: N. van Beusekom, W. Meulemans and B. Speckmann, Simultaneous Matrix Orderings for Graph Collections, in IEEE Trans. Vis. Comput. Graphics, vol. 28, no. 1, pp. 1-10, Jan. 2022, doi: 10.1109/TVCG.2021.3114773.



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Parallel Coordinates

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Qualitative evaluation



https://github.com/jdfekete/reorder.js