

PAPER

A New Layout for Metromaps in Browser-Based Visualizations

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SUMMARY abstract

key words: keywords

1. Formulation

Here is what we start with:

1. There is a set of **lines** each with a set of **stations**. The easiest way to write out such a line is text is: *station1 – station2 – stations3 ...*, where this order would be treated as the **natural order** – also can be treated as user-defined order, etc.
2. On top of the natural order, there can be **numeric**, **alphabetical**, **doc density**, **line density**, etc. Each such class can obviously have **asc** and **desc** subclasses. The order is a filter – the input lines are reordered prior to calculating the layout.
3. Layout is created using the algorithm below.

Based on an earlier study in [?], the following are the conditions for the layout:

Condition 1: Relative Positioning. The entire map is in a DOM container box. The method cannot use *left* and *top* absolute positioning using the top-left corner of the map container. The biggest reasons is inability to build scaled versions of an absolutely positioned map later – like is necessary in a small navigation map.

Condition 2: Station Packing. Each station should be relatively positioned inside its own container box. This means that all the incoming lines, outgoing lines, station name, etc., should fit into this single container using relative positioning.

Condition 3: Line Continuity. Lines connection stations. For visual clarity, it is desirable that line continuity is maintained across stations in the visualization as well. This may appear to be a simple condition, but in fact, this is the hardest element of the proposal.

Fig.1 shows an example layout which satisfies all the three conditions.

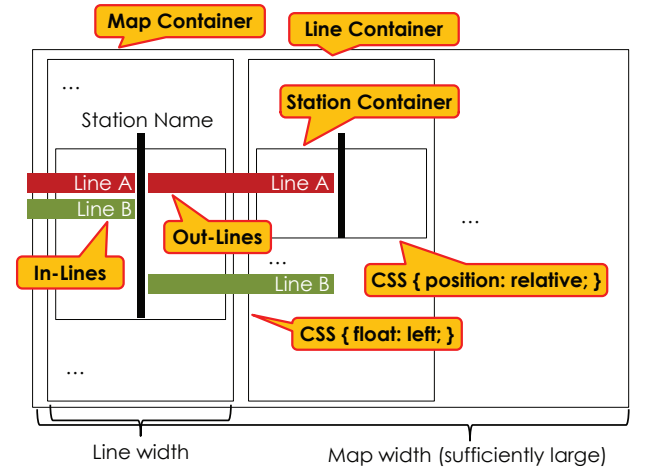


Fig. 1 Example layout with the three above conditions marked and explained by the visual.

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