

Luatodonotes: Boundary Labeling for Annotations in Texts

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label

Text for the
first
annotation

Text for
second
annotation

Text for
third
annotation

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label

Text for the first annotation

Text for second annotation

Text for third annotation

leader

Goals

- Easy for the reader to match notes and sites in text
- No crossings between leaders
- Leaders should not disturb text too much

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Problem known as *boundary labeling*:

- Shape of the leaders
- Positions for the labels
- Labels are non-uniform!

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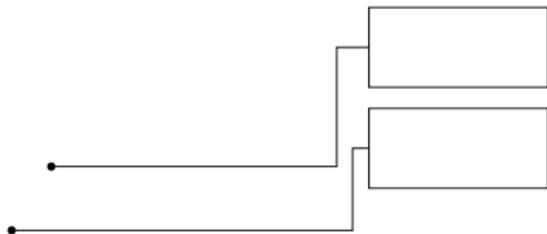
Text for the first annotation

Text for third annotation

Text for second annotation

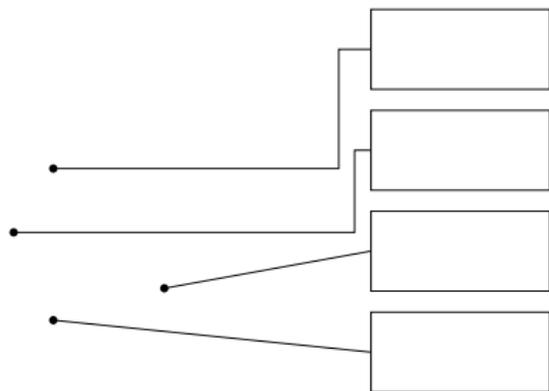
Leader Types

- *opo*-leaders



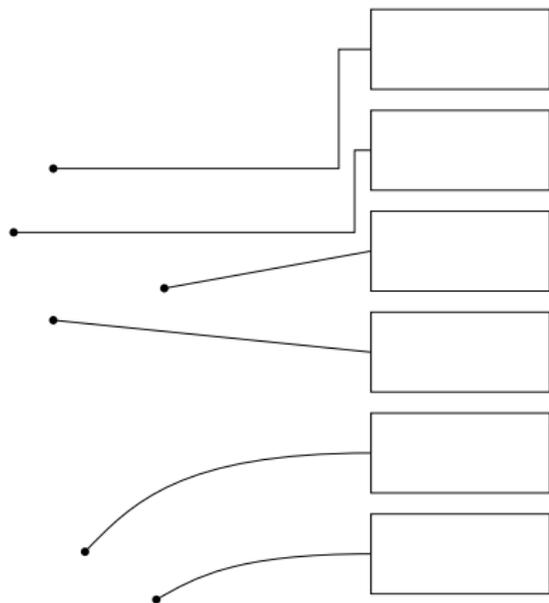
Leader Types

- *opo*-leaders
- *s*-leaders



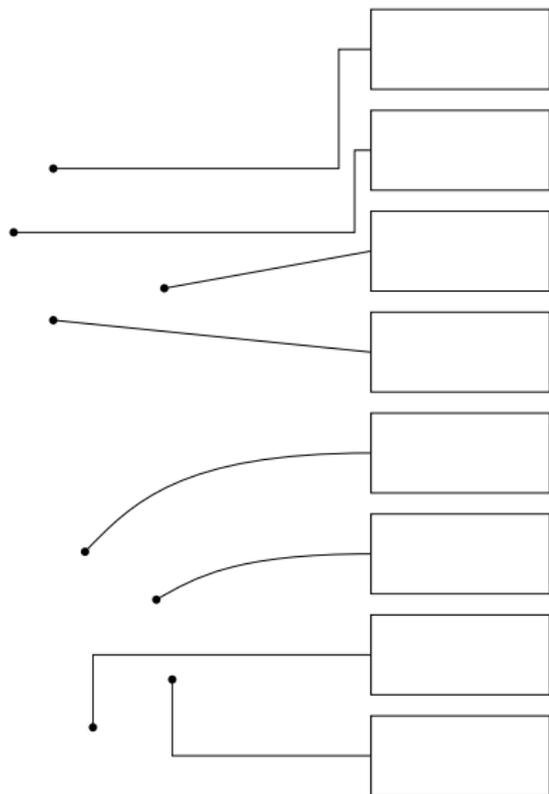
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- *s*-leaders
- Bézier curves
(based on *s*-leaders)

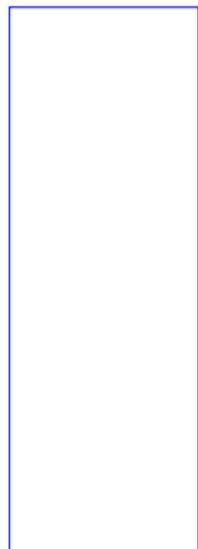


Leader Types

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(based on *s*-leaders)
- *po*-leaders

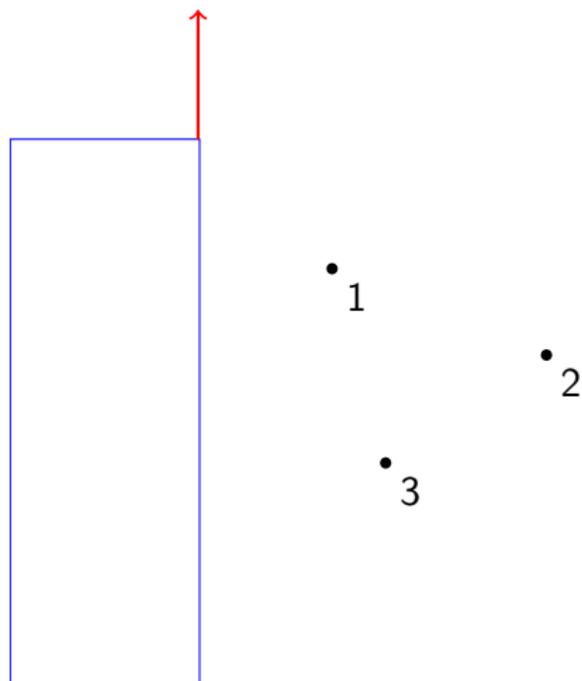


s-leaders



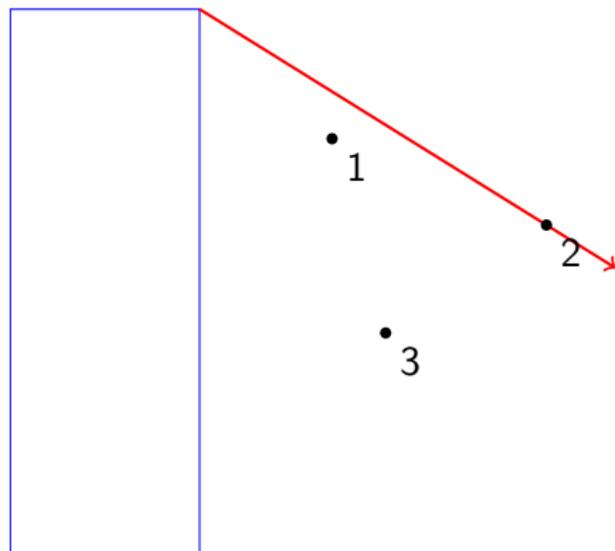
- Use upper right corner as anchor
- No gaps between labels
- No crossings between leaders
- Algorithm: Emit ray from next anchor to the top and rotate it clockwise
[Bekos, Kaufmann, Symvonis, Wolff, 2007]

s-leaders



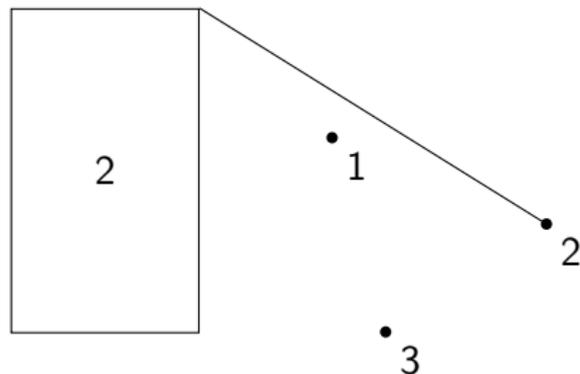
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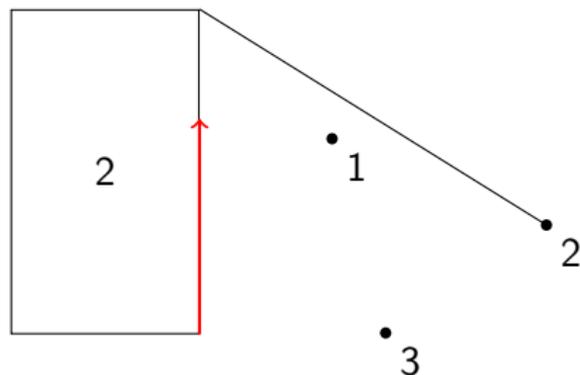
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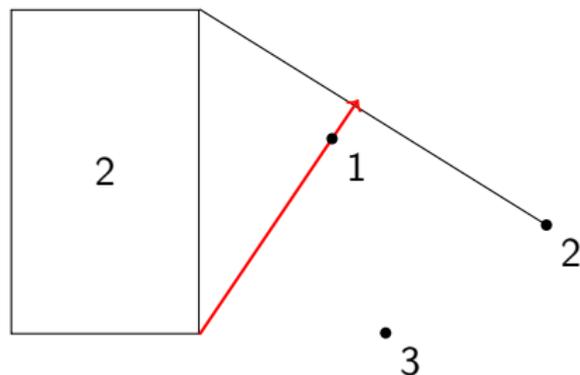
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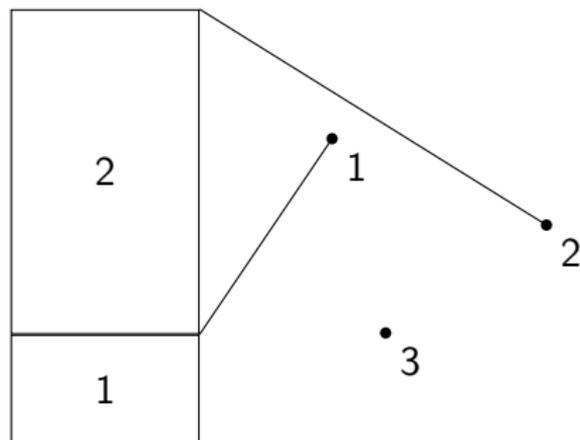
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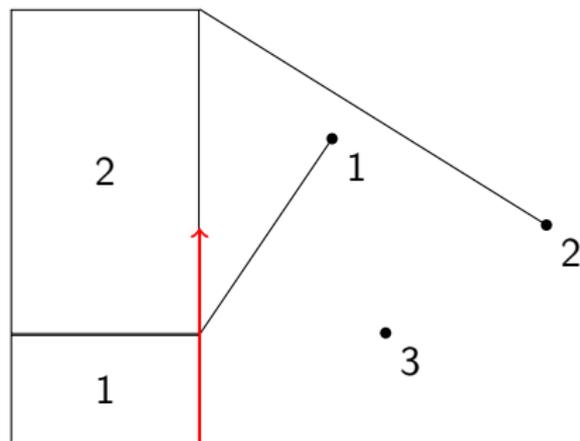
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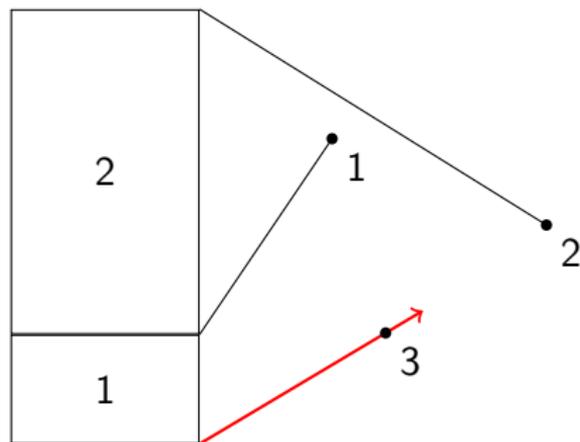
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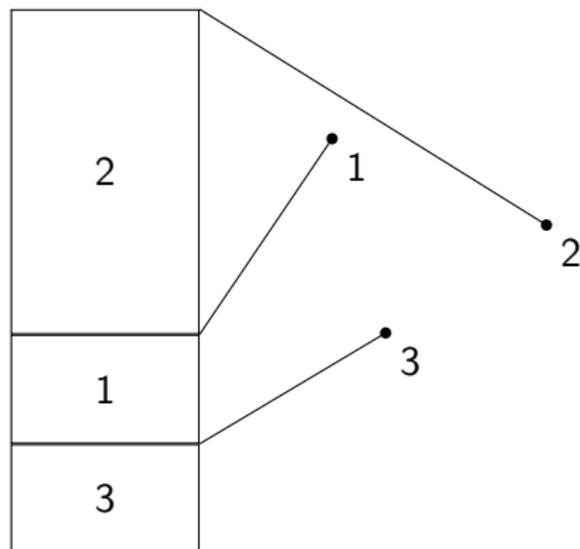
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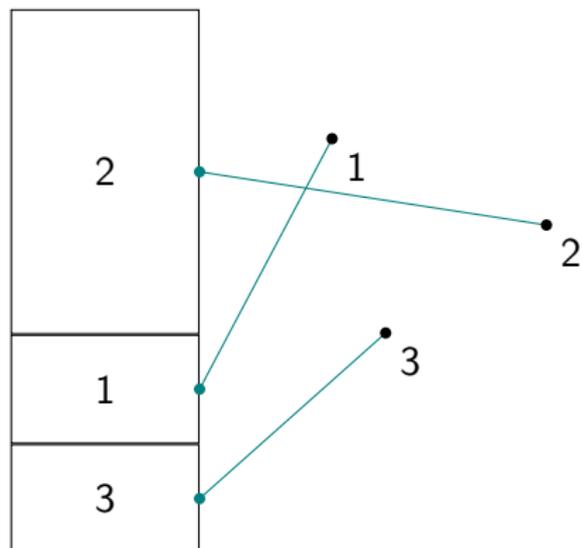
s-leaders



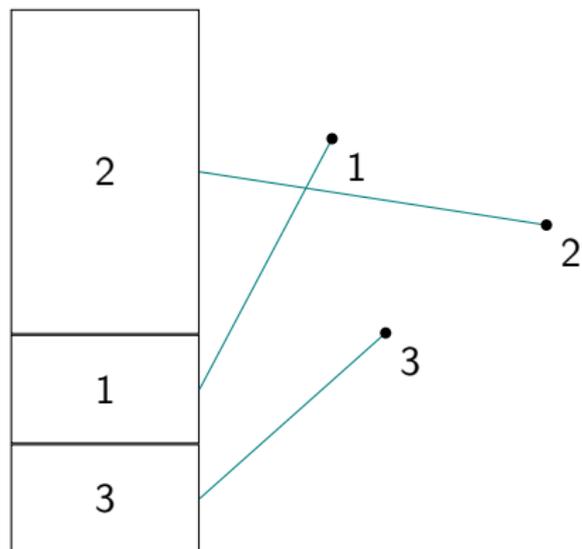
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s-leaders

- Alternative: Anchor leader at center of label

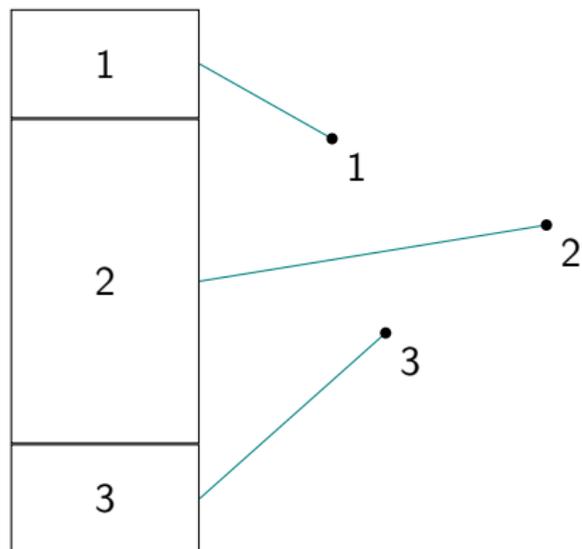


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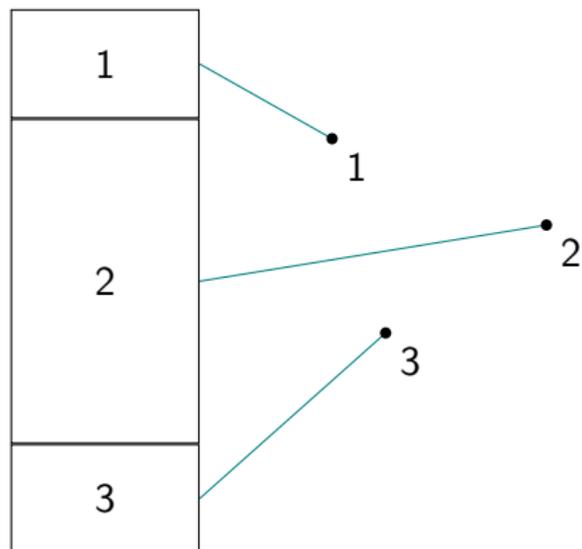
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- Here: Need to swap labels 2 and 1

s-leaders

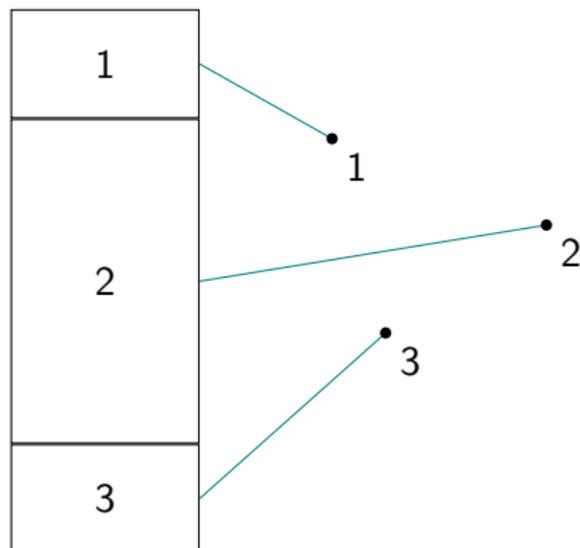


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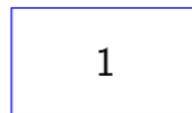
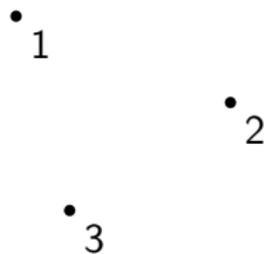


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- Easy with uniform labels

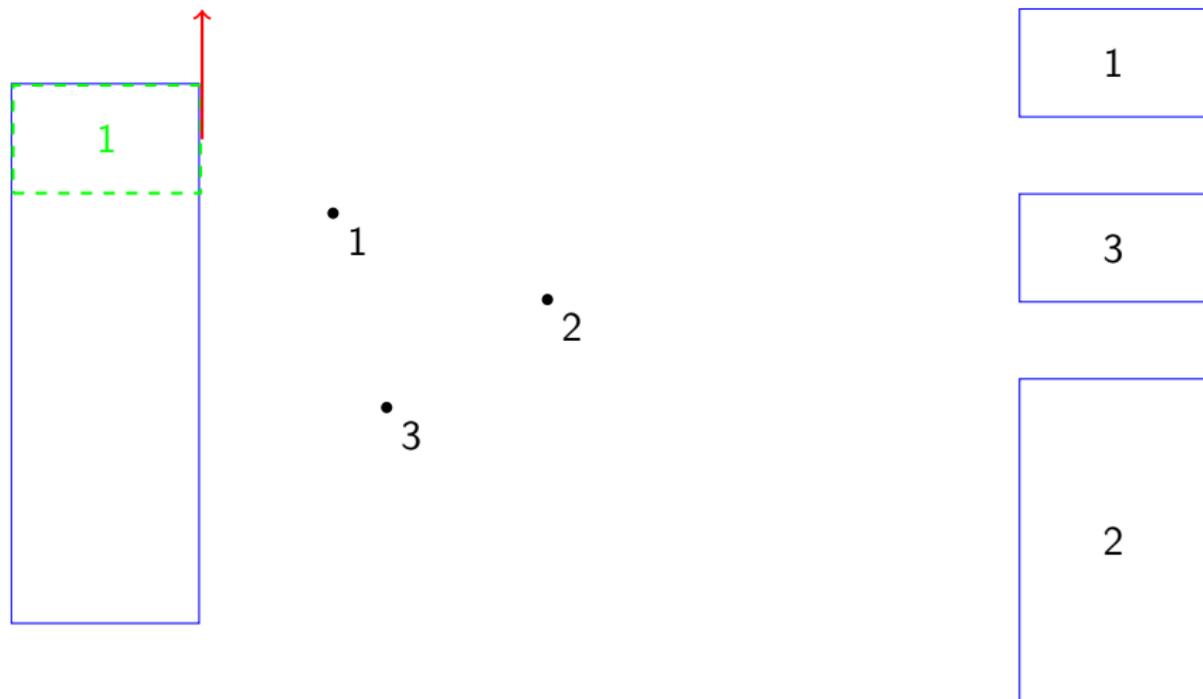


- Alternative: Anchor leader at center of label
- Here: Need to swap labels 2 and 1
- Easy with uniform labels
- For non-uniform labels: no algorithm known to compute order of labels for given site positions and label heights (no gaps, no crossings allowed)
- Problem: we don't know position of next anchor (depends on label height)

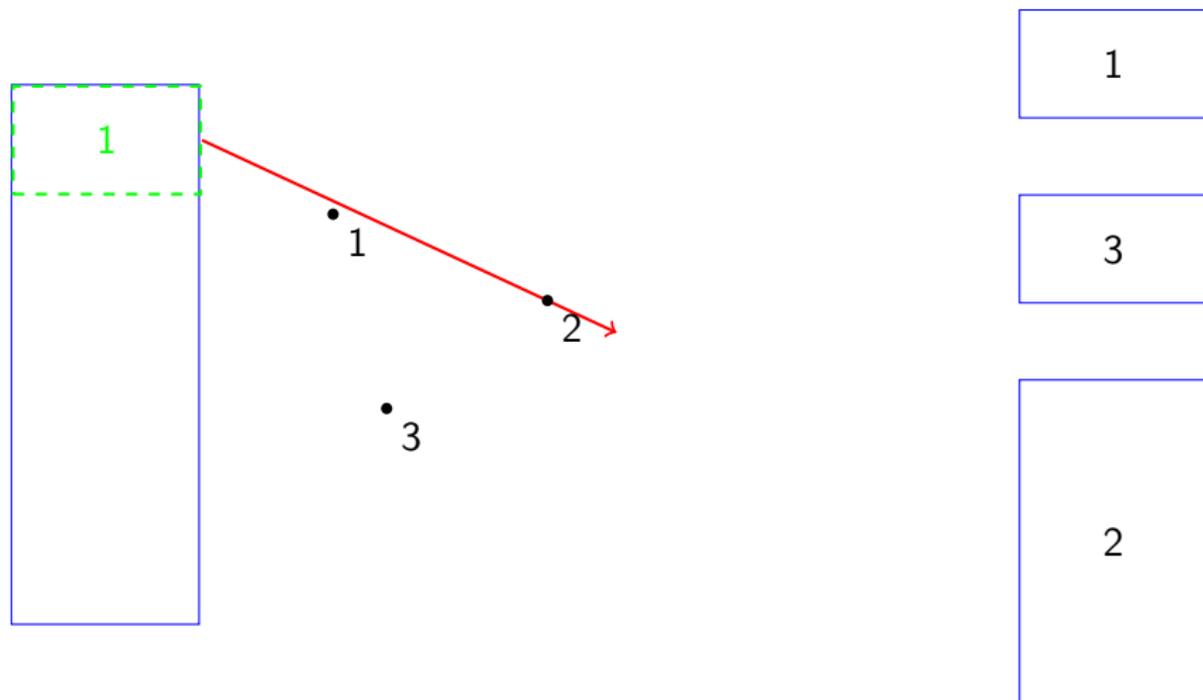
Heuristic for s-leaders



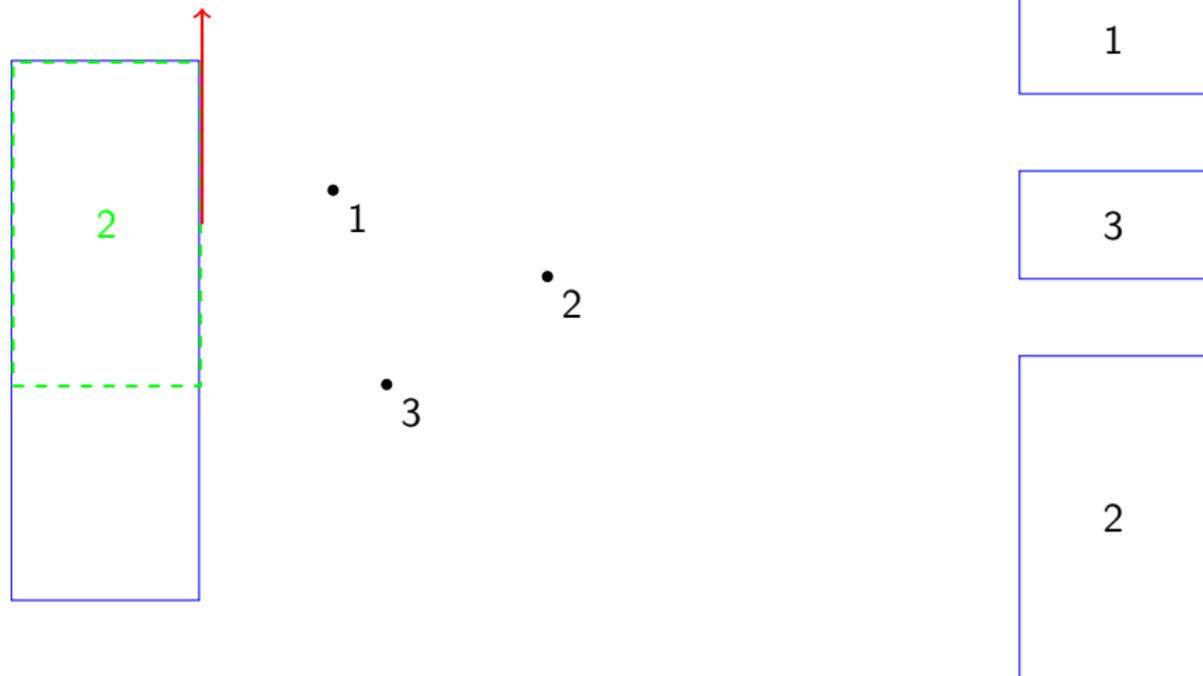
Heuristic for s-leaders



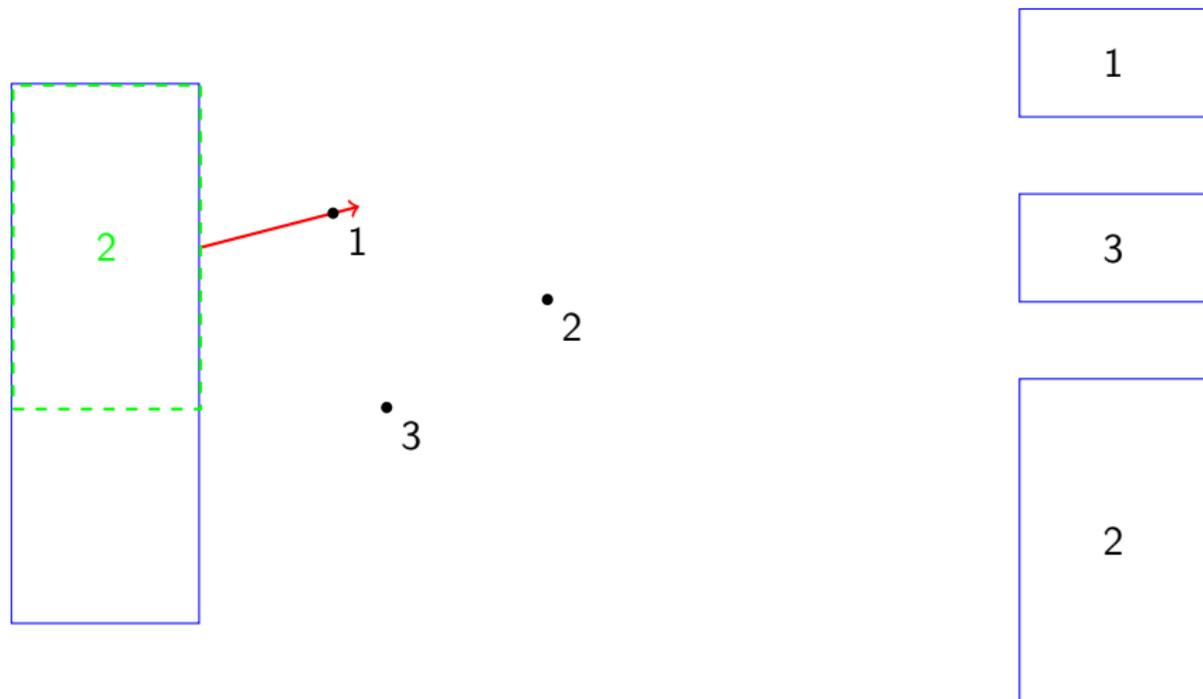
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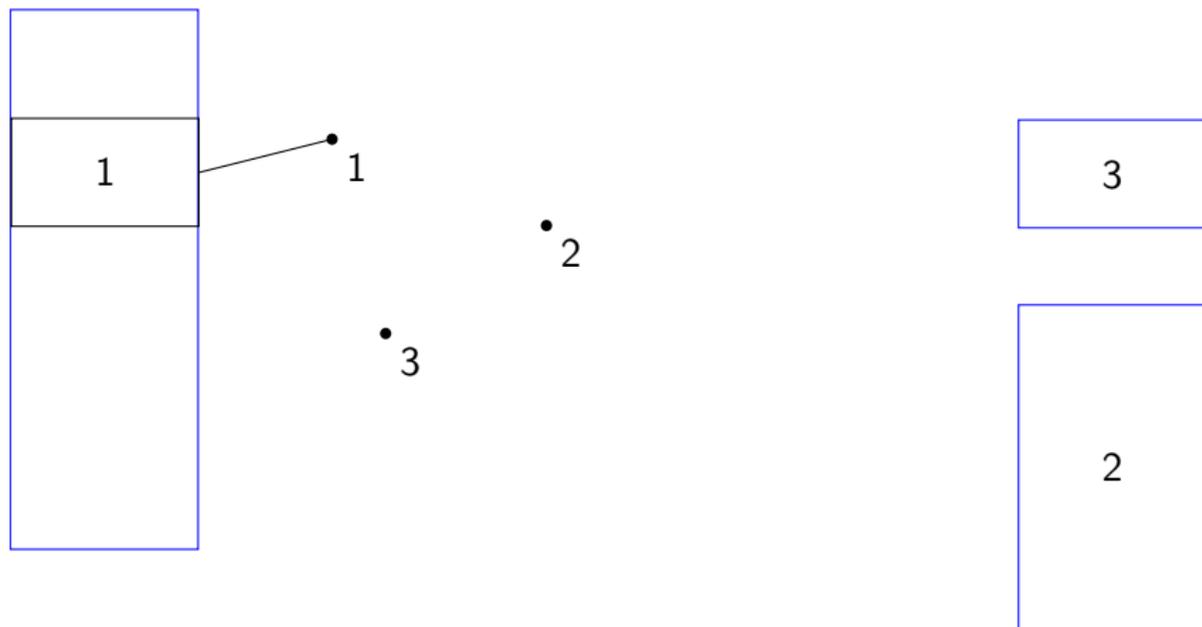
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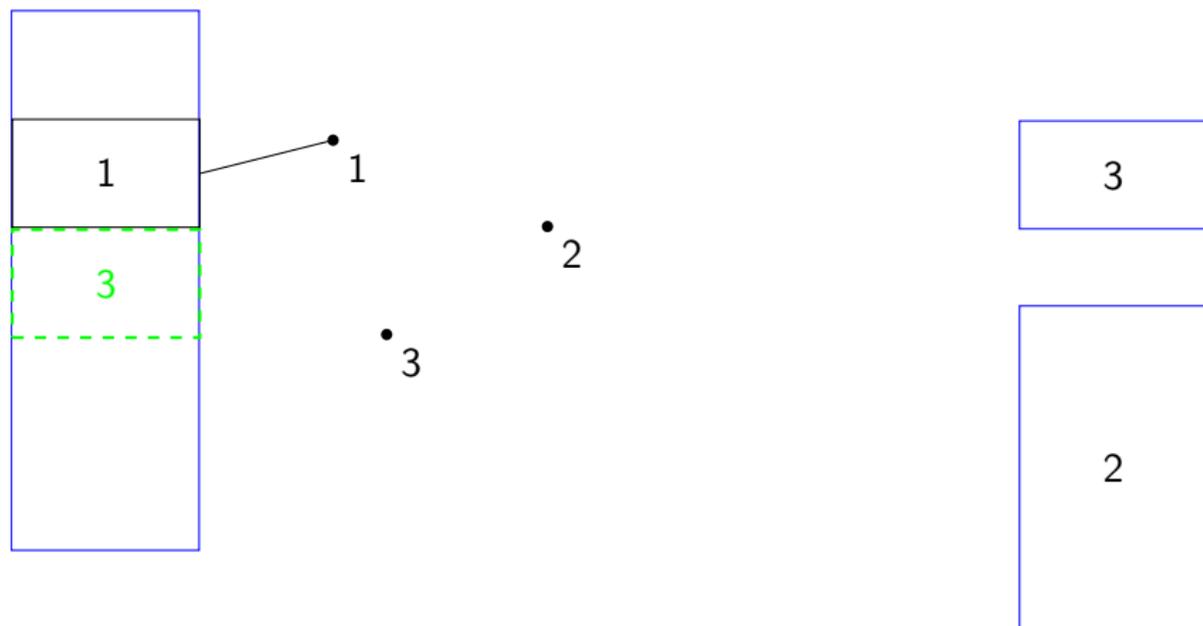
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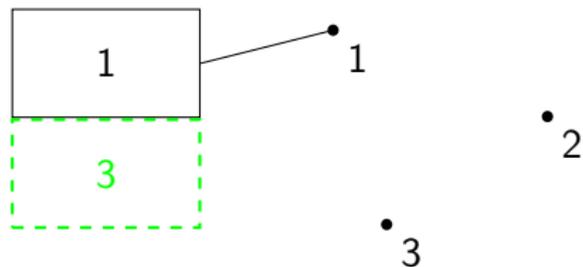
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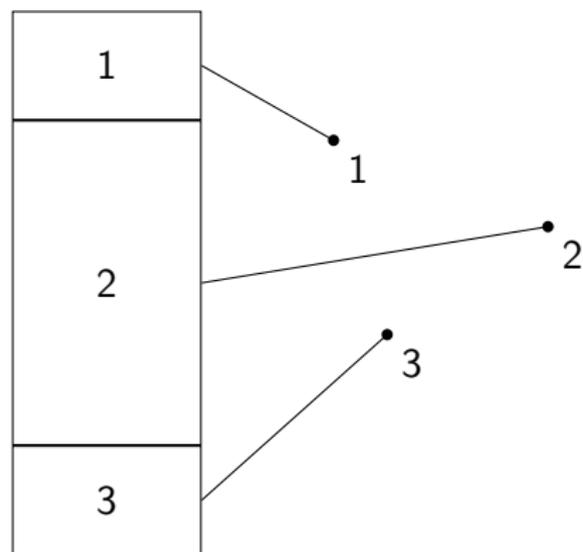
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Characteristics

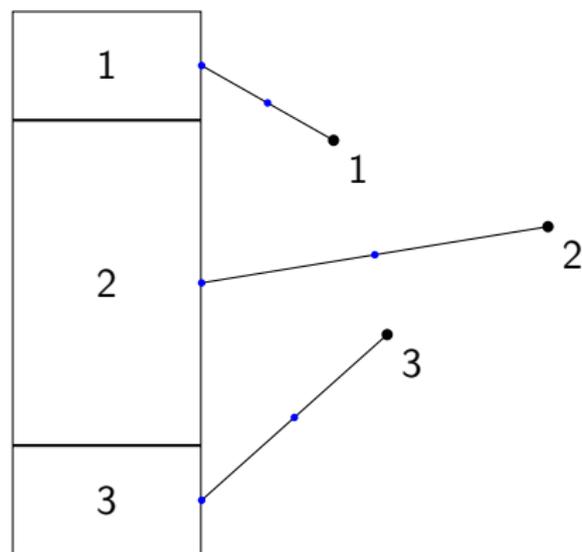
- No crossings between leaders
- Gaps between labels are possible
- Usually no gaps in real instances

Bézier curves as leaders



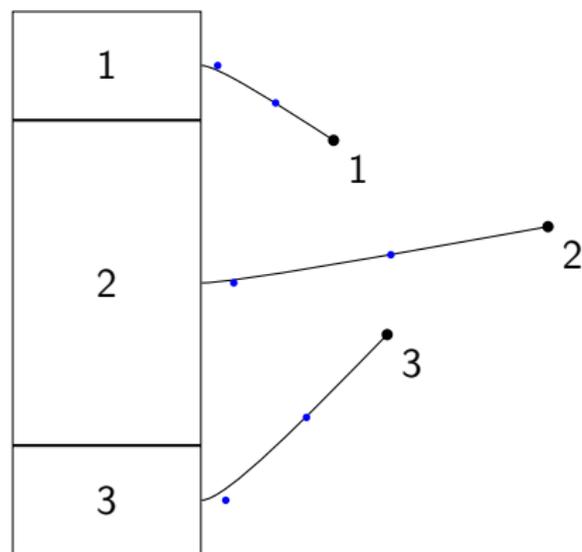
- Force-directed algorithm [Fink, Haunert, Schulz, Spoerhase, Wolff, 2012]
- Start with crossing-free straight-line drawing
- Cubic Bézier curves
- Move control points by applying forces
- Forces limited to inhibit new crossings

Bézier curves as leaders



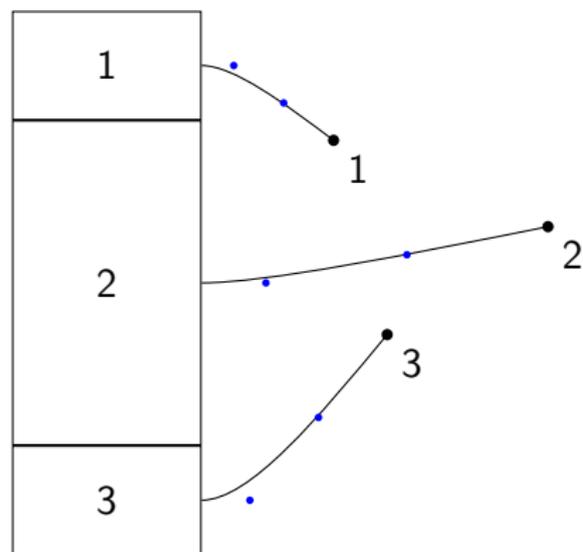
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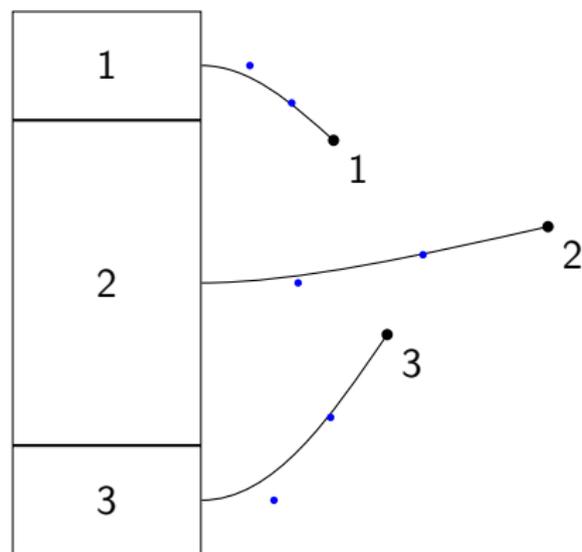
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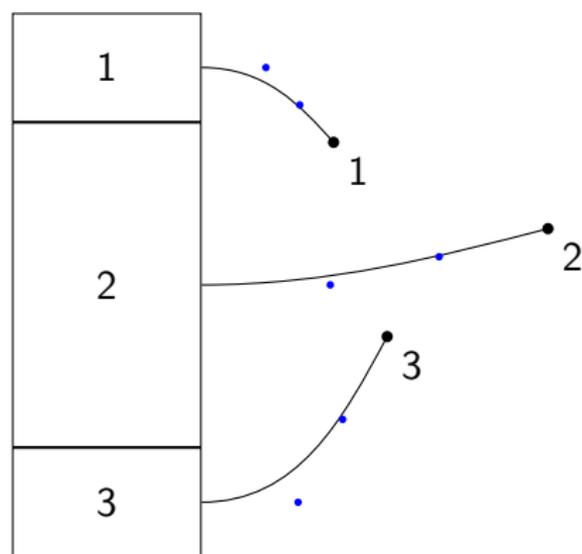
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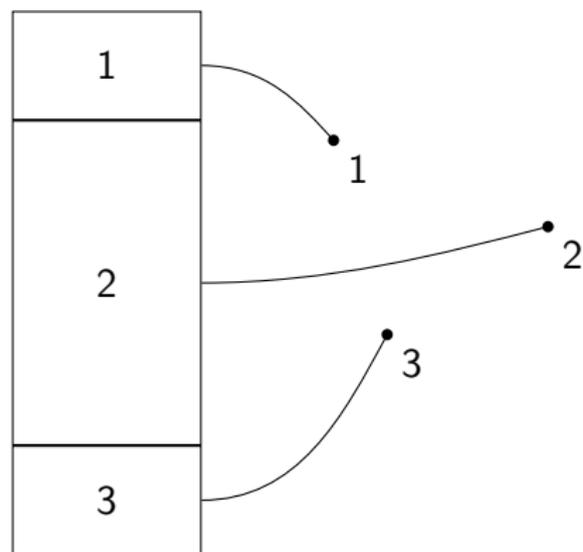
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Experimental Results

- Implementation as a \LaTeX package
- Different leader types can be chosen

Leader types

- *opo*-leaders
- *s*-leaders
- Bézier leaders

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First comment

The second comment is a bit longer.

More comments.

short

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Comment in another paragraph

Second comment in same line

Third one

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APPENDIX

- LibreOffice
- todonotes package
- opo-leaders
- s-leaders
- Bézier leaders

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User Heute, 17:34

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User Heute, 17:35

More comments.

User Heute, 17:38

short

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