Drawing trees with perfect angular resolution and polynomial area. (English) Zbl 1260.05036
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Summary: We study methods for drawing trees with perfect angular resolution, i.e., with angles at each node \( v \) equal to \( 2\pi/d(v) \). We show:

1.) Any unordered tree has a crossing-free straight-line drawing with perfect angular resolution and polynomial area.

2.) There are ordered trees that require exponential area for any crossing-free straight-line drawing having perfect angular resolution.

3.) Any ordered tree has a crossing-free Lombardi-style drawing (where each edge is represented by a circular arc) with perfect angular resolution and polynomial area.

Thus, our results explore what is achievable with straight-line drawings and what more is achievable with Lombardi-style drawings, with respect to drawings of trees with perfect angular resolution.

MSC:

- 05C05 Trees
- 05C62 Graph representations (geometric and intersection representations, etc.)

Keywords:

tree drawings; straight-line drawings; circular-arc drawings; Lombardi drawings; polynomial area; perfect angular resolution

Full Text: DOI

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