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On L-shaped point set embeddings of trees:

Figure 2: The tree T_{13} (left) does not admit an L-shaped embedding in the $(2; 2; 2; 1; 2; 2;$

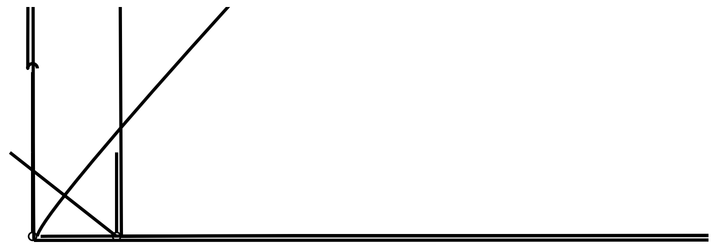

Figure 3: The ordered tree T_{10}

We conjecture that

of size 2 in a staircase point set. The size here refers to the number of points in the box, not to the width or height. Our examples in Theorem 2, Theorem 6, and the ones in Section 7 are all constructed by considering trees with many

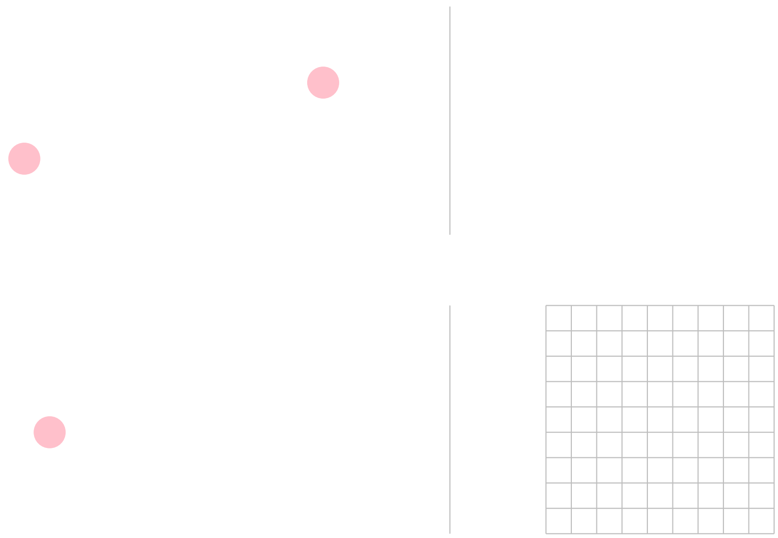

Figure 8: Illustration of the proof of Theorem 4.

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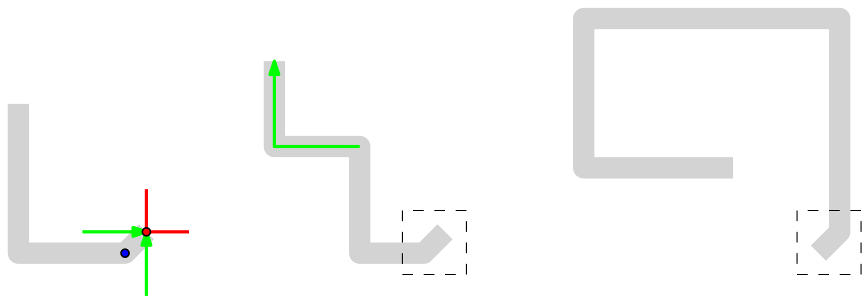
Figure 9: Labeling of vertices of the ordered tree T_r for the proof of Theorem 6.

We refer to the sequence of ⌐- or ∟-edges connecting the central path vertices $X_0, \ldots, X_{r+1}$ as the *spine*



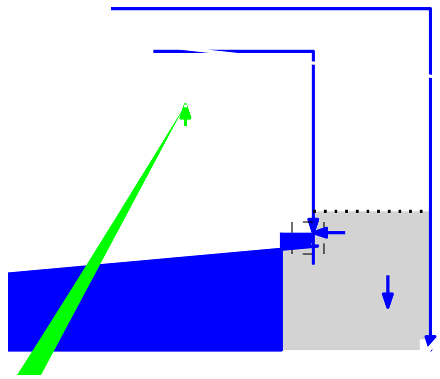


Figure 13: Illustration of Lemma 14.

ending at X

We rst assume that there is no free spine edge. Consider the regions $L(A)$ and $R(B)$. Note that A and exactly two of the leaves adjacent to it lie in $L(A)$, and that B and exactly two of the leaves adjacent to it lie in

at X_a must end at X_0, enclosing all spine edges $X_i X_{i+1}$, $0 \quad i \quad r$. Applying Lemma 16 again completes the proof.

a point set if and only if it is embeddable on the rotated or mirrored point set.

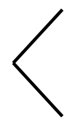


Figure 17: The 20-vertex tree T_{20}.

n = 13:

(1,1,2,2,1,2,2,1,1)
(1,1,3,1,1,1,3,1,1)
(2,2,2,1,2,2,2)
(2,3,1,1,1,3,2)

n = 14:

(1,1,2,1,2,2,1,2,1,1)
(2,2,1,2,2,1,2,2)

n = 16:

(1,3,1,1,1,2,1,1,1,3,1)
(1,3,2,1,2,1,2,3,1)

n = 17:

(1,1,3,1,1,3,1,1,3,1,1-19.646Td[((1,3,1,1,1,2,1,1,1,3,1))]TJ0-11.955Td[((1,3,2,1,2,1,2,3,1

References

[1] O. Aichholzer, T. Hackl, and M. Scheucher. Planar L-shaped point set embeddings of trees. In *Proc. 32nd European Workshop on Computational Geometry (EuroCG 2016)*, pages 51{54, 2016. URL: http://www.eurocg2016.usi.ch/sites/default/files/paper_26.pdf.

[2] I. Barany, K. Buchin, M. Ho mann, and A. Liebenau. An improved bound