"Imbalance, Cutwidth, and the Structure of Optimal Orderings" Errata

Jan Gorzny

February 3, 2021

1 Cutwidth and Imbalance Parameterized by Twin-Cover

Corollaries 7 and 4 are incorrect, as well as others mentions to the fact that the problems CUTWIDTH and IMBALANCE are fixed-parameter tractable when parameterized by the twin-cover number of the input graph. These statements should instead that that these problems are fixed-parameter tractable parameterized by a restricted variant of the twin cover number of the graph. A journal version of this paper will hopefully correct these issues, if my PhD thesis does not.

2 Imbalance on Split Graphs

A counter-example has been found to the reduction used in Section 4, so as far as I know, the complexity for this problem on this class of graphs (and chordal graphs in general) is still *open*.

3 Minor Fixes

Despite the best efforts of the authors and the editors, some small mistakes have also made it into the published version. Please note the following corrections:

- The last line before Lemma 1 should read as follows: "When $p(z) = j + \frac{1}{2}$ (necessarily, $\deg(z)$ is odd), then either position j or $j+1$ gives z its minimum imbalance $im(z) = 1$."

- The third paragraph of the proof of Theorem 3 should read as follows: "We wish to show that σ can be modified to an ordering π, either by shifting U_2 to the left (and shifting y_ℓ to the right), or by shifting U_1 to the right (and shifting y_1 to the left), such that $\pi < \sigma$ and $im(\pi) \leq im(\sigma)$." Note: a coming version of this proof will greatly improve readabilty.

- The second sentence of the conclusion should read as follows: "We believe that IMBALANCE can be solved in linear time on proper interval *bipartite* graphs and *threshold* graphs, but leave these classes as future work."

- The authors listed in [29] should be sorted alphabetically by last name, and the citation's position in the references should reflect this change.