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Corrigendum to "The path-partition problem in block graphs" [Information Processing Letters 52 (1994) 317–322] ☆

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Recently, Wong [1] pointed out that Yan and Chang's [2] linear-time algorithm for the path-partition problem for block graphs is not correct, by giving the following example. Suppose G is the graph consisting of a vertex w and a set of triangles $\{x_i, y_i, z_i\}$ such that each x_i is adjacent to w for $1 \leqslant i \leqslant k$, where $k \geqslant 3$. Then $p(G) = k - 1$, but Yan and Chang's algorithm gives $p(G) = 1$. He also traced the algorithm for the graph in Fig. 2 of [2] in a different ordering to get an inconsistent value. He then gave a linear-time algorithm for the problem.

We clarify two things. First, Yan and Chang's algorithm is correct except for a typo: the J should be J^* in line 18 of Algorithm PPN. This is because it applies Theorem 3 for the graph G', the composition of $G_1, G_2, \ldots, G_{t-1}$. With this typo revised, the example above is then not a counterexample.

Second, the method in [1], although correct, is much more complicated. Many involved concepts and cases are introduced. It is not clear how the algorithm can be implemented in linear time.

References

[1] P.-K. Wong, Optimal path cover problem on block graphs, Theoret. Comput. Sci. 225 (1999) 163–169.

[2] J.-H. Yan, G.J. Chang, The path-partition problem in block graphs, Inform. Process. Lett. 52 (1994) 317–322.

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