

Corrigendum to “Dominator coloring of Mycielskian graphs”

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The condition in Theorem 2.1 of [1] by the current authors requires a more precise formulation. The original version assumes the condition for a solitary vertex. However, this is not sufficient in all cases.

The purpose of this corrigendum is to present the corrected version of the result.

Corrected Theorem 2.1 *Let G be a graph. Then $\chi_d(\mu(G)) = \chi_d(G) + 1$ if and only if there exists a χ_d -coloring $\mathcal{C} = \{V_1, V_2, \dots, V_k\}$ of G such that:*

- 1. Each vertex $v \in V(G)$ dominates some color class V_i with $v \notin V_i$.*
- 2. For every solitary vertex v in \mathcal{C} , there exists a color class V_i satisfying $V_i \cap N(v) = \emptyset$.*

Remark. In the original statement, the condition was given only for a solitary vertex. However, while extending a χ_d -coloring of G to its Mycielskian graph $\mu(G)$, all solitary vertices must be considered. If a solitary vertex does not have a color class outside its open neighborhood, then its corresponding twin vertex cannot be assigned any of the existing colors. In such a case, more than one additional color may be required.

Hence, the condition must hold for every solitary vertex in the coloring.

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References

- [1] A. Mohammed Abid and T.R. Ramesh Rao, Dominator Coloring of Mycielskian Graphs, *Australas. J. Combin.* 73 (2) (2019), 274–279.
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