Topological remarks on end and edge-end spaces

LEANDRO AURICHI*

University of São Paulo aurichi@icmc.usp.br

For an infinite graph G, there is a standard topological space $\Omega(G)$ called the end space of G. This space has several applications in graph theory and has a long history of work on it. A motivation for this space is to represent connections among vertices of the graph. Classically, these connections are thought in terms of sets of vertices, in the sense "how many vertices are needed to separate a set?". Diestel ([2]) asked the question of what are the topological spaces that are the end space of some graph. This question was recently solved by Pitz ([3]). Here we study another natural space, presented in a similar fashion, where the motivation is to represent the connections in terms of sets of edges, instead of vertices. One of the results ([1]) is the characterization of what are the topological spaces obtained this way. Another result is a topological game that helps in the characterization presented in [3].

References

- L. Aurichi, P. Magalhães Júnior, L. Real, Topological remarks on end and edge-end spaces. arXiv:2111.17116, 2024
- [2] R. Diestel. The end structure of a graph: recent results and open problems. Discrete Math., 100(1-3):313-327, 1992
- [3] M. Pitz. Characterising path-, ray- and branch spaces of order trees, and end spaces of infinite graphs. arXiv:2303.00547, 2023

^{*}This is joint work with P. Magalhães Júnior and L. Real (University of São Paulo).