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INTERIOR GE-FILTERS OF GE-ALGEBRAS

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Abstract

The notions of an interior GE-filter, a weak interior GE-filter and a belligerent interior GE-filter are introduced, and their relations and properties are investigated. Example of a GE-filter which is neither an interior GE-filter nor a weak interior GE-filter is provided. Relations between a weak interior GE-filter and an interior GE-filter are discussed, and conditions under which every weak interior GE-filter is an interior GE-filter are investigated. Relations between a belligerent interior GE-filter and an interior GE-filter are displayed, and conditions for an interior GE-filter to be a belligerent interior

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GE-filter are considered. Given a subset and an element, an interior GE-filter is established, and conditions for a subset to be a belligerent interior GE-filter are discussed. The extensibility of the beligerant interior GE-filter is debated. Relationships between weak interior GE-filter and belligerent interior GE-filter of type 1, type 2 and type 3 are founded.

Keywords: (transitive, left exchangeable) GE-algebra, GE-filter, belligerent GE-filter, (weak) interior GE-filter, belligerent interior GE-filter (of type 1, type 2 and type 3).

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References

- R.K. Bandaru, A. Borumand Saeid and Y.B. Jun, On GE-algebras, Bulletin of the Section of Logic 50 (2021) 81–90. https://doi.org/10.18778/0138-0680.2020.20
- [2] R.K. Bandaru, A. Borumand Saeid and Y.B. Jun, Belligerent GE-filters in GEalgebras, T. Indones. Math. Soc. (submitted).
- G. Castellini and J. Ramos, Interior operators and topological connectedness, Quaest. Math. 33 (2010) 290–304. https://doi.org/10.2989/16073606.2010.507322
- [4] A. Diego, Sur algébres de Hilbert, Collect. Logique Math. Ser. A 21 (1967) 177–198.
- J.G. Lee, R.K. Bandaru, K. Hur and Y.B. Jun, Interior GE-algebras, J. Math. 2021 (2021) 1–10. https://doi.org/10.1155/2021/6646091
- [6] J. Rachůnek and Z. Svoboda, Interior and closure operators on bounded residuated lattices, Cent. Eur. J. Math. 12 (3) (2014) 534–544. https://doi.org/10.2478/s11533-013-0349-y
- [7] F. Svrcek, Operators on GMV-algebras, Math. Bohem. 129 (2004) 337–347. https://doi.org/10.21136/MB.2004.134044
- [8] S.J.R. Vorster, Interior operators in general categories, Quaest. Math. 23 (2000) 405–416. https://doi.org/10.2989/16073600009485987

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