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A representation of FS-domains by formal concept analysis. (English) Zbl 1480.18004
Bull. Malays. Math. Sci. Soc. (2) 45, No. 1, 483-499 (2022).

The category Dom of continuous domains with Scott continuous functions is not cartesian closed while from [A. Jung, Cartesian closed categories of domains. Amsterdam: Centrum voor Wiskunde en Informatica (1989; Zbl 0719.06004); “The classification of continuous domains”, in: Proceedings of the Fifth Annual IEEE Symposium on Logic in Computer Science. Los Alamitos, CA: IEEE Computer Society. 35–40 (1990)] it is known that the full subcategory FSD of *FS-domains* (a pointed dequo with a directed set of continuous endomorphisms, each finitely separated from the identity morphism and having the identity morphism as its supremum [S. Abramsky and A. Jung, Domain theory, corrected and expanded version. <https://www.cs.bham.ac.uk/~axj/pub/papers/handy1.pdf>]) is maximal cartesian closed. The present paper proposes a notion of *FS-contexts* (based on the notion of *contractive operators* in [L. Wang et al., Fundam. Inform. 179, No. 3, 295–319 (2021; Zbl 07426112)]) and shows: each FS-domain, upto isomorphism, is the set of FS-formal concepts of a FS-context.

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MSC:

- 18B35 Preorders, orders, domains and lattices (viewed as categories)
- 06B35 Continuous lattices and posets, applications
- 06A15 Galois correspondences, closure operators (in relation to ordered sets)
- 06A06 Partial orders, general
- 03E20 Other classical set theory (including functions, relations, and set algebra)

Keywords:

formal concept analysis; FS-formal concept; FS-context; FS-domain; G-formal connection

Full Text: [DOI](#)

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