

Antoni, Lubomír; Krajčí, Stanislav; Krídlo, Ondrej; Macek, Bohuslav; Pisková, Lenka
On heterogeneous formal contexts. (English) [Zbl 1315.68232](#)
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Summary: We propose a new type of fuzzification for formal concept analysis that works with heterogeneous values in a context and illustrate this with an example. We formulate and prove an appropriate counterpart to the so-called basic theorem of a concept lattice. We show that this is a generalization of the previous approaches: it covers the so-called generalized concept lattice and multi-adjoint t-concept lattices.

MSC:

68T30 Knowledge representation
06A15 Galois correspondences, closure operators (in relation to ordered sets)
06B75 Generalizations of lattices

Cited in **28** Documents

Keywords:

formal concept analysis; Galois connection; adjointness

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References:

- [1] L. Antoni, S. Krajčí, O. Krídlo, B. Macek, L. Pisková, Relationship between two FCA approaches on heterogeneous formal contexts, in: L. Szathmari, U. Priss (Eds.), Proceedings of CLA, 2012, pp. 93-102.
- [2] R. Bělohlávek, Fuzzy concepts and conceptual structures: induced similarities, in: Proceedings of JCIS 98, vol. I, 1998, pp. 179-182.
- [3] Bělohlávek, R., Concept lattices and order in fuzzy logic, *Ann. Pure Appl. Logic*, 128, 277-298, (2004) · [Zbl 1060.03040](#)
- [4] Bělohlávek, R., Sup-t-norm and inf-residuum are one type of relational productunifying framework and consequences, *Fuzzy Sets Syst.*, 197, 45-58, (2012) · [Zbl 1266.03056](#)
- [5] Bělohlávek, R.; Sklenář, V.; Zacpal, J., Crisply generated fuzzy concepts, *Lect. Notes Comput. Sci.*, 3403, 268-283, (2005) · [Zbl 1078.68142](#)
- [6] R. Bělohlávek, V. Vychodil, Reducing the size of fuzzy concept lattices by hedges, in: Proceedings of FUZZ-IEEE 2005, pp. 663-668.
- [7] Bělohlávek, R.; Vychodil, V., Formal concept analysis and linguistic hedges, *Int. J. Gen. Syst.*, 41, 503-532, (2012) · [Zbl 1277.93045](#)
- [8] Ben Yahia, S.; Jaoua, A., Discovering knowledge from fuzzy concept lattice, (Kandel, A.; Last, M.; Bunke, H., *Data Mining and Computational Intelligence*, (2001), Physica-Verlag), 169-190
- [9] Burusco, A.; Fuentes-Gonzalez, R., The study of L -fuzzy concept lattice, *Mathware Soft. Comput.*, 3, 209-218, (1994) · [Zbl 0827.06004](#)
- [10] Cornejo, M. E.; Medina, J.; Ramírez, E., A comparative study of adjoint triples, *Fuzzy Sets Syst.*, 211, 1-14, (2013) · [Zbl 1272.03111](#)
- [11] Davey, B. A.; Priestley, H. A., *Introduction to lattices and order*, (2002), Cambridge University Press · [Zbl 1002.06001](#)
- [12] Ganter, B.; Wille, R., *Formal concept analysis mathematical foundation*, (1999), Springer Verlag
- [13] Krajčí, S., Cluster based efficient generation of fuzzy concepts, *Neural Network World*, 13, 521-530, (2003)
- [14] Krajčí, S., A generalized concept lattice, *Logic J. IGPL*, 13, 543-550, (2005) · [Zbl 1088.06005](#)
- [15] S. Krajčí, The basic theorem on generalized concept lattice, in: V. Snášel, R. Bělohlávek (Eds.), Proceedings of the 2nd International Conference on Concept Lattices and Their Applications, 2004, pp. 25-33.
- [16] S. Krajčí, Every concept lattice with hedges is isomorphic to some generalized concept lattice, in: V. Snášel, R. Bělohlávek (Eds.), Proceedings of the 3rd International Conference on Concept Lattices and Their Applications, 2005, pp. 1-9.
- [17] Medina, J.; Ojeda-Aciego, M., Multi-adjoint t-concept lattices, *Inf. Sci.*, 180, 712-725, (2010) · [Zbl 1187.68587](#)
- [18] Medina, J.; Ojeda-Aciego, M., On multi-adjoint concept lattices based on heterogeneous conjunctors, *Fuzzy Sets Syst.*, 208, 95-110, (2012) · [Zbl 1252.06003](#)
- [19] Medina, J.; Ojeda-Aciego, M.; Ruiz-Calviño, J., Formal concept analysis via multi-adjoint concept lattices, *Fuzzy Sets Syst.*, 160, 130-144, (2009) · [Zbl 1187.68589](#)

- [20] J. Medina, M. Ojeda-Aciego, A. Valverde, P. Vojtáš, Towards biresiduated multi-adjoint logic programming, *Lect. Notes Artif. Intell.* 3040 (2004) 608-617.
- [21] J. Medina, M. Ojeda-Aciego, P. Vojtáš, Multi-adjoint logic programming with continuous semantics, *Lect. Notes Artif. Intell.* 2173 (2001) 351-364. · [Zbl 1007.68023](#)
- [22] Medina, J.; Ojeda-Aciego, M.; Vojtáš, P., Similarity-based unification multi-adjoint approach, *Fuzzy Set Syst.*, 146, 43-62, (2004) · [Zbl 1073.68026](#)
- [23] Pócs, J., Note on generating fuzzy concept lattices via Galois connections, *Inf. Sci.*, 185, 128-136, (2012) · [Zbl 1239.68071](#)
- [24] Pócs, J., On possible generalization of fuzzy concept lattices, *Inf. Sci.*, 210, 89-98, (2012) · [Zbl 1250.06001](#)
- [25] Pollandt, S., *Fuzzy begriffe*, (1997), Springer · [Zbl 0870.06008](#)
- [26] Pollandt, S., *Datenanalyse mit fuzzy-begriffen*, (Stumme, G.; Wille, R., *Begriffliche Wissensverarbeitung. Methoden und Anwendungen*, (2000), Springer Heidelberg), 72-98 · [Zbl 0958.68162](#)

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