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Lattice classification by cut-through coding. (English summary)

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Summary: “Inspired by engineering of high-speed switching with quality of service, this paper introduces a new approach to classify finite lattices by the concept of *cut-through coding*. An n -ary cut-through code of a finite lattice encodes all lattice elements by distinct n -ary strings of a uniform length such that for all j , the initial j encoding symbols of any two elements x and y determine the initial j encoding symbols of the meet and join of x and y . In terms of lattice congruences, some basic criteria are derived to characterize the n -ary cut-through codability of a finite lattice. n -ary cut-through codability also gives rise to a new classification of lattice varieties and in particular, defines a chain of ideals in the lattice of lattice varieties.”

Sufficient familiarity with the references of the paper (and the topic in general) is a must for understanding this paper.

{For additional information pertaining to this item see [Q. T. Sun and S.-Y. R. Li, *Order* **31** (2014), no. 2, 289; [MR3286944](#)].} *Saeed Salehi*

References

1. Ait-Kaci, H., Boyer, R., Lincoln, P., Nasr, R.: Efficient implementation of lattice operations. *ACM Trans. Program. Lang. Syst.* **11**(3), 115–146 (1989)
2. Davey, B.A., Priestly, H.A.: *Introduction to Lattices and Order*, 2nd edn. Cambridge University Press (2002) [MR1902334](#) (2003e:06001)
3. Freese, R., Ježek, J., Nation, J.B.: *Free Lattices*. Mathematical Surveys and Monographs, vol. 42. American Mathematical Society (1995) [MR1319815](#) (96c:06013)
4. Grätzer, G.: *General Lattice Theory*, 2 edn. Birkhäuser (1998)
5. Grätzer, G.: *The Congruences of a Finite Lattice: A Proof-by-Picture Approach*. Birkhäuser (2006) [MR2177459](#) (2006f:06001)
6. Habib, M., Nourine, L.: Bit-vector encoding for partially ordered sets. In: *Proc. Int. Workshop Orders, Algorithms, Appl.*, Lyon, France (1994)
7. Jónsson, B.: Algebras whose congruence lattices are distributive. *Math. Scand.* **21**, 110–121 (1967) [MR0237402](#) (38 #5689)
8. Jónsson, B., Rival, I.: Lattice varieties covering the smallest non-modular variety. *Pacific J. Math.* **82**, 463–478 (1979) [MR0551703](#) (81j:06007)
9. Li, S.Y.R.: Unified algebraic theory of sorting, routing, multicasting, and concentration networks. *IEEE Trans. Comm.* **58**, 247–256 (2010)
10. McKenzie, R.: Equational bases and nonmodular lattice varieties. *Trans. Am. Math. Soc.* **174**, 1–43 (1972) [MR0313141](#) (47 #1696)
11. Nation, J.B.: Finite sublattices of a free lattice. *Trans. Am. Math. Soc.* **269**, 311–337 (1982) [MR0637041](#) (83b:06008)
12. Zhu, J., Li, S.Y.R.: Optimizing switching element for minimal latency. U.S. Patent No. 7,609,695 (2009)

Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.