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**On subalgebra lattices of a finite unary algebra. I.** (English) Zbl 0978.08003  
[Math. Bohem. 126, No. 1, 161-170 \(2001\)](#).

Summary: One of the main aims of the present and the next part [ibid. 126, No. 1, 171-181 (2001; [Zbl 0978.08004](#)), reviewed below] of this paper is to show that the theory of graphs (its language and results) can be very useful in algebraic investigations. We characterize, in terms of isomorphisms of some digraphs, all pairs  $\langle \mathcal{A}, \mathcal{L} \rangle$ , where  $\mathcal{A}$  is a finite unary algebra and  $\mathcal{L}$  a finite lattice such that the subalgebra lattice of  $\mathcal{A}$  is isomorphic to  $\mathcal{L}$ . Moreover, we find necessary and sufficient conditions for two arbitrary finite unary algebras to have isomorphic subalgebra lattices. We solve these two problems in the more general case of partial unary algebras.

In the next part of this paper we will use these results to describe connections between various kinds of lattices of (partial) subalgebras of a finite unary algebra.

**MSC:**

[08A60](#) Unary algebras  
[08A30](#) Subalgebras, congruence relations  
[05C20](#) Directed graphs (digraphs), tournaments  
[08A55](#) Partial algebras

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[finite unary algebra](#); [partial algebra](#); [subalgebra lattice](#); [directed graph](#)

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