Problem #32

Originator: John Pedersen
Date: April 1991

Summary: Is there a finite term-rewriting system of some kind for free lattices?

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Remark

As mentioned in a remark to Problem #77, it has been shown in [Fre93] that there is no finite, normal form, associative-commutative term-rewriting system for lattices.

Comment sent by Jordi Levy

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There are bi-rewriting systems for free lattices and distributive free lattices [LA96]. Bi-rewriting systems are used to automatize deduction in theories with monotonic order relations. They are composed of a pair of rewriting systems. One is used for rewriting terms into smaller terms, and the other for rewriting terms into bigger terms.

Bibliography

[Fre93] R. Freese. personal communication, 1993.

[LA96] Jordi Levy and Jaume Agustí. Bi-rewriting systems. *Journal of Symbolic Computation*, 22(3):279–314, September 1996.

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