

Problem #28

Originator: Pierre Lescanne

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Summary: Develop effective methods to decide whether a system decreases with respect to some exponential interpretation.

Polynomial and exponential interpretations have been used to prove termination. For the former there are some reasonable methods [CL87, Lan79] that can help determine if a particular interpretation decreases with each application of a rule. Are there other implementable methods suitable for exponential interpretations?

Remark

Some work on this problem has been reported in [Les92].

Bibliography

- [CL87] Ahlem Ben Cherifa and Pierre Lescanne. Termination of rewriting systems by polynomial interpretations and its implementation. *Science of Computer Programming*, 9(2):137–159, October 1987.
- [Lan79] Dallas S. Lankford. On proving term rewriting systems are Noetherian. Memo MTP-3, Mathematics Department, Louisiana Tech. University, Ruston, LA, May 1979. Revised October 1979.
- [Les92] Pierre Lescanne. Termination of rewrite systems by elementary interpretations. In Hélène Kirchner and Giorgio Levi, editors, *3th International Conference on Algebraic and Logic Programming*, volume 632 of *Lecture Notes in Computer Science*, pages 21–36, Volterra, Italy, September 1992. Springer-Verlag.