Problem #80

Originator: Hubert Comon

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 $\label{thm:systems:systems:systems:systems:systems:systems:} Is strong sequentiality decidable for arbitrary rewrite systems?$

Strong sequentiality is a property of rewrite systems introduced in [HL78] (see [HL91a]), which ensures the existence of optimal reduction strategies. Is strong sequentiality decidable for arbitrary rewrite systems? What is the complexity of strong sequentiality in the linear case? in the orthogonal case? Decidability results for particular rewrite systems are given in [HL91b, Toy92, JS94], among others.

Bibliography

- [HL78] Gérard Huet and Dallas S. Lankford. On the uniform halting problem for term rewriting systems. Rapport laboria 283, Institut de Recherche en Informatique et en Automatique, Le Chesnay, France, March 1978.
- [HL79] Gérard Huet and Jean-Jacques Lévy. Call by need computations in non-ambiguous linear term rewriting systems. Rapport Laboria 359, Institut National de Recherche en Informatique et en Automatique, Le Chesnay, France, August 1979.
- [HL91a] Gérard Huet and Jean-Jacques Lévy. Computations in orthogonal rewriting systems, I and II. In Jean-Louis Lassez and Gordon Plotkin, editors, Computational Logic: Essays in Honor of Alan Robinson, pages 395–443. The MIT Press, Cambridge, MA, 1991. This is a revision of [HL79].
- [HL91b] Gérard Huet and Jean-Jacques Lévy. Computations in orthogonal rewriting systems, II. In Jean-Louis Lassez and Gordon Plotkin, editors, *Computational Logic: Essays in Honor of Alan Robinson*, chapter 12, pages 415–443. The MIT Press, Cambridge, MA, 1991.
- [JS94] Jean-Pierre Jouannaud and Walid Sadfi. Strong sequentiality of left-linear overlapping rewrite systems. In Nachum Dershowitz and N. Lindenstrauss, editors, *Proceedings of the Fourth International Workshop on Conditional Rewriting Systems*, Jerusalem, Israel, July 1994. Springer-Verlag.
- [Toy92] Yoshihito Toyama. Strong sequentiality of left linear overlapping term rewriting systems. In Andre Scedrov, editor, Seventh Symposium on Logic in Computer Science, Santa Cruz, CA, June 1992. IEEE.