

Problem #95

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Summary: Is there a one-rule string rewriting system that is non-terminating but also non-looping?

Is there a one-rule string rewriting system that is non-terminating but also non-looping, that is not allowing a rewrite sequence $x \rightarrow^* uxv$? Motivation and examples of two rule string rewriting systems and a one rule term rewriting system that is non-terminating and non-looping, can be found in [ZG96].

This problem is related to Problem #21 and Problem #87. More about the history of this problem in the context of the question of one-rule termination can be found in [Der05].

Bibliography

- [Der05] Nachum Dershowitz. Open. Closed. Open. In Jürgen Giesl, editor, *16th International Conference on Rewriting Techniques*, volume 3467 of *Lecture Notes in Computer Science*, Nara, Japan, April 2005. Springer-Verlag.
- [ZG96] Hans Zantema and Alfons Geser. Non-looping rewriting. Technical Report UU-CS-96-03, Utrecht University, Department of Computer Science, January 1996. Extended version to appear in *RAIRO Théor. Inf* as "Non-looping string rewriting".