

Problem #3 (Solved !)

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Summary: What is the complexity of deciding ground-reducibility?

A term t is *ground reducible* with respect to a rewrite system R if all its ground (variable-free) instances contain a redex. Ground reducibility is decidable for ordinary rewriting (and finite R) [Com88, KNZ87, Pla85], but n^{n^n} is the best known upper bound in general, $2^{dn \log n}$ and $2^{cn/\log n}$ are the best upper and lower bounds, respectively, for left-linear systems, where n is the size of the system R and c, d are constants [KNZ87]. Can these bounds be improved?

Remark

Ground-reducibility is EXPTIME-complete [CJ97, CJ03].

Bibliography

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