

## Problem #49

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*Summary: Can completion always be made terminating when limiting the depth of occurrences of critical pairs?*

Suppose ordinary completion (as in [DJ90], for example, is non-terminating for some initial set of equations  $E$ , completion strategy, and reduction ordering. Must there be a finite depth  $N$  for  $E$  such that for any  $n > N$  restricting the generation of critical pairs to overlaps at positions that are no deeper than  $n$  in the overlapped left-hand side (but otherwise not changing the strategy) also produces a non-terminating completion sequence?

# Bibliography

- [DJ90] Nachum Dershowitz and Jean-Pierre Jouannaud. Rewrite systems. In J. van Leeuwen, editor, *Handbook of Theoretical Computer Science*, volume B: Formal Methods and Semantics, chapter 6, pages 243–320. North-Holland, Amsterdam, 1990.