

## Problem #34 (Solved !)

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*Summary: Is there a set of inference rules that always succeeds in computing a convergent set of rewrite rules for a given set of equations and an ordering, provided that it exists?*

Ordered rewriting computes a given convergent set of rewrite rules for an equational theory  $E$  and an ordering  $>$  whenever such a set  $R$  exists for  $>$ , provided  $>$  can be made total on ground terms. Unfortunately, this is not always possible, even if  $>$  is derivability ( $\rightarrow_R^+$ ) in  $R$ . Is there a set of inference rules that will always succeed in computing  $R$  whenever  $R$  exists for  $>$ ?

### Remark

A proposal appears in [Dev91]; more work is called for.

A positive answer has been given in [BGNR99].

# Bibliography

- [BGNR99] Miquel Boffil, Guillem Godoy, Robert Nieuwenhuis, and Albert Rubio. Paramodulation with non-monotonic orderings. In *Fourteenth IEEE Annual Symposium on Logic in Computer Science*, Trento, Italy, July 1999. IEEE.
- [Dev91] Hervé Devie. *Une approche algébrique de la réécriture de preuves équationnelles et son application à la dérivation de procédures de complétion*. PhD thesis, Université Paris-Sud, Orsay, France, October 1991.