CO3 (Ver. 2.4)

a COnverter for proving COnfluence of COnditional TRSs

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Overview

CO3 proves confluence of 3-DCTRSs or infeasibility of conditions by using

- very simple termination/confluence criteria for TRSs,
- the improved sequential unraveling $\mathbb{U}_{conf}$ [Gmeiner et al, 13],
- narrowing trees [Nishida & Maeda, 18], and
- reduction of confluence of join or semi-equational CTRSs to that of oriented ones

Infeasibility and Confluence Criterion

- Condition c is **infeasible** w.r.t. DCTRS $\mathcal{R}$ if $\mathbb{U}_{conf}(\mathcal{R})$ is right-linear and a narrowing tree for c defines $\emptyset$ [Maeda et al, 19]
- Syntactically deterministic 3-CTRSs $\mathcal{R}$ is **confluent** if either
    - $\mathcal{R}$ is weakly left-linear and $\mathbb{U}_{conf}(\mathcal{R})$ is confluent [Gmeiner et al, 13]

      or
    - $\mathbb{U}_{conf}(\mathcal{R})$ is terminating and right-linear
      and $\forall \langle s, t \rangle \Leftarrow c \in CP(\mathcal{R})$, $(c = \epsilon \wedge s = t) \vee$ "c is **infeasible**" [Maeda et al, 19]

- Improved removal of valid conditions, and strengthened disproof of CR   [Ver. 2.4]