

CO3 (Ver. 2.3)

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]

- Remove valid conditions, improve removal of infeasible conditions, etc [Ver. 2.3]