

CO3 (Ver. 2.5)

a COnverter for proving COnfluence of COnditional TRSs

Naoki Nishida Misaki Kojima
Nagoya University, Japan

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]

- Added a **new disproof criterion** for confluence of \mathcal{R}

[Ver. 2.5]