CoCo 2016 Participant: CSI 0.6*

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CSI is an automatic tool for (dis)proving confluence of first-order term rewrite systems (TRSs). Its name is derived from the Confluence of the rivers Sill and Inn in Innsbruck. The tool is available from

http://cl-informatik.uibk.ac.at/software/csi

under a LGPLv3 license, where a web interface is provided as well. CSI is based on the termination prover $\mathsf{T_TT_2}$. An overview of CSI's implementation and core features can be found in [10].

CSI is equipped with a strategy language for directing the proof search, allowing to configure it flexibly. It features a modular implementation of the decreasing diagrams technique, decomposing TRSs into smaller TRSs based on ordered sorts [4], a cubic time decision procedure for confluence of ground TRSs [1], and non-confluence checks based on tcap and tree automata [10]. Furthermore it adds and removes redundant rules [6]. For many techniques, CSI supports proof output in cpf format that can be verified independently by certifiers like CeTA [9].

The 2016 version of CSI additionally supports labeling of multisteps [2] as well as critical-pair-closing systems [8]. Furthermore, we added basic support for uniqueness of normal forms with respect to conversions and reductions, including decision procedures for ground TRSs [3] and the non-ω-overlapping criterion of [5]. We also provide cpf output for parallel closedness [7].

References

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