CSI is a strong automatic tool for (dis)proving confluence of first-order term rewrite systems (TRSs). It is based on the termination prover TTT2 \cite{4} and has been in development since 2010. Its name is derived from the Confluence of the rivers Sill and Inn in Innsbruck. The tool is available from

\text{http://cl-informatik.uibk.ac.at/software/csi}

under a LGPLv3 license. A new improved web interface is available as well. Below we briefly report on recent extensions that make CSI more powerful, secure, and useful. A more detailed description can be found in \cite{5}.

TRSs that contain AC rules pose a challenge for confluence provers. In CSI we incorporated a version of the AC critical pair lemma based on extended rules \cite{7}, which is used in the modern completion tool mkbtt \cite{8}. For unique normal form properties, we now support Chew’s theorem \cite{1} for UNC and, for ground TRSs, a decision procedure for NFP (in addition to CR, UNC and UNR \cite{2,3}). The most recent addition to CSI’s repertoire of certifiable confluence criteria is based on terminating critical-pair-closing systems \cite{6}. The following table demonstrates the progress CSI has made in the last 6 years; CSI 0.1 was released in 2011, CSI 0.6 participated in CoCo 2016. The results in the final column are using CSI’s certified mode.

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References


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