CoCo 2017 Participant: CSI 1.1*

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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 [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

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 [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 [7], which is used in the modern completion tool mkbtt [8]. For unique normal form properties, we now support Chew's theorem [1] for UNC and, for ground TRSs, a decision procedure for NFP (in addition to CR, UNC and UNR [2, 3]). The most recent addition to CSI's repertoire of certifiable confluence criteria is based on terminating critical-pair-closing systems [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.

	CSI 0.1	CSI 0.6	CSI 1.1	✓CSI 1.1
yes	116	181	215	119
no	51	62	67	67
maybe	142	66	27	123

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