CoCo 2023 Participant: CSI 1.2.7

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CSI is an automatic tool for (dis)proving confluence and related properties of first-order term rewrite systems (TRSs). It 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

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

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under a LGPLv3 license. A detailed description of CSI can be found in [4]. Some of the implemented techniques are described in [1, 3, 7]. CSI can also produce certificates for confluence results, which are checked by CeTA. Compared to last year's version, CSI 1.2.7 can now produce certificates containing proofs based on *almost* development-closed critical pairs, which is a sufficient condition for confluence of left-linear TRSs [5]. This extends the previous certification of development-closed critical pairs. These certificates can be checked by the latest version of CeTA [6], due to the formalization and certification efforts by Christina Kohl, parts of which are described in [2].

CSI participates in the following CoCo 2023 categories: NFP, SRS, TRS, UNC, and UNR. Additionally, it participates together with CeTA in the TRS category providing certified YES/NO answers.

References

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[4] Julian Nagele, Bertram Felgenhauer, and Aart Middeldorp. CSI: New Evidence – A Progress Report. In *Proc. 26th International Conference on Automated Deduction*, volume 10395 of *Lecture Notes in Artificial Intelligence*, pages 385–397, 2017. doi: `10.1007/978-3-319-63046-5_24`.

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[6] René Thiemann, Christina Kohl, and Dohan Kim. CoCo 2023 Participant: CeTA 2.45. In *Proc. 12th International Workshop on Confluence*, 2023. This volume.

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