CoCo 2025 Participant: CSI-Grackle

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CSI is an automatic tool for establishing or refuting confluence and related properties of first-order term rewrite systems (TRSs). Development of the tool commenced in 2010. The name "CSI" is derived from the confluence of the Sill and Inn rivers in Innsbruck. The tool is available at: http://cl-informatik.uibk.ac.at/software/csi. A detailed description of CSI can be found in [3, 2].

Grackle-CSI [4] builds upon CSI but introduces a new strategy invented by a general-purpose strategy optimizer Grackle [1]. Empirical experiments demonstrate that the invented strategies can (dis)prove more TRSs in ARI-COPS than CSI's competition strategy for CoCo 2024 while maintaining the same computation budget. The code is available at: https://github.com/Zhang-Liao/grackle-csi.

Grackle-CSI will participate in the TRS category of CoCo 2025.

References

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[4] Liao Zhang, Fabian Mitterwallner, Jan Jakubuv, and Cezary Kaliszyk. Automated strategy invention for confluence of term rewrite systems. *arXiv preprint arXiv:2411.06409*, 2024.