

infChecker at the 2022 Confluence Competition*

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1 Overview

infChecker is a tool for checking (*in*)feasibility of goals $\mathcal{G} = \{F_i\}_{i=1}^m$ where $F_i = (s_{ij} \bowtie_{ij} t_{ij})_{i=1}^{n_i}$ and $\bowtie_{ij} \in \{\rightarrow, \rightarrow^*, \rightarrow^+, \leftrightarrow, \leftrightarrow^*, \leftrightarrow^+, \triangleright, \triangleright^+, \downarrow, \downarrow^+, \leftrightarrow, \leftrightarrow^*, \leftrightarrow^+, \leftrightarrow^*\}$ where predicates \bowtie_{ij} represent binary relations on terms (most of them well-known or easy generalizations of well-known relations) defined by provability of goals $s \bowtie_{ij} t$ with respect to a *first-order theories* $\text{Th}_{\bowtie_{ij}}$ [1, 3].

The tool is available here:

<http://zenon.dsic.upv.es/infChecker/>.

In 2022, we participate using the version presented at the 2021 Confluence Competition. A short description of the tool can be seen in [2].

infChecker participated from 2019 until today in the confluence competition (CoCo) in the INF category. Currently, infChecker is the most powerful tool for proving and disproving infeasibility.

References

- [1] R. Gutiérrez and S. Lucas. Automatically Proving and Disproving Feasibility Conditions. In N. Peltier and V. Sofronie-Stokkermans, editor, *Proc. of IJCAR'2020*, LNCS 12167:416–435. Springer, 2020.
- [2] R. Gutiérrez, S. Lucas and M. Vítóres. infChecker at the 2021 Confluence Competition. In: Mimram S., Rocha C. (eds) 10th International Workshop on Confluence, IWC 2021. 2021.
- [3] S. Lucas and R. Gutiérrez. Use of Logical Models for Proving Infeasibility in Term Rewriting. *Information Processing Letters*, 136:90–95, 2018.

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