

# Natto 0.2: An Infeasibility Prover

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Natto is a prototype tool for infeasibility analysis, primarily developed to assess the impact of formalizing order-based infeasibility methods for certification [3]. It implements a subset of the infeasibility techniques used in the Nagoya Termination Tool [1, 2], namely polynomial interpretations over the integers and the weighted path order.

Compared to the 2025 version, the weighted path order has been extended to the *generalized* weighted path order [4]. Proof output in the CFP 3 format is currently unsupported.

## References

- [1] A. Yamada, K. Kusakari, and T. Sakabe. Nagoya Termination Tool. In *Proc. of RTA-TLCA 2014*, LNCS 8560, pages 466–475, 2014.
- [2] A. Yamada. Term orderings for non-reachability of (conditional) rewriting. In *Proc. of the 11th IJCAR*, LNAI 13385, pages 248–267, 2022.
- [3] D. Kim, T. Saito, R. Thiemann, and A. Yamada. An Isabelle formalization of co-rewrite pairs for non-reachability in term rewriting. In *Proc. of the 14th CPP*, pages 272–282, 2025.
- [4] T. Saito. Unifying semantic path order and weighted path order. PhD thesis, Japan Advanced Institute of Science and Technology, 2026.