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Empirical metamathematics: extending the Lean-to-Mathematica bridge

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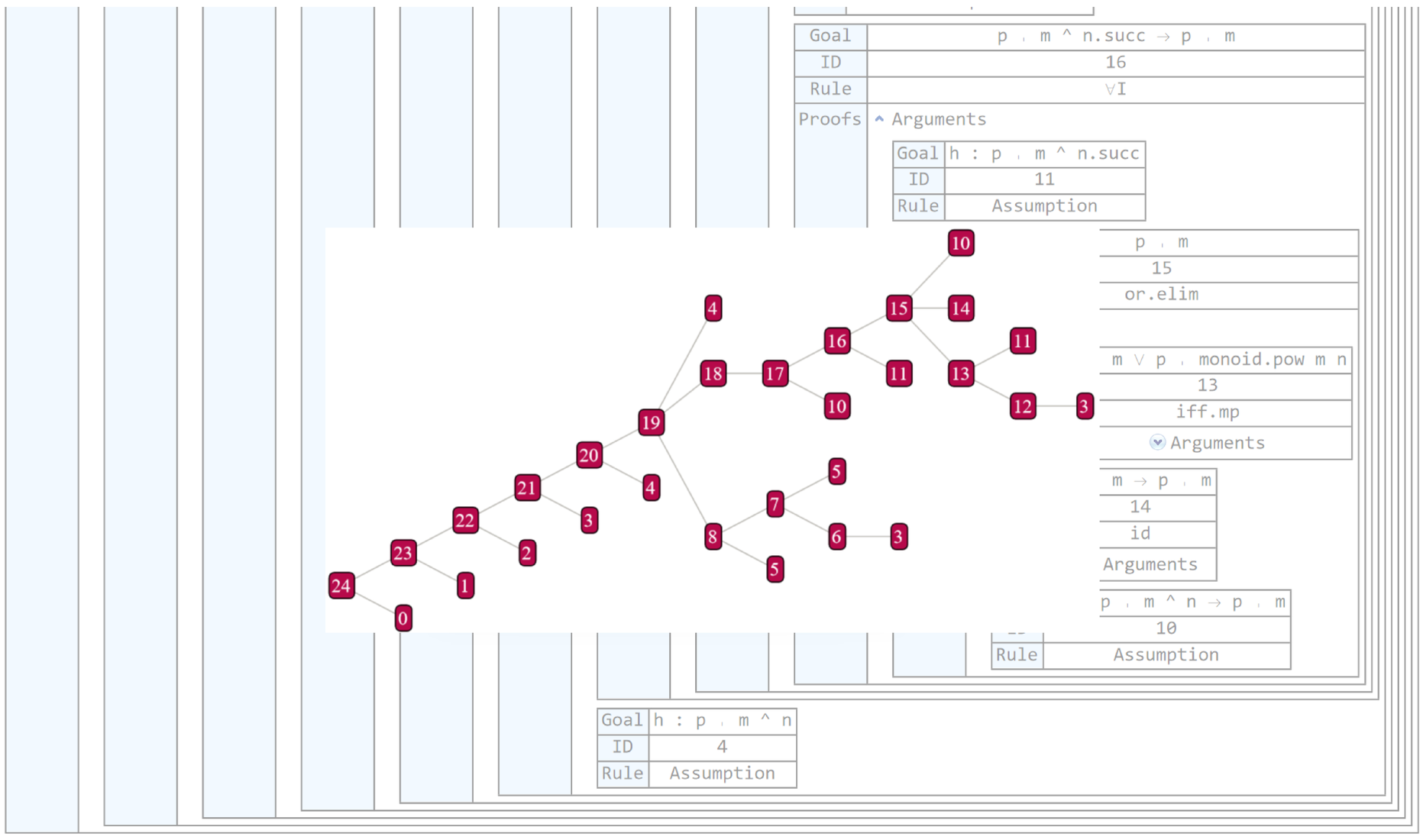

GOAL

Interoperability utilities prototyping for Lean in Mathematica, analysis of Mathlib.

SUMMARY OF RESULTS

The bridge was extended to allow computation of Lean theorem proofs: a repo for easy setup is now available. Metamathematical descriptors were applied to the pro-duced metrics (NKS approach), and Mathlib now was compared to 2020. Technical issues with these approaches were discussed.

FUTURE WORK

Lean was treated as a black box in this study, so improvements on the Lean side are likely possible and a future avenue of exploration and learning.