WG1: TOOLS FOR PROOF SYSTEMS INTEROPERABILITY

19-09-2025

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Main objective of WG1

"Developing the basic theoretical foundations and tools allowing the interoperability of proof systems by expressing more proof systems in the Dedukti logical framework and by developing tools to translate proofs from one system to another"

Deliverables

Deliverable 5 (September 2023): *"Release of software for translating proofs coming from important proof systems based on type theory like Isabelle, Agda, PVS, Lean or Minlog, to Dedukti and back."*

Deliverable 10 (September 2025): "*Release of software for translating proofs coming from important proof systems based on set theory like Mizar, Atelier B or TLAPS to Dedukti and back."*
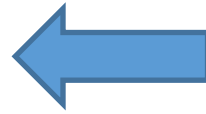
Meetings

- June 2022: [Dedukti School](#) @ Nantes

- October 2022: [Dedukti Developer Meeting](#) @ Val d'Ajol

- January 2023: [2nd Dedukti tools developers meeting](#) @ Fréjus

- July 2023: [Inter-WG developers meeting](#) @ Val d'Ajol

- September 2023: [WG1+4 meeting](#) @ Fontainebleau

- September 2024: [WG1+2+4 meeting](#) @ Fontainebleau

- February 2025: [WG1 meeting](#) @ Nogent-sur-Seine

Dedukti
School
June 2022

Dedukti Developer Meeting October 2022

Dedukti Meeting
January 2023

WG1 Meeting
January 2024

Short-term Scientific Missions

- May 2022: Thiago Felicissimo → Jesper Cockx
  "Compiling dependent pattern matching to elimination principles in Dedukti"

- July 2022: Amelie Ledein → Traian Serbanuta and Dorel Lucanu
  "Rechecking KProver proof objects into Dedukti"

- February 2023: Yoan Géran → Helmut Schwichtenberg
  "Translation from Dedukti to Minlog"

- March 2023: Dorel Lucanu → Gilles Dowek
  "Translation of Generic Symbolic Execution Steps into Dedukti"

- April 2023: Karol Pak → Cezary Kaliszyk
  "Automated Translation of Mizar Declarative Proof"

- May 2023: Frédéric Blanqui → Magnus Myreen
  "Translation of HOL4 proofs to Dedukti and Lambdapi"

- February 2024: Rishikesh Vaishnav → Sebastian Ullrich
  "Adding Extensionality to Lean"

- February 2024: Martine Seidl → Catherine Dubois
  "Checking proofs from QBF solvers in Dedukti or Lambdapi"

- February 2024: Julie Cailler → Viktor Kuncak
  "Expansion of the Goéland Theorem Prover and Interoperability with the LISA Proof Assistant"

- November 2024: Melanie Taprogge → Alexander Steen
  "Verification of Higher-Order Logic Automated Reasoning within the Dedukti Framework"

- February 2025: Thomas Traversie → Florian Rabe
  "Translation templates for Dedukti"

- March 2025: Ciarán Dunne → Michael Kohlhase
  "From Dedukti to MMT: A Comparative Study of Modular Frameworks for Logical System"

Tools developed during the action

Deliverable 5:

- CoqInE: Rocq to Dedukti

- hol2dk: HOL Light to Dedukti

- isabelle_dedukti: Isabelle/HOL to Dedukti

- lean2dk: Lean to Dedukti

- Personoj: PVS to Dedukti

- STTfaXport: Dedukti/STTfa to Coq, Lean, PVS, Matita, OpenTheory

Complete list: europroofnet.github.io/tools

Deliverable 10:

- pog2why: Atelier B & Zenon Modulo to Why3

- mml2lambdapi: Mizar to Lambdapi

- dedukti_set_theory: set theory in Dedukti using pointed graphs

- Atelier B/Rodin: in progress

- TLAPS: big progress on reconstructing proofs from TLAPS (through cvc5 and carcara) to Lambdapi

Thank you

- Frédéric
- Catherine
- Deducteam
- All WG1 participants