

Deducteam

Frédéric Blanqui

Embedding Pure Type Systems in the Lambda-Pi-Calculus Modulo

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Abstract. The lambda-Pi-calculus allows to express proofs of minimal predicate logic. It can be extended, in a very simple way, by adding computation rules. This leads to the lambda-Pi-calculus modulo. We show in this paper that this simple extension is surprisingly expressive and, in particular, that all functional Pure Type Systems, such as the system F, or the Calculus of Constructions, can be embedded in it. And, moreover, that this embedding is conservative under termination hypothesis.

1st implementation of Dedukti (Mathieu Boespflug, 2011)

Thèse de doctorat
Spécialité INFORMATIQUE

Conception d'un noyau de vérification de preuves pour le $\lambda\Pi$ -calcul modulo

Présentée et soutenue publiquement par

Mathieu Boespflug

le 18 janvier 2011, devant le jury composé de

Gilles

DOWEK

Directeur de thèse

Thèses Deducteam

The screenshot displays the HAL Inria Science portal interface. At the top, the HAL logo is on the left, and navigation links for 'FR' and 'Se connecter' are on the right. A search bar in the center contains the text 'Chercher un document, un auteur, un mot clef...'. Below the search bar, the 'Portail HAL Inria' label is visible. The main header features the 'Portail INRIA.HAL.SCIENCE' title and the tagline 'Les publications, logiciels... des scientifiques Inria', accompanied by the Inria logo. A navigation bar includes links for 'Accueil', 'Publications Inria', 'Boîte à Outils', 'Documentation', and 'Science ouverte'. The search results section shows '17 résultats' and a filter for 'Type de document : Thèse'. A sidebar on the left lists document types with counts: Thèse (17), Communication dans un congrès (116), Pré-publication, Document de travail (46), Article dans une revue (38), Mémoires d'étudiants -- Hal-inria+ (14), Ouvrage (y compris édition critique et traduction) (7), Poster de conférence (5), Rapport (5), Chapitre d'ouvrage (4), Cours (1), and Autre publication (1). The main content area displays two search results. The first result is 'A Quest for Exactness: Program Transformation for Reliable Real Numbers' by Pierre Neron, a thesis from 2013 (pastel-00960808v1). The second result is 'Extending Superposition with Integer Arithmetic, Structural Induction, and Beyond' by Simon Cruanes, a thesis from 2015 (tel-01223502v1). Both results include a thumbnail of the document cover, the title, author, and a 'Thèse' label with the document ID.

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- ☐ Ouvrage (y compris édition critique et traduction) 7
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triés par

Pertinence

A Quest for Exactness: Program Transformation for Reliable Real Numbers

Pierre Neron

Logic in Computer Science [cs.LO]. Ecole Polytechnique X, 2013. English. (NNT :)

Thèse pastel-00960808v1

Extending Superposition with Integer Arithmetic, Structural Induction, and Beyond

Simon Cruanes

Logic in Computer Science [cs.LO]. École polytechnique, 2015. English. (NNT :)

Thèse tel-01223502v1

Logipedia meeting (Cachan, 2019)



<https://logipedia.inria.fr/> (2018)

 Logipedia [Modules](#) [About](#) [FAQ](#)

 Dedukti



Constant

connectives.equal

Type

$\forall A, A \rightarrow A \rightarrow P$

Main Dependencies

▼

Theory

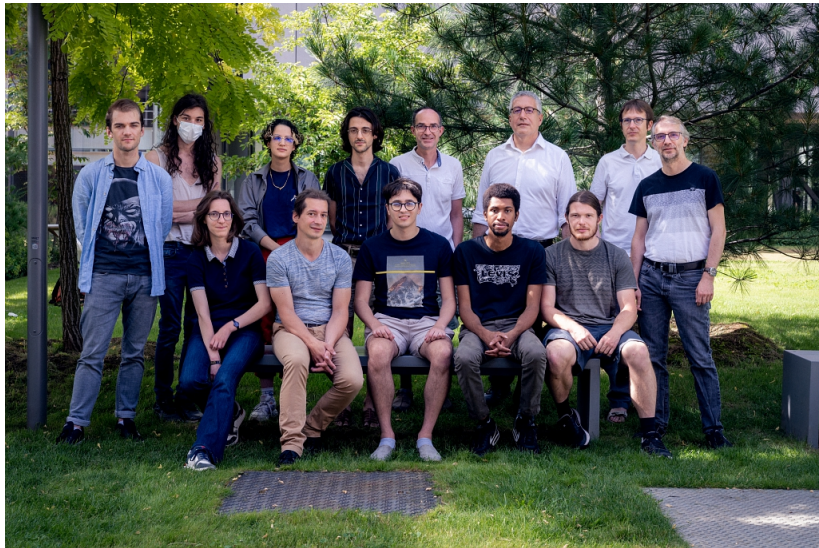
▼



Deducteam meeting (Gif, 2022)



Deducteam (Gif, 2022)



EuroProofNet website

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European Research Network on
Formal Proofs
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EuroProofNet is the European research network on digital proofs. **EuroProofNet aims at boosting the interoperability and usability of proof systems.**

Initially funded by [COST](#) between 2022 and 2025, it gathers more than [600 researchers](#) from 47 different countries. It organized meetings and schools, and provided [grants](#) to its members for short-term scientific missions in other countries. It was chaired by [Frédéric Blanqui](#) and a [Core group](#).

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1ère école Dedukti (Nantes, 2022)



1ère école LFPSI (Orsay, 2025)



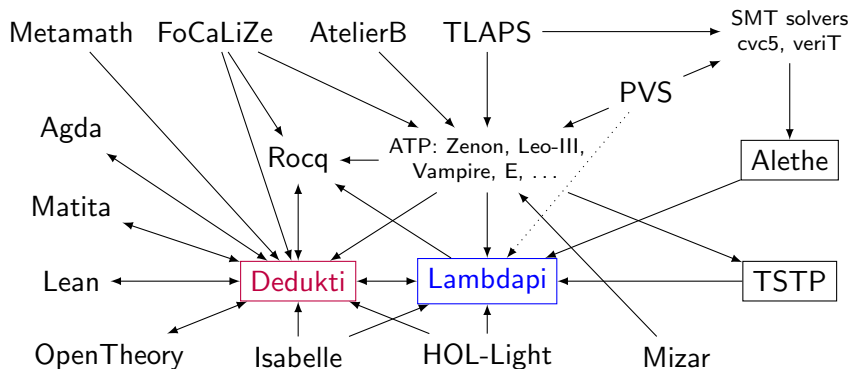
EuroProofNet meeting (Le Val d'Ajol, 2023)



EuroProofNet meeting (Le Val d'Ajol, 2023)



L'univers Dedukti aujourd'hui



Lambdapi = **Dedukti** + implicit arguments/coercions, tactics, ...

<https://github.com/Deducteam/Dedukti>

<https://github.com/Deducteam/lambdapi>

HOL-Light libraries in Rocq


Deducteam / **rocq-holllight**



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0 Tags

[Code](#)


agontard
Rocq 9.1 & mathcomp analysis 1.16.0 (#8)

5496c60 · 3 months ago

9 Commits

opam	Rocq 9.1 & mathcomp analysis 1.16.0 (#8)	3 months ago
reproduce	Cleaning (#6)	4 months ago

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HOL-Light libraries in Rocq

This [Rocq](#) library contains an automatic translation of the [HOL-Light](#) library [Multivariate/make_complex.ml](#) with various HOL-Light types and functions [mapped](#) to the corresponding types and functions of the Rocq standard library so that, for instance, a HOL-Light theorem on HOL-Light real numbers is translated to a Rocq theorem on Rocq real numbers. The provided theorems can therefore be readily used within other Rocq developments based on the Rocq standard library. More types and functions need to be aligned though (see below how to contribute). The translation has been done using [hol2dk](#) to extract and translate HOL-Light proofs to Lambdapi files, and [lambdapi](#) to translate Lambdapi files to Rocq files.

It contains more than 20,000 theorems on arithmetic, wellfounded relations, lists, real numbers, integers, basic set theory, permutations, group theory, matroids, metric spaces, homology, vectors, determinants, topology, convex sets and functions, paths, polytopes, Brouwer degree, derivatives, Clifford algebra, integration, measure theory, complex numbers and analysis, transcendental numbers, real analysis, complex line integrals, etc. See HOL-Light files for more details.

Deducteam (Gif, 2026)

