ÉCOLE POLYTECHNIQUE
PROMOTION X2011
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RAPPORT DE STAGE D'OPTION SCIENTIFIQUE

Titre

NON CONFIDENTIEL

Option :	INFORMATIQUE
Champ de l'option :	Math-Informatique
Directeur de l'option :	Olivier Bournez
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Dates du stage :	7 avril - 22 aout 2014
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4 Types

A PVS theory can be typechecked using the emacs interface `M-x typecheck` or with Lisp function (`tc name-theory`). This first runs the PVS parser on the code and generates CLOS objects to represent it. Then, the PVS typechecker is run on this internal representation of the theory and tries to give a type to all expressions generating TCC when needed.

Here we describe how PVS types are represented in Lisp.

boolean, number, number_field, real, rational, integer, $A \rightarrow B$, restricted types below(10) := $\{x : \text{int} | 0 \leq x < 10\})$

enum datatype

C types: [unsigned] char, int, long, double boolean arrays strings enum struct and others: short int, float, union, size_t, ...

4.1 Fragment of PVS syntax

4.2 Difficulties

if-expr update-expr

5 Other activities at SRI

Robin project, HACMS
Contest week-end 14-15 June
Summer School

6 Other works at SRI

Discovering PVS : Translating Coq proofs to PVS PVS library for basic linear algebra
HACMS with Robin Parsing Lisp code -¿ generate HTML architecture file Correcting translator PVS to SMT-LIB

Summer school

datatype-or-moduleSpecification Theory Datatype

moduleTheory Id TheoryFormals : THEORY

Exporting
BEGIN
AssumingPart
TheoryPart
END Id

TheoryFormals [TheoryFormal,]

TheoryFormal (Importing) TheoryFormalDecl

formal-declTheoryFormalDecl TheoryFormalType

TheoryFormalConst
TheoryFormalTheory

formal-type-declTheoryFormalType Ids : TYPE NONEMPTY_TYPE TYPE+

FROM TypeExpr

    formal-const-declTheoryFormalConst IdOps : TypeExpr

    formal-theory-declTheoryFormalTheory IdOps : THEORY TheoryDeclName

7   References

Try using bibtex here

    – PVS –

    PVS API Reference PVS Lisp sources (github rep) PVS language Reference PVS System Guide
PVS Prelude library

    – Lisp – Common Lisp Guy L. Steele Jr

    – C– The C Library Reference Guide, Eric Huss

    – Other – Compilation course, J.C. Filliatre

References