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Qeios

Peer Review

Review of: "A “Propositions as Types” Interpretation of Classical Logic"

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OVERVIEW

The article gives an interpretation of a higher-order predicate logic in the classical setting according to the propositions as types paradigm.
The witnesses of true propositions are built by composing
polymorphic identity functions and nullary functions.

To us, the authors don't stress their original contribution. What is it?

The poor quality of the English language and the poor quality of formalism make the article difficult to follow.

NOTES

"proof assistants like Coq and Lean."
The Coq proof assistant changed its name to the Rocq prover. https://rocq-prover.org/about#Name

"a ... proposition is ... a function from entities in a type to truth values"
This seems to denote a predicate rather than a proposition.

"programme"
Should be replaced by "program" that is international English and has "a series of instructions for a computer" as its first meaning.

https://dictionary.cambridge.org/dictionary/english/programme

Footnote 2.

What is "a" here? What are you trying to clarify in the footnote?

"f begins with a program a:A"

If we already have a witness of A, the purpose of the whole f is not clear.

Maybe you are not explaining clearly what Griffin does in [17].

"TR(n+1)(A):=TR(n)→Bool" everywhere.

Maybe "TR(n+1)(A):=TR(n)(A)→Bool"

"for n:N and n > 0"

The word "and" should not be broken at the end of the line.

"and any Boolean-valued predicate bound by a universal quantifier is empty for some value of the quantifier variable."

Please state that this predicate refers to P.

"the type variable a is ... a term variable."

So why do you call "a" a type variable?

"given that (A→⊥)→⊥ reduces to ⊥→⊥ at the type level if a:A".

This "reduces" is informal? Or are you using "i(A→⊥)=⊥"? Or what else?

"In order to produce a witness of type A→((A→B)→B),

if a:A and b:B, then (λx:A)((λy:A→B)yx):A→((A→B)→B) and ya=b."

"ya=b" makes no sense as "y" is not in the scope of "(λy:A→B)".

"a:A,b:A,f:A→B,fa=b⊢(λx:A)((λy:A→B)yx):A→((A→B)→B)"

You mean "b:B". And yet "b:B" and "fa=b" are implied if you define b as fa.

"MSC Classification: 03B38."

Add "Type theory" for clarity.

Declarations

Potential competing interests: No potential competing interests to declare.