Qeios

Peer Review

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

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First, it is not surprising that if you are using classical logic on the metalevel, you can show that the types corresponding to classically valid propositions are nonempty. My problem is that, for example, when handling disjunction, you do not produce a program witnessing that the type is inhabited; instead, you have two witnesses and you do not know which one is "correct." Which, for me (as a person who does some programming), is unsatisfactory. (It is suggested that one could regard members of a type as programs.)

A different kind of issue is that some standard and trivial parts are written in great detail. I would suggest omitting the longish and straightforward proofs that some classically valid statements are really valid (basically using a truth table). Or do it for one case and mention that the others are similar?

I have found the abstract and the introduction a bit confusing. "Standard Boolean algebra applies" means that they form a Boolean algebra, I think. The expression "no-op" is familiar only to readers using programming languages where it occurs. The sentence about double negation elimination in the abstract is rather cryptic at that point (though it becomes clear in a later section). Maybe it would be worthwhile to point out that (classical) case distinction on the meta level is used.

Also, it is not clear (in the abstract) what exactly it means that inhabited types/uninhabited types are represented by top/bottom. Simply, there is a homomorphism onto the two-element Boolean algebra?

It would also be helpful to emphasize in the abstract what exactly is new in the paper.

My confusion remained when I read other parts as well. As an example, in the last paragraph of section 4: what does it mean here that we interpret a function? Also, it seems that in the first sentence you state that the function F is - I am not sure - possible? Then, in the second sentence, the existence of F is stated to be contradictory, and in the third sentence, it is useless (for reasons I could not decipher - what do you mean by "local to F"?)

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In the Discussion, what exactly do you mean by “generic witness”? I think it would be helpful to define terms that are rarely used or whose meaning is not standard.

When you write something like "we will recall this fact later.." (in this case, the lack of universal computability in the Introduction), it would be helpful to give the location of the discussion in the paper, maybe together with external references.

I would suggest rewriting the paper in a more concise manner (especially in Section 7), while emphasizing what is new.

Declarations

Potential competing interests: No potential competing interests to declare.