Erratum

In Section 4 we defined two kinds of categorical models called $\lambda_c 2_\eta$*-models* and *monadic* $\lambda_c 2_\eta$*-models*, where the latter is stronger notion than the former; and in Theorem 4 we stated that the $\lambda_{\mathrm{c}} 2_\eta$-calculs is sound and complete for the $\lambda_{\mathrm{c}} 2_\eta$-models. It turns out that this does not hold, and instead we have to assume *monadic* $\lambda_c 2_\eta$*-models* rather than $\lambda_{\mathrm{c}} 2_\eta$-models; this is necessary in the sense that the calculus is also complete for the monadic $\lambda_{\mathrm{c}} 2_\eta$-models, as the term model becomes a monadic $\lambda_{\mathrm{c}} 2_\eta$-model. Thus a correct theorem instead of Theorem 4 is:

Theorem *The* $\lambda_c 2_\eta$*-calculus is sound and complete with respect to the monadic* $\lambda_c 2_\eta$*-models.* □

What is overlooked in a proof of the soundness is the lemma that, for any value V, its interpretation $[\![V]\!]$ is a value (i.e., in the image of the Kleisli embedding); its proof itself is straightforward by induction on V (once we assume monadic $\lambda_{\mathrm{c}} 2_\eta$-models).

All the parts except for Theorem 4 in the paper are correct—where first of all we do not use the notion of $\lambda_{\mathrm{c}} 2_\eta$-models (but use the stronger notion of monadic $\lambda_{\mathrm{c}} 2_\eta$-models)—, especially including Sections 5 and 6 on construction of concrete monadic $\lambda_{\mathrm{c}} 2_\eta$-models.

Remark *Once we apply the above erratum, we use only the notion of monadic* $\lambda_c 2_\eta$*-models and do not use that of* $\lambda_c 2_\eta$*-models at all; then it seems better to use the terminology* $\lambda_{\mathrm{c}} 2_\eta$-models *for the notion of monadic* $\lambda_c 2_\eta$*-models, (though in this erratum we always use the terminology in the original paper to avoid confusion).* □