Correction regarding 'Normalisation and Subformula Property for a System of Classical Logic with Tarski's Rule'

Nils Kürbis

My enthusiasm for Milne's system of classical logic with general introduction and elimination rules (Milne, 2015, 2010) had got the better of me when I announced, in Theorem 2 of (Kürbis, 2021), that for any deduction in **C**, there is a deduction in normal form of the same conclusion from the same undischarged assumptions. The 'proof' claims that this was due to the ban on vacuous discharge. This, however, is of course mistaken. The possibility of banning vacuous discharge from Milne's system is noteworthy, but unfortunately lacks any such miraculous effect: evidently the reduction procedures for maximal formulas remove entire parts of deductions, vacuous discharge or not, and any undischarged assumptions in such parts that are not also in assumption classes in parts that remain will no longer be undischarged assumptions of the deduction in normal form. Consequently, Corollary 3, a corollary to Theorem 2, is in error on too: it is incorrect that for any deduction in **C**, there is a deduction of the same conclusion from the same undischarged assumptions with the subformula property. Similarly for Corollary 7, where the corresponding mistaken claim is made for the system of quantificational logic with general introduction and elimination rules for the existential quantifier. Whether this mistake is not just embarrassing, and I had in mind another result concerning the form of deductions in normal form that depends on the ban of vacuous discharge, I was not in position to reconstruct anymore from any notes on this article that remain.

References

Kürbis, N. (2021). Normalisation and subformula property for a system of classical logic with Tarski's rule. *Archive for Mathematical Logic online first 61*(1/2), 105 – 129.

Milne, P. (2010). Subformula and separation properties in natural deduction via small kripke models. *Review of Symbolic Logic 3*(2), 175–227.

Milne, P. (2015). Inversion principles and introduction rules. In H. Wansing (Ed.), *Dag Prawitz on Proofs and Meaning*, pp. 189–224. Cham, Heidelberg, New York, Dordrecht, London: Springer.