

Strong normalization for $\mu\tilde{\mu}$ -reduction

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The $\bar{\lambda}\mu\tilde{\mu}$ -calculus (introduced by P.-L. Curien & H. Herbelin) is derived via the Curry-Howard correspondence from Gentzen's classical sequent calculus LK in order to have a symmetry on one side between “program” and “context” and on other side between “call-by-name” and “call-by-value”. In this calculus, we have a single critical pair between two reduction rules: the μ -rule and the $\tilde{\mu}$ -rule. Call-by-value consists in giving priority to the μ -rule, while call-by-name gives priority to the $\tilde{\mu}$ -rule. In his PHD thesis, E. Polonovski gave a proof of the strong normalization of the $\mu\tilde{\mu}$ -reduction using a rather complex fix-point operation. This proof looks like the one of F. Barbanera & S. Berardi for λ^{Sym} . We give in this paper a purely arithmetical proof of the strong normalization of the $\mu\tilde{\mu}$ -reduction.