Quotient estimation in multiprecision division algorithms

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ABSTRACT:
Quotient estimates in multiprecision division algorithms are considered. Estimates from above and from below, given in [1] are compared and a sharp error bound is obtained. When used with the usual normalization of operands both estimates have the same error bound of 2. A new normalization procedure is presented, which, in both cases, reduces the error bound to the optimal value of 1. The normalization is obtained using the leading digit of the divisor.