The effectiveness of numerical algorithms. An historical approach

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The concept of effectiveness has been used often in logic and in computer science to denote, informally, the very nature of computable functions (Church, 1936 and Markov, 1954). We will see in some details how this elusive and problematic concept of effectiveness has been inherited and modified in the large-scale scientific computing of the last century, as a main property of numerical algorithms. To this aim some crucial connections of numerical mathematics with theoretical computer science will be analysed.