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1007-68-50 **Mark Burgin***, Department of Mathematics, UCLA, 405 Hilgard, Los Angeles, CA 90095, and **Narayan Debnath**, Department of Computer Science, Winona State University, Winona, MN 55987. *Complexity of algorithms and program quality.* Preliminary report.

In complexity theory, it is usually assumed that complexity has negative correlation with the quality of algorithms, e.g., an algorithm that takes less time for computing the same function is better. However, in nature, more complex can be better, e.g., a human being is better than a worm. The same can be true for programs and algorithms, depending on the utilized measure of complexity. Thus, with respect to the impact on program quality, we can separate three types of complexity measures: amplifying measures that have a positive impact, curtailing measures that have a negative impact, and neutral measures. The type of a complexity measure needs a corresponding construction for dual measures. The conventional definition of dual measures (m^o) is based on the operation of minimum [M.Burgin, Generalized Kolmogorov Complexity and other Dual Complexity Measures, Cybernetics, No. 4, 1990]. This is convenient for negative correlation between complexity and quality. However, when correlation is positive, it is more convenient to use the maximum operation for the dual measure definition. Thus, we come to two classes of dual complexity measures: upper (m^u) and lower (m^o). Properties of upper dual complexity measures are studied. (Received January 12, 2005)