

MATHEMATICAL PROGRAMMING OF THE AFRICAN RENAISSANCE AS A BUSINESS METAPHOR

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ABSTRACT

Nested optimization is a nonlinear variety of mathematical programming (MP) formulated at a high level of sophistication. In this study we investigated a general MP problem in a real normed linear space relating to the determination of 'low-level' optimal points of functional defined on non-empty subsets of a real linear space. These low-level optima are subsequently synthesized into a 'high-level' optimum in a nest. Possible definitions and interpretations of the African Renaissance (AR) have been proffered. A description given in this study follows that this author (Oguntade, 2003) where AR is metaphorically considered akin to a business enterprise. In this work can be found several optimization problems to solved at various levels for the purpose of making the African actualization and life consonant with the universal mission statement (Covey, 1996) concerning the improvement of the economic well being and quality of life of the African people. It is herein being suggested that the AR problem may be formulated as a nested optimization problem (Clemence et al., 1994). By way of introducing several maximization of concave functions, AR is shown to be amenable to a mathematical formulation which can be depicted as a mathematical optimization problem in a nested configuration. However, an interdisciplinary research team mathematicians, statisticians, economists, econometricians, operational researchers, psychologists, psychometricians, et cetera, would need to be assembled to give the mathematical structure provided herein a socio-cultural flesh and a techno-economic flavour.

Keywords: African Renaissance, mathematical programming, nested optimization.