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### **The Counterpart of RAS Method**

Well-known and widely used in input-output studies, RAS method is closely associated with a more general notion of the non-negative function called the Kullback - Leibler divergence that is used in the information theory for comparing “true” and “test” probability distributions. This function actually expresses the difference between the cross-entropy of two distributions and the entropy of “true” probability distribution. At the same time, however, the Kullback - Leibler divergence is not a distance function really, because the symmetry condition and triangle inequality condition do not hold for it.

The RAS method emanates from a conditional minimization of Kullback - Leibler divergence under not-so-evident choice of the initial matrix as a data array for “test” distribution and the target matrix as another array for “true” distribution (so all elements of initial and target matrices are implied to be nonnegative). More natural (from viewpoint of information theory) opposite order of arguments in Kullback - Leibler divergence function generates an other method of matrix updating that can be called a counterpart of RAS method, or simply “CRAS method”.

In the paper the optimal solution of corresponding constrained minimization problem with Kullback - Leibler divergence as an objective function is determined by the system of nonlinear equations, and two iterative algorithms for estimating the target matrix by the proposed CRAS method are developed. Special attention is paid to exploration of some properties of CRAS method in comparison with regular RAS method. Several illustrative numerical examples are given.