Summaries of Papers Appearing in this Issue

Aplikace matematiky, Vol. 15 (1970), No. 2, (154a)--(154b)

Persistent URL: http://dml.cz/dmlcz/103280

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(These summaries may be reproduced)

MILAN VLACH and KAREL ZIMMERMANN, Praha: *One generalization of the dynamic programming problem.* Apl. mat. 15 (1970), 79—96 (Original paper.)

The main purpose of this article is to provide an exact theory of the dynamic programming on a sufficiently general basis.

Let M be a compact topological Hausdorff's space, let $\tilde{T}^M$ be the set of all continuous transformations of the space M into itself. Suppose such a topology is introduced on $\tilde{T}^M$ that $\tilde{T}^M$ is Hausdorff's space and that the transformation $\Phi(x, y) = y(x)$ of the product $M \otimes \tilde{T}^M$ into M is continuous with respect to Tichonoff's topology on $M \otimes \tilde{T}^M$. Suppose T^M is a compact subspace of $\tilde{T}^M$ and $\mathfrak{M} = M \otimes T^M \otimes \ldots \otimes T^M \otimes \ldots$. We define the transformations P, N and the set $\mathfrak{M}^{(x_0)}$ as follows: For each $X = (x_0, y_0, y_1, \ldots) \in \mathfrak{M}$ it is:

$$PX = (y_0(x_0), y_1, \ldots), \quad NX = x_0, \quad \mathfrak{M}^{(x_0)} = \{X; X \in \mathfrak{M}, NX = x_0\}.$$

Suppose Ψ is a continuous function defined on $\mathfrak{M}$ and

$$f(x_0) = \max_{X \in \mathfrak{M}^{(x_0)}} \Psi(X).$$

The dynamic programming problem can now be formulated as follows: For all $x \in M$ find the element (or elements) $\bar{X} \in \mathfrak{M}^{(x)}$ for which $\Psi(\bar{X}) = f(x)$. Existence and uniqueness of the solution of this problem is proved and the method of succesive approximations is used to solve it in case when $\Psi(X) - \Psi(PX) = \Theta(x_0, y_0)$. Further the case $\Psi(X) = \sum_{i=0}^{\infty} \Theta_i(x_i, y_i)$ is considered and one minor example is solved.

MILOŠ PAVLÍK, Trstená: *Transformace náhodné veličiny s rozložením beta v důsledku zjemnění experimentální metody.* (A transformation of a beta-distributed random variate as a result of minutized experimental method.) Apl. mat. 15 (1970), 97—105 (Original paper.)

The paper deals with the distribution of a random variate resulting from a transformation due to some cases of changing the qualitative experiment into a quantitative one. Suppose that upon the qualitative (quantitative) experiment a random variate $Y(X)$ is defined having the alternative (Poisson) distribution with parameter Q ($\Lambda = -\ln(1 - Q)$); in the paper the distribution of Λ and the marginal one of X are dealt with, if Q is a beta-distributed random variate. Frequency and characteristic functions and formulae for moments and cumulants are derived and methods are discussed of estimating both parameter values and the actual value of Λ from experimental data.

JAROSLAV SCHILDER, Bratislava: *Solution of the Hall field boundary value problem by Fourier series.* Apl. mat. 15 (1970), 106—116 (Original paper.)

The paper describes a method for obtaining solutions of the Hall field in Fourier series. The method making use of functions of the complex variable is illustrated by the example of the Hall field on a region near to the front of a semi-strip.

ZDENĚK RENC, Praha: *Automatická binarisace veličin.* (Automatic binarization of quantities.) Apl. mat. 15 (1970), 117–124 (Original paper.)

When processing automatically experimental data the need often occurs to replace a certain measured quantity by one or more properties (i.e. the need of binarization of the given quantity).

In the present paper a method is described for the automatic determination of the best binarization of a quantity with respect to the given properties on the basis of the given experimental material. When the research worker determines the maximal number of properties that the quantity is to be divided into and the properties with respect to which the suitability is to be measured, the computer gives all the optimal binarizations.

MARKÉTA NOVÁKOVÁ, Praha: *On the use of some properties of Leontieff's matrices in their inversion.* Apl. mat. 15 (1970), 125–132 (Original paper.)

In this paper a combination of methods for inverting Leontieff's matrices is described. The main part of the paper is paragraph 4 where a new method for inverting quasitriangular matrices is derived.

JOZEF MIKLOŠKO, Bratislava: *Numerical integration with highly oscillating weight functions.* Apl. mat. 15 (1970), 133–145 (Original paper.)

The paper describes a new numerical method for the computation of integrals with the weight function $\exp(ikx)$, k integer, which can be used for improper and multiple integrals. The compound rules of this method use parameters of weighted quadratures of Gauss type which are tabulated for various k. The using of the method especially for high k is demonstrated by numerical experiments.

HANA KAMASOVÁ and ANTONÍN ŠIMEK, Praha: *Inversion of quasi-triangular matrices.* Apl. mat. 15 (1970), 146–148 (Original paper.)

In this paper the problem of the inversion of quasitriangular matrices is considered. Formulas for the blocks of the inverse matrix are derived and the conditions are given under which these formulas may be used.