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FORMALIZATION OF TEMPORAL LINGUISTIC DESCRIPTION OF MULTISTAGE SOCIO-ECONOMIC PROCESSES

The problem of constructing the periodization of socio-economic processes is considered, which makes it possible to break them down into stages for a more detailed study. The use of the apparatus of fuzzy linguistic modeling L. Zadeh for the temporal description of multi-stage processes is proposed. A temporal model of the process in the form of a vector of linguistic variables (stages of the process) is built. A system of algebraic operations on temporal terms and term vectors has been developed, which makes it possible to formulate syntactic and semantic rules for their transformation when solving problems of synthesis of processes. The proposed formalism can be used to solve problems of analysis and forecasting of socio-economic processes in order to support the adoption of scientifically grounded management decisions.

Keywords: socio-economic process, temporal description, linguistic variable.

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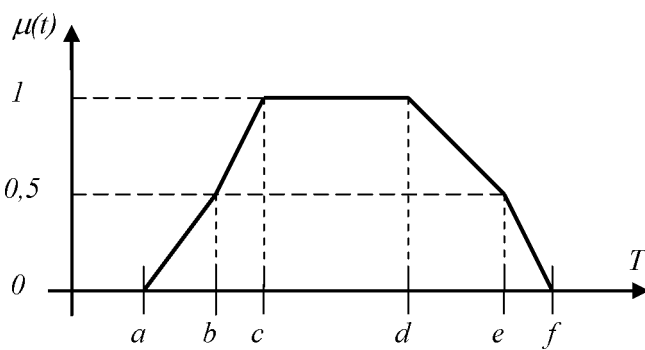
() (,) ,

[2]

Stage,

Stage=<T, StTbase, StG, StM>,
: T=R+; StTbase = {tb1, tb2, ..., tn}; StG -
StTbase; StM -

$$[3] \quad \mu(t) = \begin{cases} 0, & \text{if } t < a \\ \frac{0,5 \cdot (t - a)}{b - a}, & \text{if } a < t < b \\ 0,5, & \text{if } b < t < c \\ \frac{0,5 \cdot (c - t)}{c - b}, & \text{if } c < t < d \\ 0,5, & \text{if } d < t < e \\ \frac{0,5 \cdot (e - t)}{e - d}, & \text{if } e < t < f \\ 0, & \text{if } f < t \end{cases}$$



1 - tb_i

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« »

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);

- $[b,e]$ « »

;

- $[a,b]$ $[e,f]$ « » , ()

;

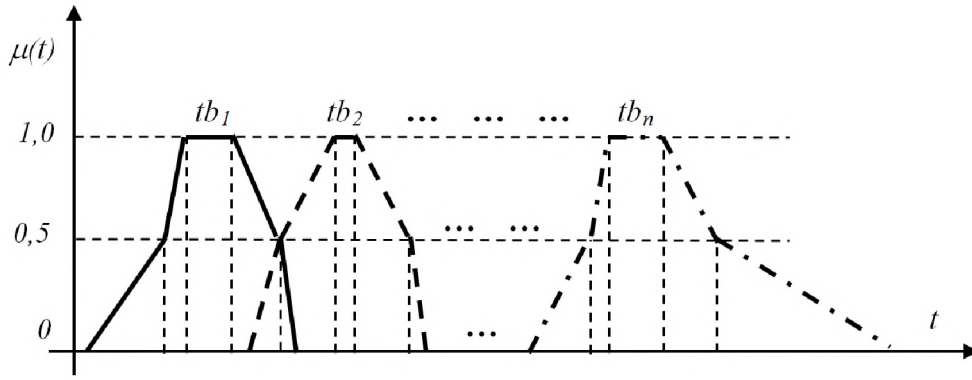
- $[b,c]$ $[d,e]$ « » ()

« » () ;

- $[c,d]$,

$$TV = (tb_1, tb_2, \dots, tb_n), \quad (\dots) \quad tb_i, \quad i = 1, 2, \dots, n$$

2.



2 -

- A.
- B.
- C.
- D.
- E.
- F.

(; ;),

/ ; ()

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B

C

D B. [3], (

E).

(; - -

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F

()

[4].

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