

# Modeling of the Casual Processes by Application of the Function of Intensity as a Basis of Business Decision

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## 1. Statistic of extreme values

At the realization of the casual appearances many times are realized such values, which can't be, insert in the normal trend of the development from this appearance. The realization can be including by using of the statistics of extreme values. In the statistic of extreme values specially are separated in questions connected for more precise preoccupying of the probability of belonging on the elements in the interval and for the appearances, which are periodical. Often happens the elementary probability can't satisfy in enough measures individual requests, and so becomes the problem of more precise defining of the probability.

## 2. Function of intensity

Let may be given two lows of probability  $f(x)$  and  $\mathbf{j}(x)$  for the casual variable  $x$ . It should be mentioned that it is about two lows of probability. For definite  $x$  the value of  $f(x) = \mathbf{j}(x)$ . If the surface for interval  $(x, x+dx)$  is defined it will be equal  $f(x)dx = \mathbf{j}(x)dx$ . If the probability defines the casual variable  $x$  is found in the interval  $(x, x+dx)$  at a condition  $x \geq X$ . If the followed events we mark with  $A$  and  $B$  in way:

$$A: X \geq x$$

$$B: X \in (x, x+dx)$$

Then the condition probability  $P(AB) = P(A) \cdot P(B/A)$  represents searched probability, which we'll mark with  $\mathbf{m}(x)$ .

From the previous relation follows:

$$P(B/A) = \frac{P(AB)}{P(A)}$$

If we appoint that  $P(AB) = g(x)dx$  and  $P(A) = 1 - G(x)$  where  $G(x)$  represents function of disposition of the low of probability  $g(x)$ , than it is:

$$P(B/A) = \frac{g(x)dx}{1 - G(x)} = \mathbf{m}(x)dx$$

Relating from this follows the term  $\mathbf{m}(x)$  represents a function of intensity that means

$$\mathbf{m}(x) = \frac{g(x)}{1 - G(x)}$$

The same functions can be get for  $f(x)$  too, and can be seen additional information which is insured by the functions of intensity for the corresponding probability low.

### **3. Possibilities for use of the intensity function**

In all tasks in which extreme values significantly determine the development of the appearances and the processes the determination of the intensity function represents necessity. Having in foresight, that it is going about chance appearances so the realization of single intervals has to be more precise determinate. The moving of inflator movements in direction to disadvantage of the stability of the firm, losing of the market and so on, can damage a lot on the normal development of the firm. From here the determination of the intensity functions for moving of the inflation or losing of the market becomes necessary.

On the base of the mentioned examples in which the realization of extreme values makes some difficulties, sometimes makes catastrophe so each information, every relation or message can be of use. In plurality of methods and models which ensure quantitative preoccupying of the problem which contains processes or appearances and the intensity function become necessary, because with its own characteristics enables important information. For each task, which is bound for the statistic of the extreme values, it is necessary important information. For each task, which is bound for the statistic of the extreme values, it is necessary to define the intensity function, to examine the features of the function and to prepare the intensity function of use.

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### **ABSTRACT**

The use of the intensity function for modeling of the coincidence processes ensures additional information important in the processes of behavior in a business decision.

### **RESUME**

L'utilisation de la fonction d'intensité de modélisation des processus stochastiques donne des informations supplémentaires, important dans le procès de réalisation des décisions.