MARKOFF MODEL OF ACTIVE ATTENTION

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It presents application problem from mathematical psychology. A stochastic model consider the active optical and accoustic attention course. The random Markoff process cannot be directly observed and only partial informations are gained in an indirect way using a sequence of stimuli. Under certain conditions, the model makes it possible to estimate corresponding personal parameters and to predict the probability of error when length and frequency of stimuli are changed.

The course of active attention is considered a process accompanying the perception and apperception of optical or acoustic stimuli where two kinds of time intervals alternate: intervals of focused attention and intervals of distracted attention. This process called distraction process isn't observable directly. Only partial information about this process can be gained using a sequence of stimuli. When examining the optical attention, e.g. the irregular sequence of differently colored rectangles are exposed on display, where rectangle of one chosen colour is considered as the control stimulus. Alteration of control and non-control stimuli represents so-called stimulus sequence with two states. Seeing the control stimulus the examinee should react by pressing a key on the keyboard. In this way two kinds of errors can be registered: absent reactions and inadequate reactions. The inadequate reactions aren't considered in the model. The absent reaction means the distraction process is in distracted state and these absent reactions are registered as errors. In this way we obtain errorless and error activity intervals as a modified form of focused and distracted attention intervals. The result of this experiment is so-called error sequence, which records sequence of adequate and absent reactions. Under certain conditions this sequence can be used to estimate corresponding personal parameters.