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ASYMPTOTICAL QUESTIONS OF SIMPLE HYPOTHESES TESTING

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Abstract: In this paper we consider the problem of the asymptotical behaviour of a power of the Neyman-Pearson test δ_t^{+,α_t} with level α_t as $t \to \infty$ under different behaviour of α_t. This problem is investigated for different types of an asymptotical distinguishability of families of hypotheses and, in particular, for completely asymptotically distinguishable families and contigual families. In the case of completely asymptotically distinguishable families the rate of convergence to zero for the probability of the 2nd type errors $\beta(\delta_t^{+,\alpha_t})$ is investigated. In the case of contigual families the behaviour of $\beta(\delta_t^{+,\alpha_t})$ is also studied when the distribution of the logarithm of the likelihood ratio converges weakly to the distribution which is not normal in general. At first these problems are considered in a general scheme of statistical experiments, and then in the schemes generated by semimartingales.

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