THE SECOND ORDER OPTIMALITY OF TESTS AND ESTIMATORS FOR MINIMUM CONTRAST FUNCTIONALS. I

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Abstract: The concept of $minimum\ contrast\ functionals$ is introduced. It is shown that certain statistical procedures (asymptotically similar tests, asymptotically similar confidence procedures and asymptotically median unbiased estimators) derived from the minimum contrast estimators are 2nd order efficient, provided the family of probability measures is rich enough to contain, together with each probability measure, contiguous probability measures which are asymptotically "least favorable". The 2nd order efficiency of statistical procedures based on the maximum likelihood estimator follows by application of these results to parametric families of probability measures. The results are valid only for "continuous" probability measures.

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