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Asymptotic equivalence for a density model with independent but non identically distributed random variables

We consider the following nonparametric model:

$$Y_1, ..., Y_n \in [0, 1]$$

are independent observations with densities

$$Y_i \sim h(i/n, .) \qquad h \in \Sigma$$

Where Σ is contained in a Hölder ball of radius C. The goal is to find a sequence of Gaussian experiments that approximates our model in the sense of the Le Cam Δ-distance. The main tool to achieve this is a functional version of the strong approximation of the sequential empirical process by the Kiefer process.