Homework 4 - Liese Course II Deadline: 15/12/09

1. Consider the sequence of models

$$\mathcal{M}_n = \left(\mathbb{R}, \mathfrak{B}, \left\{N(\vartheta_n, 1), N(1, \sigma_n^2)\right\}\right)$$

   (a) Find a limit model $\mathcal{M}$, such that $\lim_{n\to\infty} \Delta\left(\mathcal{M}, \mathcal{M}_n\right) = 0$.

   (a) Derive necessary and sufficient conditions on ϑ_n and σ_n^2 such that $\lim_{n\to\infty} \Delta\left(\mathcal{M}, \mathcal{M}_n\right) = 0$.

2. Show that for binary models

$$\mathcal{M} = (\mathcal{X}, \mathfrak{B}, \{P, Q\})$$

   with standard distribution μ it holds

$$\int t_j \mu(dt_1, dt_2) = 1, \; j = 1, 2.$$

3. Discuss the step (C)$\Longrightarrow$(B) in the proof of Thorem 6.21 for models

$$\mathcal{M}_n = (\mathcal{X}, \mathfrak{B}, \{P_{1,n}, P_{2,n}, P_{3,n}\})$$