

Exercise 8

Estimator Properties

1. Define the following:

- Statistical target parameter
- Asymptotically linear estimator
- Regular asymptotically linear estimator

2. An asymptotically linear estimator is efficient if and only if _____.

3. A standardized asymptotically linear estimator converges to a normal distribution with mean _____ and variance _____.

4. What are the consequences of plugging in the density estimator returned by Super Learner into the target parameter mapping?

5. The exact second order expansion of the target parameter is immensely important ingredient in the analysis of the TMLE, MLE, and the one-step estimator.

- When does one have the second order expansion of the target parameter?
- What is the exact second order expansion of the target parameter?