Predictive distribution
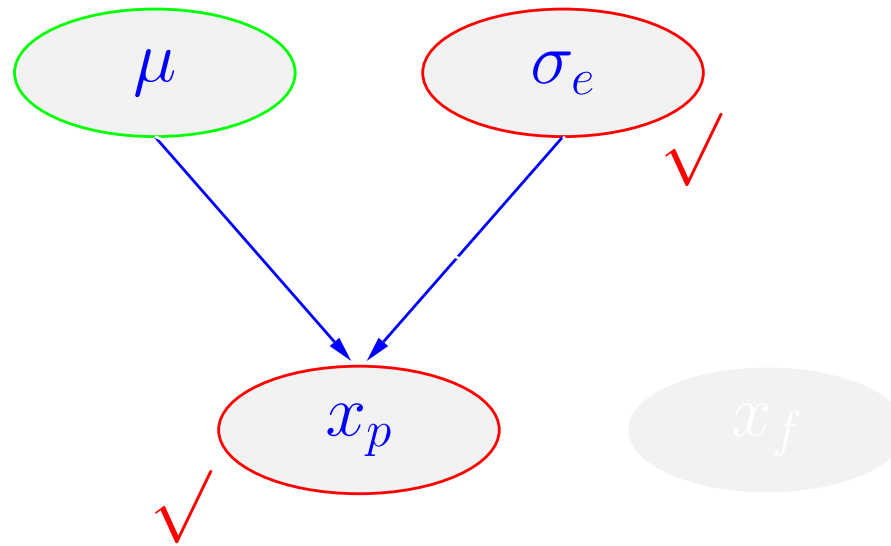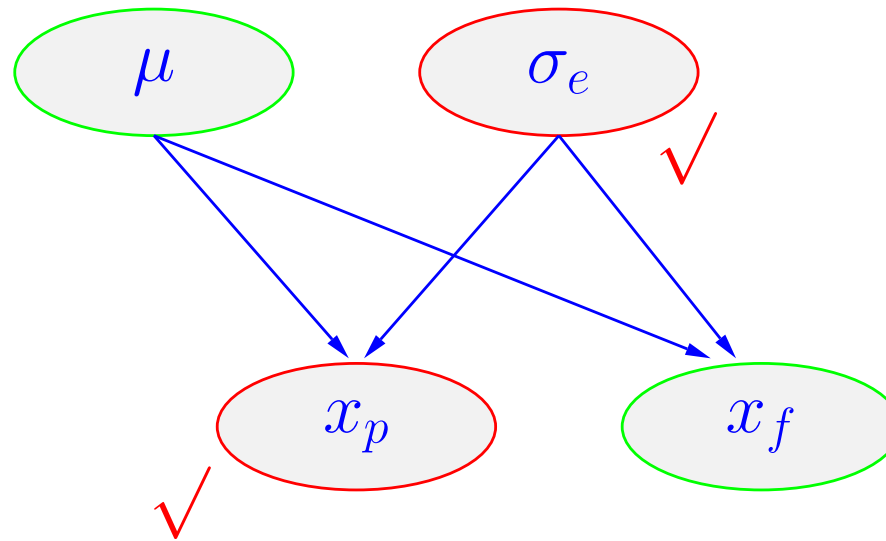
Predictive distribution

What shall we observe in a next measurement x_f ('f' as 'future'), given our knowledge on μ based on the previous observation x_p?
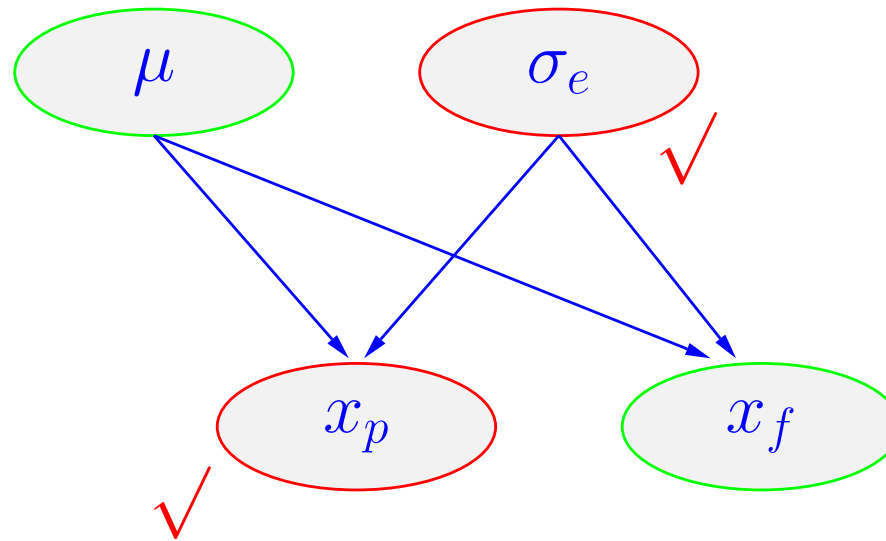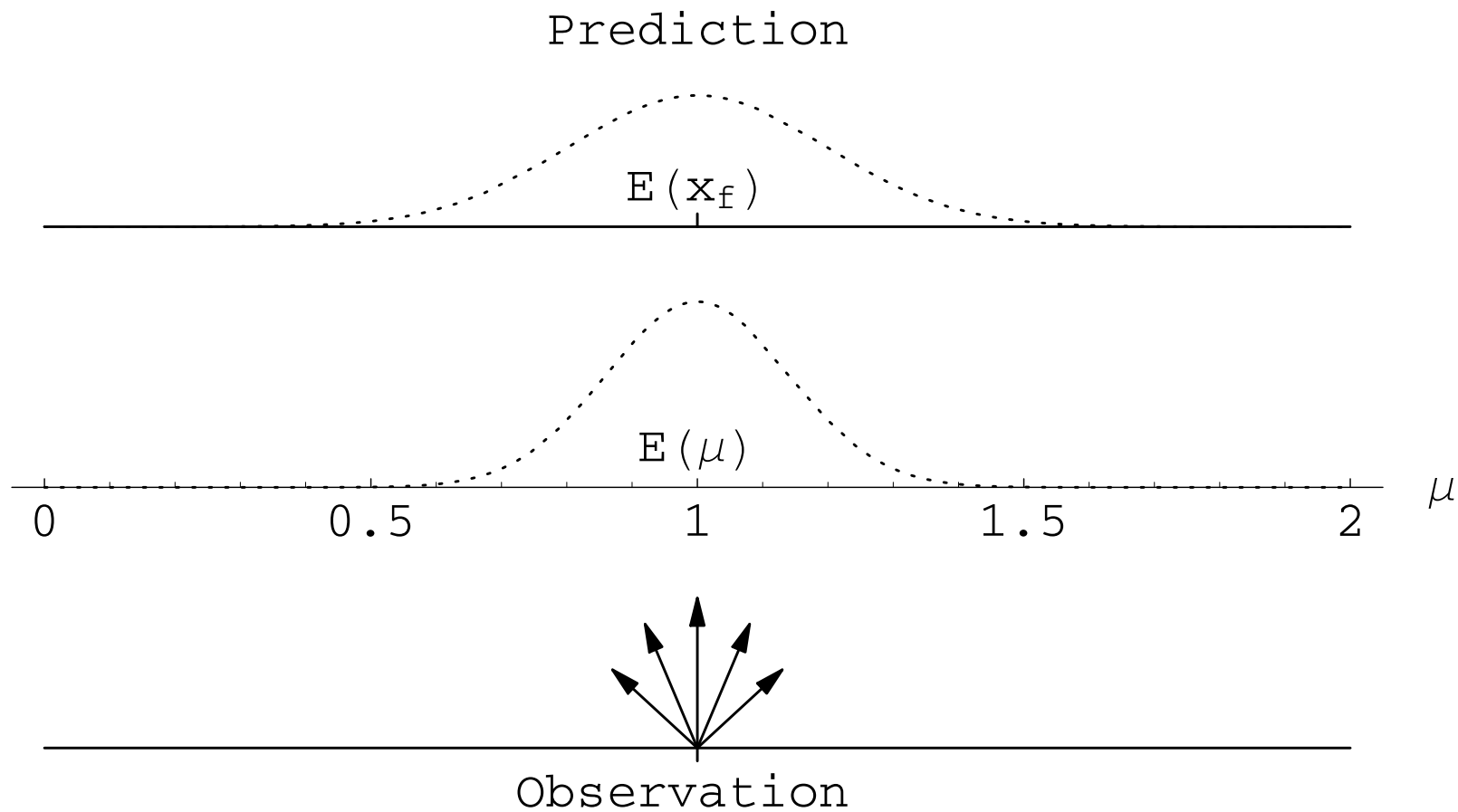
Predictive distribution

What shall we observe in a next measurement x_f ('f' as 'future'), given our knowledge on μ based on the previous observation x_p? (Note the new evocative name for the observation, instead of x_1)

Predictive distribution

$$\textcolor{red}{x_p} \to \textcolor{blue}{\mu} \to \textcolor{blue}{x_f}$$

Prediction

E(x_f)

E(μ)

0   0.5   1   1.5   2 μ

Observation

Predictive distribution

Probability theory teaches us how to
include the uncertainty concerning μ:

$$f(x \,|\, I) = \int_{-\infty}^{+\infty} f(x \,|\, \mu, I)\, f(\mu \,|\, I)\, \mathrm{d}\mu \,.$$

Completare come esercizio