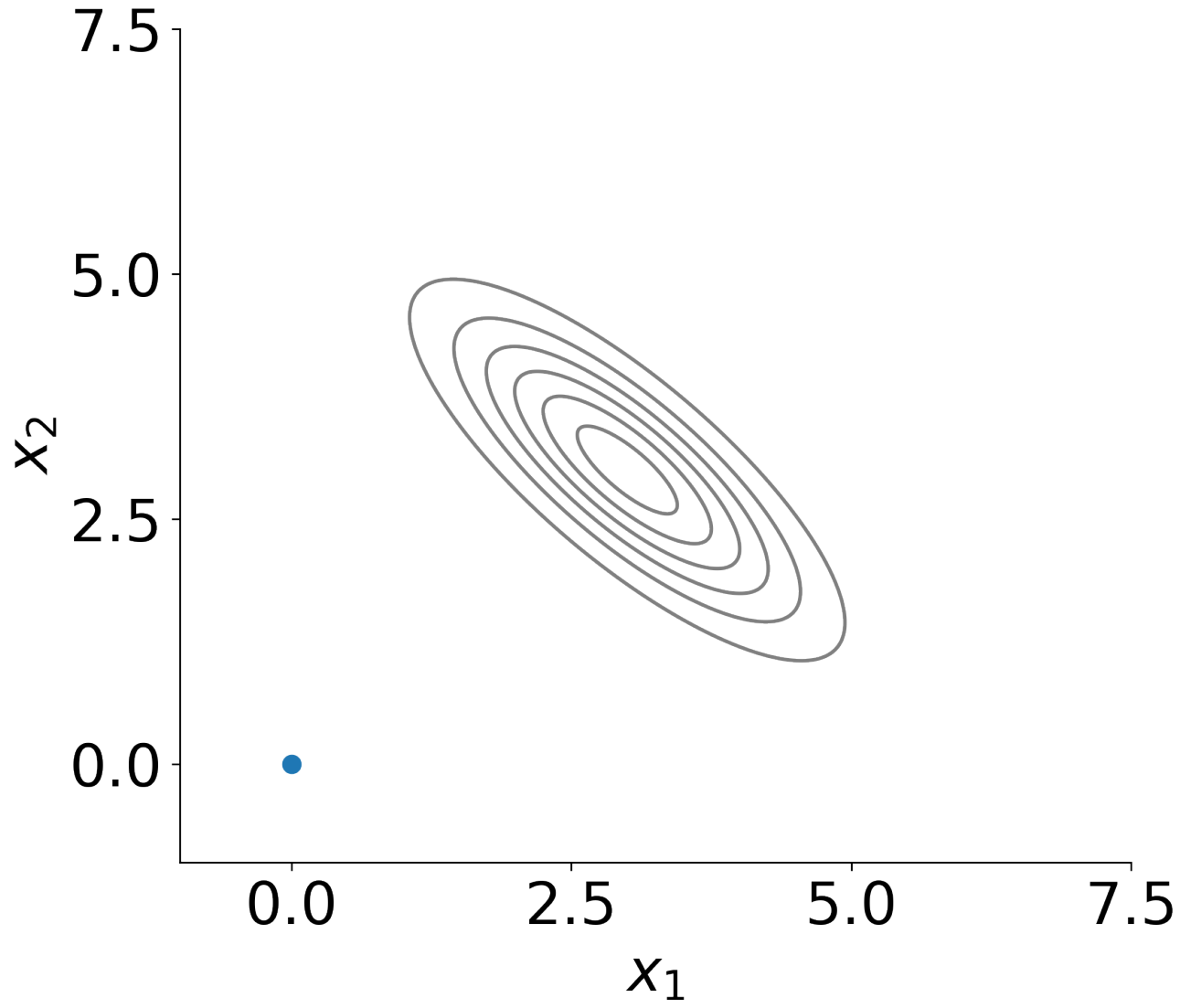
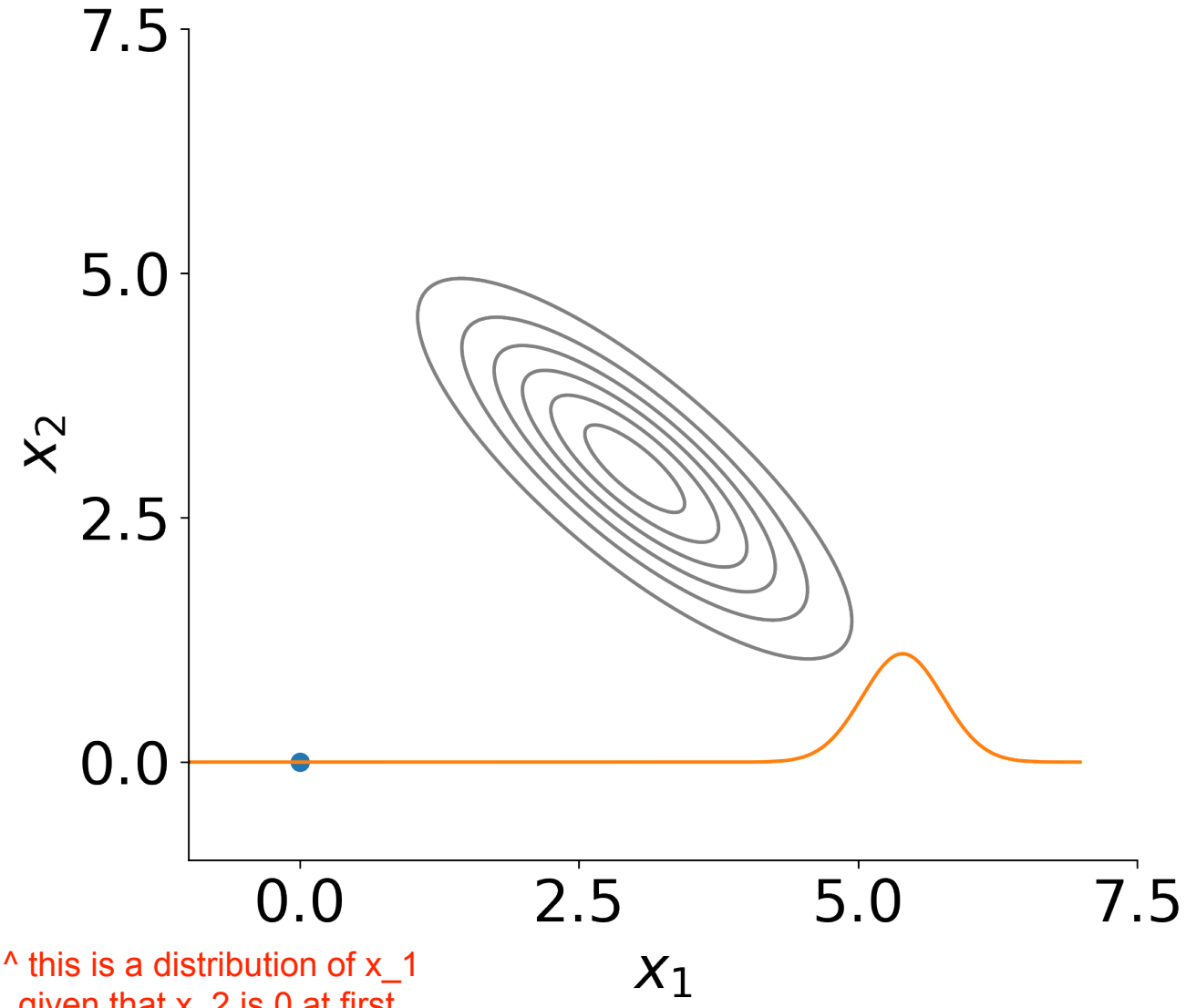
Gibbs Sampling Demo

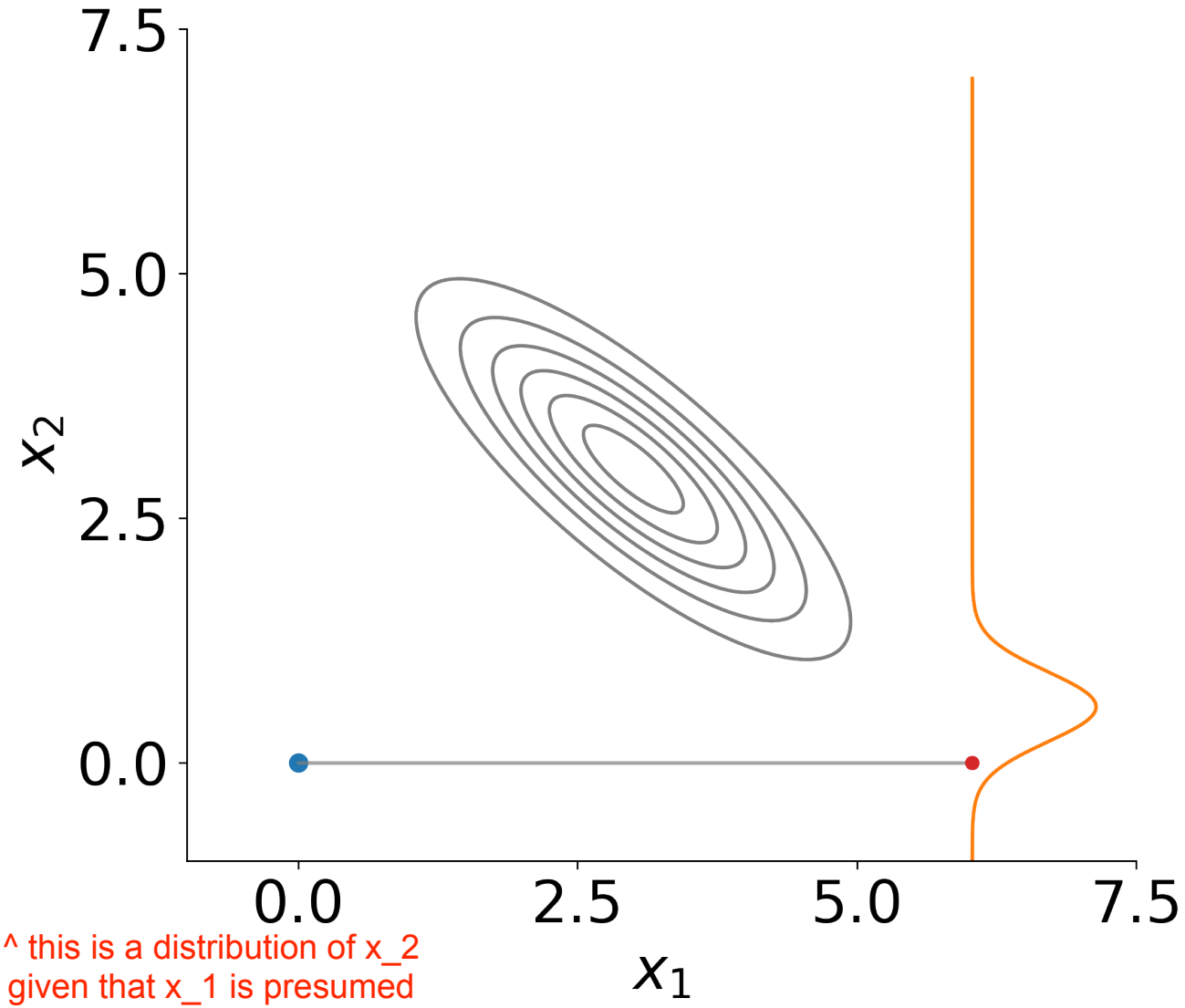


Gibbs Sampling Demo



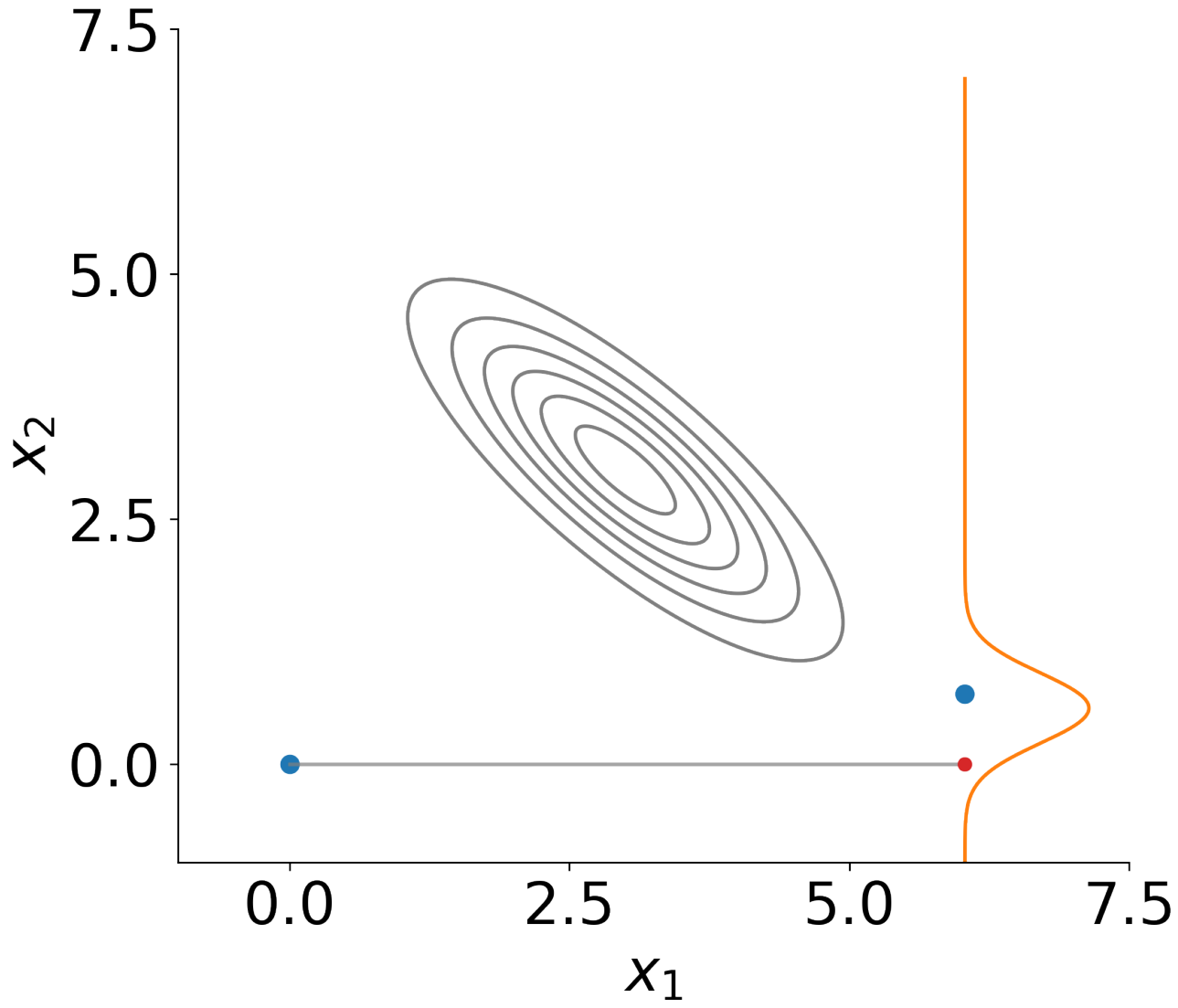
^ this is a distribution of x_1
given that x_2 is 0 at first.

Gibbs Sampling Demo

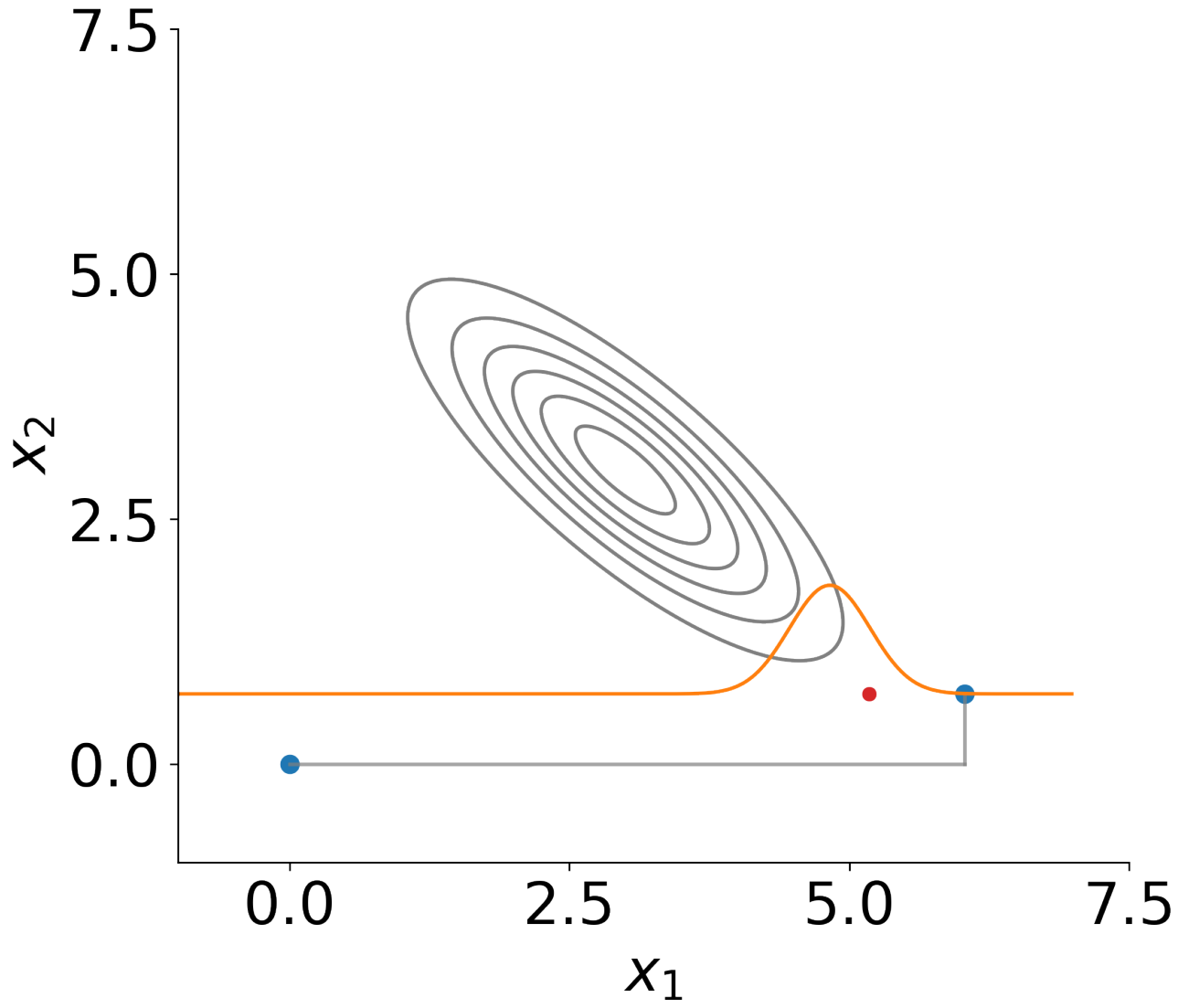


^ this is a distribution of x_2 given that x_1 is presumed to be 6.something.

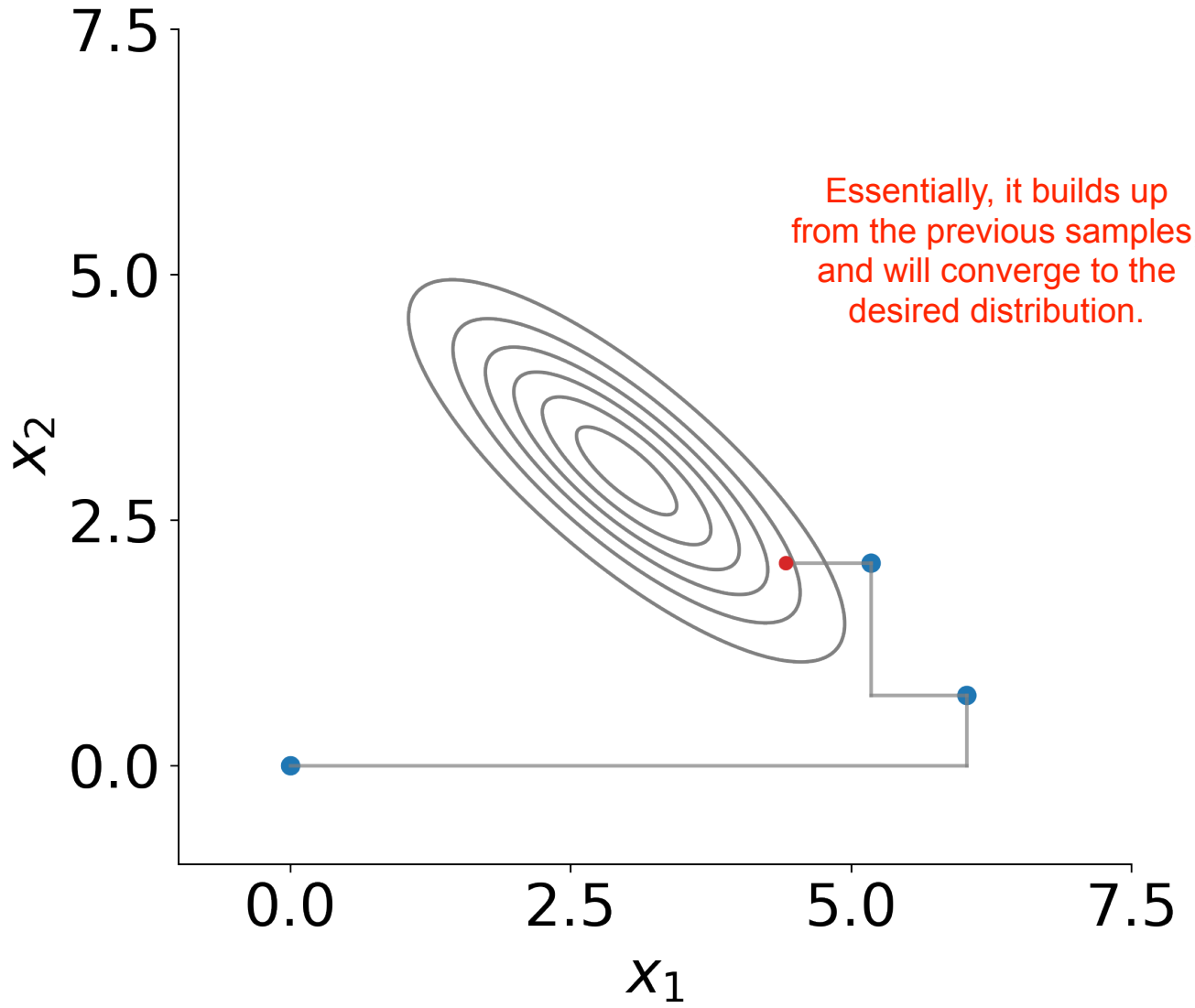
Gibbs Sampling Demo



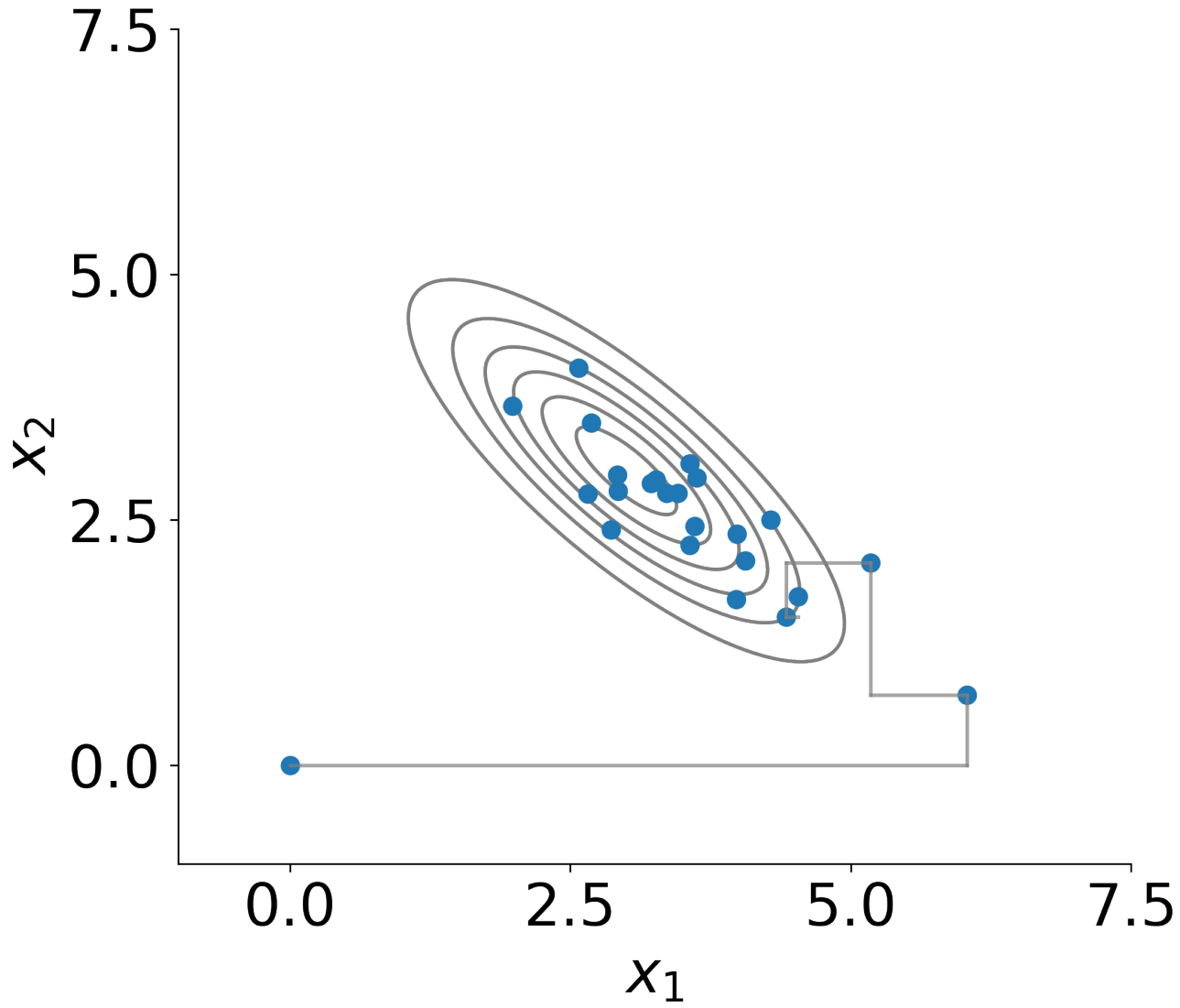
Gibbs Sampling Demo



Gibbs Sampling Demo



Gibbs Sampling Demo



Summary

Pros:

- Reduce multidimensional sampling to sequence of 1d samplings

because we reduce it to the individual dimensions by gibbs sampling.

- A few lines of code

Cons:

- Highly correlated samples

Why highly correlated?
See the demo. All the samples are very close to one another.
The samples will be similar together. This means that we're not that efficient at estimating expected values as we think.

- Slow convergence (mixing)
- Not parallel

CANNOT parallelize because each task is contingent on the previous' completion.