Gibbs Sampling

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Start with (x_1^0, x_2^0, x_3^0), e. g. $(0, 0, 0)$

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$$x_1^1 \sim p(x_1 \mid x_2 = x_2^0, x_3 = x_3^0)$$

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$$= \frac{\widehat{p}(x_1, x_2^0, x_3^0)}{Z_1}$$

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$$x_2^1 \sim p(x_2 \mid x_1 = x_1^1, x_3 = x_3^0)$$

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$$x_3^1 \sim p(x_3 \mid x_1 = x_1^1, x_2 = x_2^1)$$

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Start with (x_1^0, x_2^0, x_3^0), e. g. $(0, 0, 0)$

For k = 0, 1, …

$$x_1^{k+1} \sim p(x_1 \mid x_2 = x_2^k, x_3 = x_3^k)$$

$$x_2^{k+1} \sim p(x_2 \mid x_1 = x_1^{k+1}, x_3 = x_3^k)$$

$$x_3^{k+1} \sim p(x_3 \mid x_1 = x_1^{k+1}, x_2 = x_2^{k+1})$$