Detour: Sampling & Gibbs Sampling

- Regular sampling of $p(z_1, \dots, z_i, \dots, z_n)$
  - Sample: (0, 3, 2, 5, …) ➔ $z_1 = 0; z_2 = 3; z_3 = 2, \dots$
  - Many samples: {(0, 3, 5, …) , (1,4,3,…), (1,3,5,…), …}
  - $p(z_1 = 0, \dots, z_i = 3, \dots, z_n = 1) \propto count\ of\ sample$ "(0, …, 3,…1)"
- Gibbs sampling: use $p(z_i | z_1, \dots, z_{i-1}, z_{i+1}, \dots, z_n) = p(z\_i | z_{\neg i})$
  - Iterate over each random variable to sample a value for just that random variable conditioned on all the others
  - Repeat: For i=1, …, n, sample a value of z_i using $p(z\_i | z_{\neg i})$
  - Example of Samples: {0 ($\boldsymbol{z_1 = 3}$), 3 ($z_2 = 1$), 5 ($z_3 = 0$), …., 7 ($z_n = 7$), 8 ($\boldsymbol{z_1 = 8}$), 2 ($z_2 = 2$), ….}