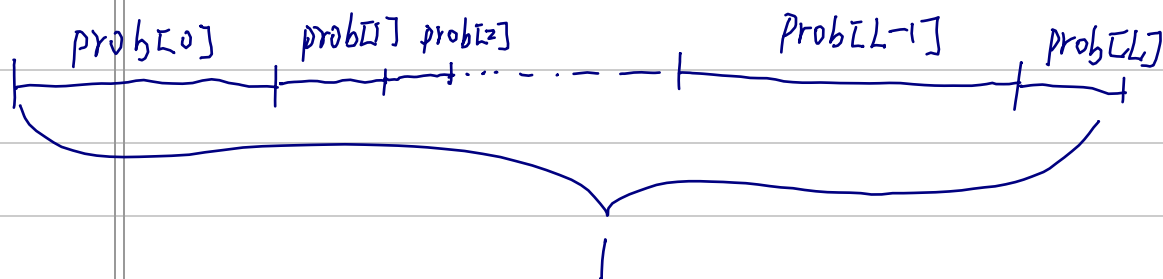


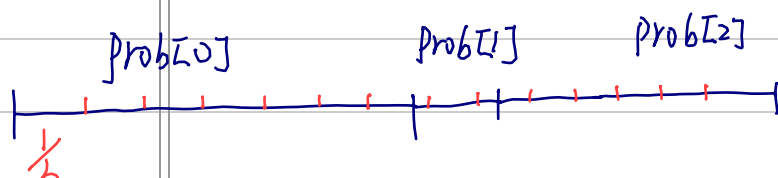
Population Control

Serial case. PRB 57, 11446 (1998) Appendix.

After normalize weight, each walker has a probability: $\text{prob}[i]$



Set a uniform grid: $1/L$



depends on how many uniform grid in $\text{prob}[i]$, we will set i to new walker.

we can also sample uniform grid.

eg. 1st grid is: $\text{uniform_hao}() / L$. $0 \sim 1/L$

L grid is: $[(L-1) + \text{uniform_hao}()] / L$. $\frac{L-1}{L} \sim \frac{L}{L}$

C++ convention is: $\text{prob_sum_new} = [\text{walker_index} + \text{uniform_hao}()] / L$

set $\text{prob_sum_old} = \sum_{i=0}^{\text{index_old}} \text{prob}[i]$

compare: prob_sum_new , prob_sum_old . to determinate the new walker.

MPI case,

First figure out relations in one thread. then relations between threads. When pass between thread, if we send one walk to one rank once. do not send it twice.