The estimation procedure is as follows. Here $\| v \| = \max_i | v_i |$

Generate K random unit vectors $e_0^{(1)},\dots, e_0^{(K)}$

For j from 1 to N

Generate K random matrices $A_j^{(1)},\dots, A_j^{(K)}$

For k from 1 to K

Define $\alpha_j^{(k)} = \| A_j^{(k)} e_{j-1}^{(k)} \|^{\theta}$

End for

Define $\beta_j = \sum_{k=1}^{K} \alpha_j^{(k)}$

For k from 1 to K

Draw a random variable k^* from $\{1,\dots, K\}$ with probability $P(k^* = l) = \frac{\alpha_j^{(l)}}{\beta_j}$

Define $e_j^{(k)} = \frac{A_j^{(k)} e_{j-1}^{(k^*)}}{\| A_j^{(k)} e_{j-1}^{(k^*)} \|}$

End for

End for

Return $\frac{1}{N} \sum_{j=1}^{N} \ln\left(\frac{1}{K} \beta_j \right)$ as the estimate of $\frac{1}{N} \ln\left(E\left(\left\| \prod_{j=1}^{N} A_j e_0 \right\|^{\theta} \right) \right)$