- input: words list (of a word sense)
- output: partition of the list (one or two)

MCMC sampling

The optimal partition is: (G_i can be empty)

$$\{G\} = \text{argmax}_{G_1,G_2} \sum_{i=1,2} \sum_{a,b \in G_i, a<b} \text{cosSim}(a,b) - \sum_{a \in G_1, b \in G_2} \text{cosSim}(a,b)$$

1. Start with random partition.
2. Do 3-4 until convergence.
3. Create a new partition $\{G\}'$ by moving a random selected word l from G_i to G_j.
4. Accept this with probability $\min(1, p)$, where

$$\log p = \gamma \left(\sum_{m \in G_j, m \neq l} \text{cosSim}(l,m) - \sum_{n \in G_i, n \neq l} \text{cosSim}(l,n) \right)$$