Note TP RBM

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- update_weights. [
  - v_pos : $s_i^{(m)}$
  - h_pos : $p(\tau_h = 1 | \vec{s}^{(m)})$ } hem(m) is for samples of the mini-batch
  - v_neg : $\vec{s}^{T(m)}$
  - h_neg : $\vec{\tau}^{T,(m)}$ } hem(m) are the indices for the generated samples

- fit_batch: K chain: init cdt for the sampling
  K: dataset.

- SamplingHidden:
  → return $\vec{\tau}$, $\langle \vec{\tau} \rangle$,
- SamplingVisible:
  → return $\vec{s}$, $\langle \vec{s} \rangle_{|\vec{\tau}}$
- Sampling:
  → return $\vec{s}^T, \langle \vec{s}^T \rangle$, $\vec{\tau}^T$, $\langle \vec{\tau}^T \rangle$

Generating clusters: you have to fix

Dim: D (here = 300)

No of clus: C (= 21)

for each cluster: h^k : rdm $\mathbb{T} \pm \Pi$ → centers of the cluster

You generate π conf: $s_i \leftarrow p(s_i | h^k) \cdot p(h)$ $\quad p(h): \frac{1}{C}$

β - temperature of the cluster

$$p(s_i | h^k) = \frac{\exp(\beta s_i h_i^k)}{2 \cosh(\beta s_i h_i^k)}$$

Then I transf s_i into IQ IS variables

$$\boxed{s_i \leftarrow \frac{s_i + 1}{2}}$$