

Hi Tony, do you know what these mean?

$$\int \ln p(\mathbf{X}, \mathbf{Z}) \prod_{i \neq j} q_i d\mathbf{Z}_i \quad (1)$$

and similarly

$$q_j(\mathbf{Z}_j) = \int p(\mathbf{Z}) \left[ \sum_{i=1}^M \ln q_i(\mathbf{Z}_i) \right] d\mathbf{Z}_i + \text{const} \quad (2)$$

Is the first one equivalent to:

$$\int \cdots \int \ln p(\mathbf{X}, \mathbf{Z}_i) q_i d\mathbf{Z}_1 \cdots d\mathbf{Z}_{j-1} d\mathbf{Z}_{j+1} \cdots d\mathbf{Z}_M \quad (3)$$

Or:

$$\prod_{i \neq j} \int \ln p(\mathbf{X}, \mathbf{Z}) q_i d\mathbf{Z}_i \quad (4)$$

Actually I really don't know what to make of it.  
Thanks, Nate