$$D_2(i) = \frac{1}{m} \frac{e^{-\alpha_1 y_i h_1(x_i)}}{Z_1}$$

$$D_{t+1}(i) = \frac{1}{m} \cdot \frac{e^{-\alpha_1 y_i h_1(x_i)}}{Z_1} \cdot \frac{e^{-\alpha_2 y_i h_2(x_i)}}{Z_2}$$

$$\ldots$$

$$D_{t+1}(i) = \frac{1}{m \cdot Z_1 \cdots Z_t} \cdot e^{\sum_{j=1}^{t} \alpha_j y_i h_j(x_i)}$$

$$Z_1 \cdots Z_t D_{t+1}(i) = \frac{1}{m} e^{\sum \alpha_j y_i h_j(x_i)}$$

$$Z_1 \cdots Z_t \underbrace{\sum_i D_{t+1}(i)} = \frac{1}{m} \sum_i e^{\sum \alpha_j y_i h_j(x_i)}$$

$$Z_1 \cdots Z_t = \frac{1}{m} \sum_i e^{-y_i f(x_i)}$$

$$D_2(i) = \frac{D_1(i)\, e^{-\alpha_1 y_i h_1(x_i)}}{Z_1}$$

$$\frac{e}{m Z_1}$$

$$Z_t = \sum_C D_t(i)\, e^{-\alpha_t y_i h_t(x_i)} + \sum_W D_t(i)\, e^{-\alpha_t y_i h_t(x_i)}$$

$$= e^{-\alpha_t} \underbrace{\sum_C D_t(i)}_{(1-\varepsilon_t)} + e^{+\alpha_t} \underbrace{\sum_W D_t(i)}_{\varepsilon_t}$$