$$\mu_i(\alpha\beta\gamma) = \frac{PFM_i(\alpha\beta\gamma)}{\sum_j PFM_j(\alpha\beta\gamma)}$$

$$\Delta PFM_i(\delta) \sim \sum_{\alpha,\gamma} \left(\sum_\beta \frac{PFM_i(\alpha\beta\gamma)}{\sum_j PFM_j(\alpha\beta\gamma)} \cdot f(\alpha\beta\gamma \to \alpha\delta\gamma) - \frac{PFM_i(\alpha\delta\gamma)}{\sum_j PFM_j(\alpha\delta\gamma)} \cdot \sum_\beta f(\alpha\delta\gamma \to \alpha\beta\gamma) \right)$$

$$PFM_i(\alpha\beta\gamma) = PFM_{i-1}(\alpha) \cdot PFM_i(\beta) \cdot PFM_{i+1}(\gamma)$$

$$\Delta \mathbb{E}_{word} PWM(word) = \sum_{i,\delta} PWM_i(\delta) \cdot \Delta PFM_i(\delta)$$

$$F = \log_{10} \frac{\text{P-value}(\mathbb{E}_{word \sim PFM} PWM(word))}{\text{P-value}(\mathbb{E}_{word \sim PFM'} PWM(word))}$$

$$\mathbb{E}_{word \sim PFM} PWM(word) = \sum_{i,\delta} PWM_i(\delta) \cdot PFM_i(\delta)$$