But we have just plain texts

Pooh rubbed his nose again, and said that he hadn't thought of that. And then he brightened again, and said that, if it were raining already, the Heffalump would be looking at the sky wondering if it would clear up, and so he wouldn't see the Very Deep Pit until he was half-way down…

Idea! Let's estimate the topic assignment probabilities!

$$p(t|d,w) = \frac{p(w,t|d)}{p(w|d)} = \frac{p(w|t)p(t|d)}{p(w|d)}$$

Bayes rule   *Product rule*