

# Does Query Likelihood Make Sense?

$$p(q = \text{"presidential campaign"} | d) = \frac{c(\text{"presidential"}, d)}{|d|} * \frac{c(\text{"campaign"}, d)}{|d|}$$

$$p(q|d4 = \text{... news of presidential campaign ... presidential candidate ...}) = \frac{2}{|d4|} * \frac{1}{|d4|}$$

$$p(q|d3 = \text{... news of presidential campaign ...}) = \frac{1}{|d3|} * \frac{1}{|d3|}$$

$$p(q|d2 = \text{... news about organic food campaign...}) = \frac{0}{|d2|} * \frac{1}{|d2|} = 0$$

**d4 > d3 > d2** as we expected