(c) Since for Jelinek-Mercer:

$$\text{score} \propto \sum_{w \in Q \cap D} c(w,Q) \log\left(1 + \frac{(1-\lambda)\, c(w,D)}{\lambda\, p(w|REF) \times |D|}\right)$$

$\frac{c(w,D)}{|D|}$ = const when doubling doc

& $c(w,Q)$ will increase $\Rightarrow$

score should increase when doubling doc $\Rightarrow$

$\Rightarrow$ no over constraint

For Dirichlet prior

$$\text{Score} \propto \sum_{\substack{w \in d \\ w \in q}} \log\left[1 + \frac{c(w,d)}{\mu\, p(w|C)}\right] + n \log \frac{\mu}{|d| + \mu}$$

(A) (B)

when double doc, the increase in (A) is more than the decrease in (B) $\Rightarrow$

$\Rightarrow$ score increases $\Rightarrow$ no over constraints.