"Collaboration" and "Competition" of θ_d and θ_B

$p(d|\Lambda)=p(\text{"text"}|\Lambda)\ p(\text{"the"}|\Lambda)$

$\qquad = [0.5*p(\text{"text"}|\theta_d) + 0.5*0.1] \times$
$\qquad\quad [0.5*p(\text{"the"}|\theta_d) + 0.5*0.9]$

Note that $p(\text{"text"}|\theta_d) + p(\text{"the"}|\theta_d) = 1$

If $x + y = constant$, then xy reaches maximum when $x = y$.

$0.5*p(\text{"text"}|\theta_d) + 0.5*0.1 = 0.5*p(\text{"the"}|\theta_d) + 0.5*0.9$

➔ $p(\text{"text"}|\theta_d)=0.9$ >> $p(\text{"the"}|\theta_d)=0.1$!

$d =$ | text the |

text ?
the ? θ_d

$P(\theta_d)=0.5$

$P(\theta_B)=0.5$

the 0.9
text 0.1 θ_B

Behavior 1: if $p(w1|\theta_B) > p(w2|\theta_B)$, then $p(w1|\theta_d) < p(w2|\theta_d)$

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