An Example of 2 Clusters (cont.)

From E-Step

	$P(Z_d=1|d)$
d1	0.9
d2	0.1
d3	0.8

	c("text")	c("mining")
d1	2	3
d2	1	2
d3	4	3

M-Step

$p(\theta_1)=? \; p(\theta_2)= ?$

$$p(\theta_1) = \frac{p(Z_{d_1}=1|d_1) + p(Z_{d_2}=1|d_2) + p(Z_{d_3}=1|d_3)}{3}$$

$$= \frac{0.9+0.1+0.8}{3} = 0.6$$

	$p(w|\theta_1)$	$p(w|\theta_2)$
text	?	?
mining	?	?
medical	?	?
health	?	?

$$p("text"|\theta_1) \propto c("text",d_1)*p(Z_{d_1}=1|d_1) + ... + c("text",d_3)*p(Z_{d_3}=1|d_3)$$

$$= 2*0.9+1*0.1+4*0.8$$

$$p("mining"|\theta_1) \propto 3*0.9+2*0.1+3*0.8$$

$$p("text"|\theta_1) + p("mining"|\theta_1) + p("medical"|\theta_1) + p("health"|\theta_1) = 1$$