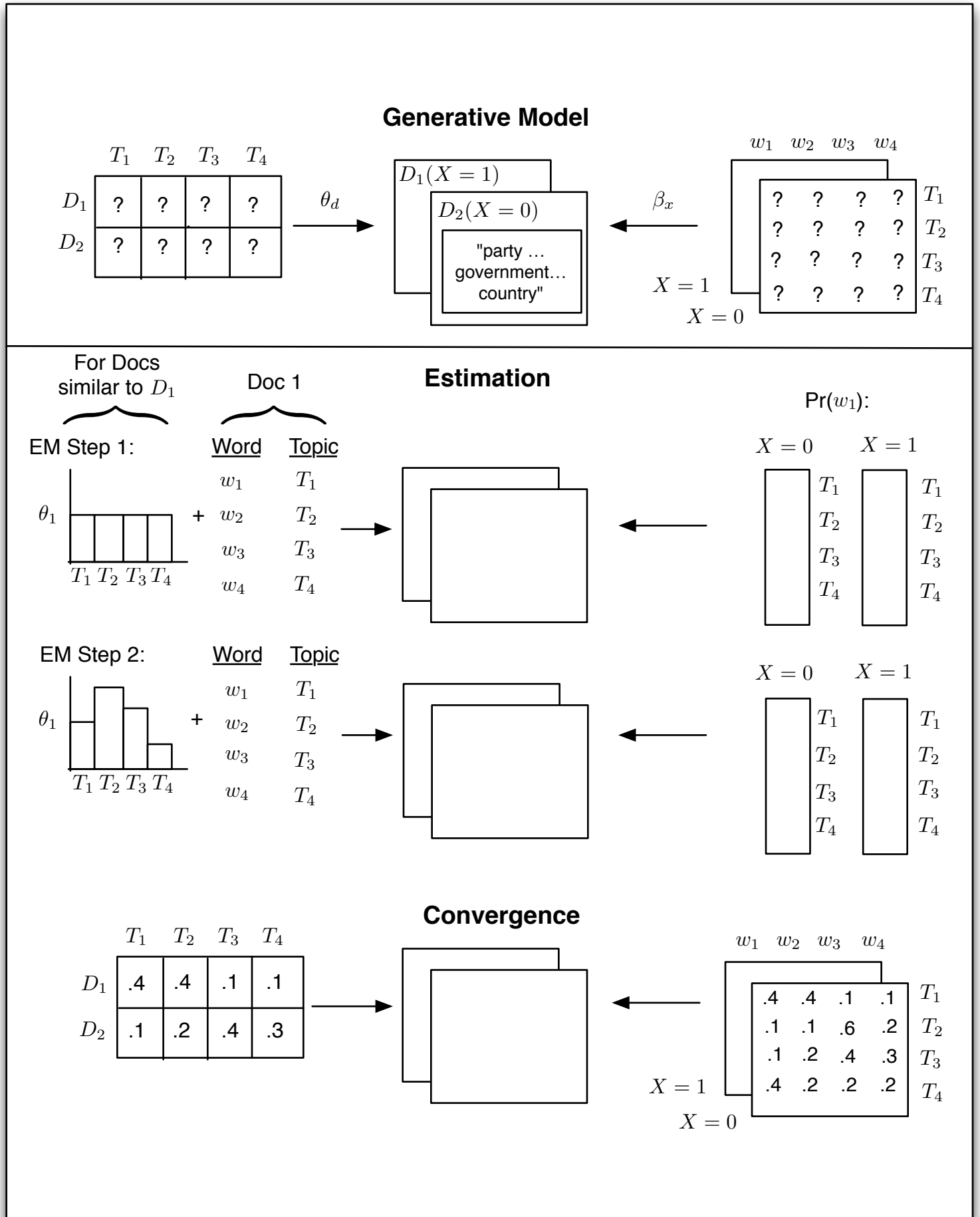
Generative Model
T_1 T_2 T_3 T_4
D_1 ? ? ? ?
D_2 ? ? ? ?
θ_d
$D_1(X=1)$
$D_2(X=0)$
"party … government… country"
β_x
w_1 w_2 w_3 w_4
? ? ? ? T_1
? ? ? ? T_2
? ? ? ? T_3
? ? ? ? T_4
$X=1$
$X=0$
Estimation
For Docs similar to D_1
Doc 1
Pr(w_1):
EM Step 1:
Word Topic
w_1 T_1
w_2 T_2
w_3 T_3
w_4 T_4
θ_1
T_1 T_2 T_3 T_4
+
$X=0$ $X=1$
T_1 T_2 T_3 T_4
EM Step 2:
Word Topic
w_1 T_1
w_2 T_2
w_3 T_3
w_4 T_4
θ_1
T_1 T_2 T_3 T_4
+
$X=0$ $X=1$
T_1 T_2 T_3 T_4
Convergence
T_1 T_2 T_3 T_4
D_1 .4 .4 .1 .1
D_2 .1 .2 .4 .3
w_1 w_2 w_3 w_4
.4 .4 .1 .1 T_1
.1 .1 .6 .2 T_2
.1 .2 .4 .3 T_3
.4 .2 .2 .2 T_4
$X=1$
$X=0$