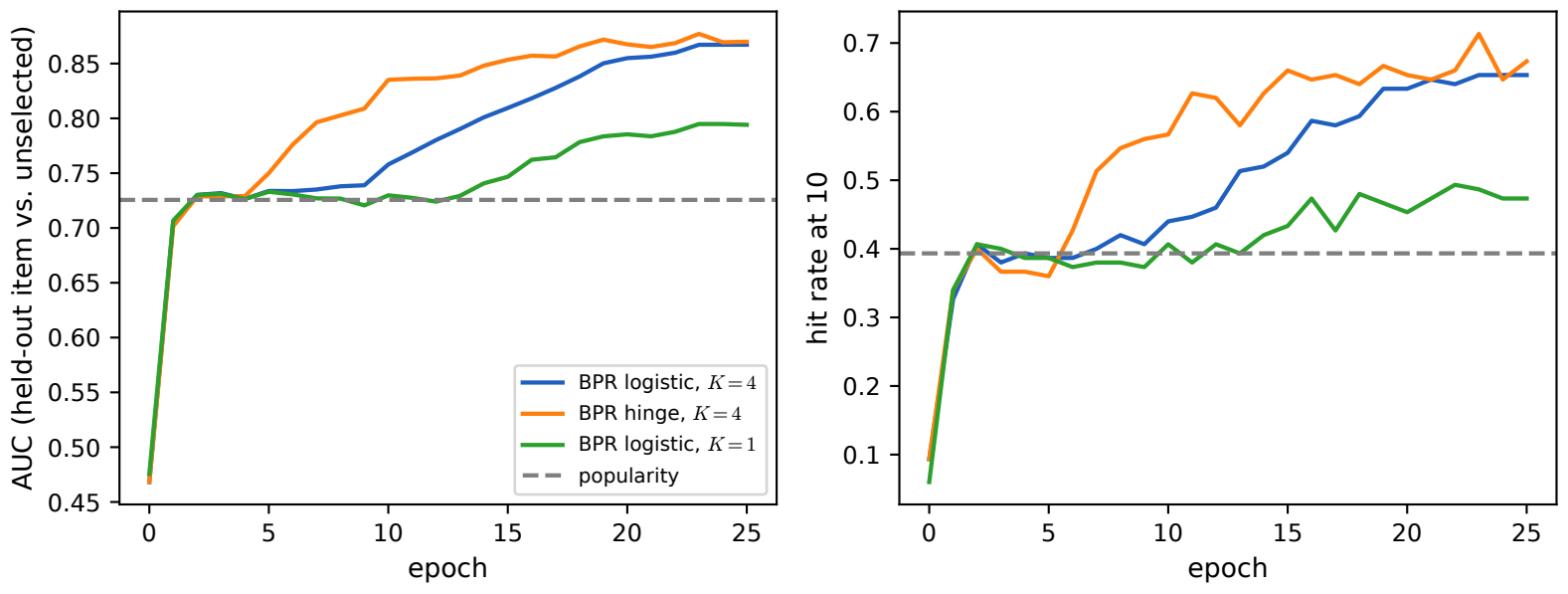

AUC (held-out item vs. unselected)
0.85
0.80
0.75
0.70
0.65
0.60
0.55
0.50
0.45
0
5
10
15
20
25
epoch
BPR logistic, $K=4$
BPR hinge, $K=4$
BPR logistic, $K=1$
popularity
hit rate at 10
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
5
10
15
20
25
epoch