

A Additional results

	1	2	4	8
log loss (neighbors); no acc.	94.25 _{0.02}	93.61 _{0.07}	92.77 _{0.11}	92.08 _{0.08}
log loss (beam); no acc.	92.31 _{0.08}	86.89 _{0.20}	87.58 _{0.27}	89.51 _{0.28}
cost-sensitive margin (last); no acc.	93.94 _{0.11}	93.31 _{0.06}	92.30 _{0.05}	90.61 _{0.14}
log loss (neighbors); acc.	94.23 _{0.03}	94.30 _{0.06}	94.31 _{0.05}	94.37 _{0.09}
log loss (beam); acc.	92.33 _{0.08}	92.16 _{0.50}	94.26 _{0.05}	94.37 _{0.05}
cost-sensitive margin (last); acc.	94.07 _{0.07}	94.26 _{0.07}	94.28 _{0.04}	94.26 _{0.04}
log loss (neighbors); no acc.	81.95 _{0.03}	88.01 _{0.06}	89.48 _{0.08}	88.77 _{0.09}
log loss (beam); no acc.	77.70 _{0.04}	86.76 _{0.06}	88.58 _{0.09}	88.12 _{0.06}
cost-sensitive margin (last); no acc.	81.74 _{0.05}	87.35 _{0.11}	89.18 _{0.12}	88.89 _{0.17}
log loss (neighbors); acc.	82.00 _{0.05}	89.14 _{0.08}	91.68 _{0.02}	92.60 _{0.04}
log loss (beam); acc.	77.61 _{0.26}	88.18 _{0.05}	91.44 _{0.06}	92.58 _{0.03}
cost-sensitive margin (last); acc.	81.73 _{0.01}	88.83 _{0.02}	91.85 _{0.03}	92.87 _{0.02}

Table 4: Trained with and without score accumulation.

	1	2	4	8
log loss (neighbors); always	94.27 _{0.10}	94.37 _{0.02}	94.39 _{0.06}	94.33 _{0.07}
log loss (beam); always	92.26 _{0.08}	92.23 _{0.66}	94.33 _{0.05}	94.30 _{0.04}
log loss (neighbors); on-cost increase	92.06 _{0.78}	93.65 _{0.07}	93.67 _{0.16}	92.22 _{0.32}
log loss (beam); on-cost increase	92.23 _{0.11}	93.00 _{0.33}	93.10 _{0.57}	91.98 _{0.32}
log loss (neighbors); always	82.01 _{0.04}	89.11 _{0.05}	91.75 _{0.01}	92.62 _{0.06}
log loss (beam); always	77.52 _{0.17}	88.19 _{0.05}	91.43 _{0.03}	92.49 _{0.04}
log loss (neighbors); on-cost increase	79.35 _{0.07}	88.53 _{0.08}	91.44 _{0.03}	92.45 _{0.06}
log loss (beam); on-cost increase	77.57 _{0.06}	86.69 _{0.07}	90.47 _{0.03}	91.72 _{0.05}

Table 5: Trained with updating on cost-increase versus always updating.

	1	2	4	8
oracle	94.09 _{0.09}	92.92 _{0.11}	91.29 _{0.27}	86.47 _{0.62}
reset	94.06 _{0.07}	94.15 _{0.07}	94.16 _{0.02}	94.14 _{0.07}
reset (mult.)	93.97 _{0.03}	93.87 _{0.04}	93.95 _{0.01}	94.05 _{0.09}
continue	94.16 _{0.03}	94.23 _{0.09}	94.23 _{0.04}	94.29 _{0.11}
stop	93.88 _{0.02}	94.02 _{0.04}	94.09 _{0.06}	94.18 _{0.07}
oracle	74.55 _{0.21}	81.54 _{0.43}	77.18 _{0.74}	49.67 _{3.23}
reset	75.38 _{0.44}	87.00 _{0.14}	90.98 _{0.05}	92.31 _{0.18}
reset (mult.)	74.85 _{0.46}	86.19 _{0.17}	90.45 _{0.11}	91.78 _{0.07}
continue	81.55 _{0.01}	88.86 _{0.02}	91.53 _{0.19}	92.36 _{0.06}
stop	74.61 _{0.35}	86.66 _{0.10}	90.78 _{0.12}	91.97 _{0.04}

Table 6: Trained for double the number of epochs as those in Table 2.