# Multitask+Glove+(ave,max,concat)+finetuning

Review data: Train on 5034 samples, validate on 2158 samples

Needs data:Train on 429 samples, validate on 108 samples, test on 537 samples

## Comparison:

Compared with elmo experiment. (analyzing using average embedding):

The arrow -> indicate *experiments with glove -> experiments with elmo*

|  |  |
| --- | --- |
| CPU | (R@1 : **0.29->0.33** R@5: **0.79->0.81** ) |
| RAM | (R@1 : **0.60->0.65**  R@5: 0.99-> 0.99 ) |
| HD | (R@1 **0.42->0.46** R@5:0.94->0.94 ) |
| GPU | (R@1 : **0.57->0.59** R@5: **0.98->0.99** ) |
| Screen | (R@1 : **0.69->0.73** R@5: 0.99->0.99 ) |

## Conclusion:

Elmo actually has around 2%-5% improvement in all of the Recall@1, and also some of improvement in Recall@5.

So Elmo is actually a little bit better than glove !

|  |  |
| --- | --- |
|  | MLP |
| Pointwise average of word embedding  (ave) | cur\_sent\_embd\_type: ave  cur\_exp\_param: gpu  ncdg:  0.5754189944134078  0.851024208566108  0.9038954169659514  0.9215862921987261  0.9296063398351021  precision:  0.5754189944134078  0.425512104283054  0.3116076970825574  0.2425512104283054  0.19776536312849163  recall:  0.5754189944134078  0.851024208566108  0.9348230912476723  0.9702048417132216  0.9888268156424581  cur\_exp\_param: ram  ncdg:  0.6033519553072626  0.813780260707635  0.8666514691074786  0.8973777260907188  0.9126158165998335  precision:  0.6033519553072626  0.4068901303538175  0.29919304779639977  0.23975791433891994  0.19888268156424582  recall:  0.6033519553072626  0.813780260707635  0.8975791433891993  0.9590316573556797  0.994413407821229  cur\_exp\_param: hd  ncdg:  0.4227188081936685  0.702048417132216  0.7831176033453086  0.8212926499002435  0.8389367547002712  precision:  0.4227188081936685  0.351024208566108  0.27684667908131594  0.22672253258845437  0.18957169459962755  recall:  0.4227188081936685  0.702048417132216  0.8305400372439479  0.9068901303538175  0.9478584729981379  cur\_exp\_param: screen  ncdg:  0.6964618249534451  0.8957169459962756  0.9356640812317127  0.9477683642857164  0.9509763833402669  precision:  0.6964618249534451  0.4478584729981378  0.3196772191185599  0.24581005586592178  0.19813780260707636  recall:  0.6964618249534451  0.8957169459962756  0.9590316573556797  0.9832402234636871  0.9906890130353817  cur\_exp\_param: cpu  ncdg:  0.2942271880819367  0.5139664804469274  0.5856363407222698  0.6340534729382848  0.6645296539565141  precision:  0.2942271880819367  0.2569832402234637  0.20918684047175667  0.18109869646182494  0.1590316573556797  recall:  0.2942271880819367  0.5139664804469274  0.62756052141527  0.7243947858472998  0.7951582867783985 |
| Pointwise maximum of word embedding  (max) | cur\_sent\_embd\_type: max  cur\_exp\_param: gpu  ncdg:  0.5828677839851024  0.8342644320297952  0.8859607246874196  0.9166869816706599  0.9214990102524856  precision:  0.5828677839851024  0.4171322160148976  0.3054003724394786  0.24441340782122906  0.19776536312849163  recall:  0.5828677839851024  0.8342644320297952  0.9162011173184358  0.9776536312849162  0.9888268156424581  cur\_exp\_param: ram  ncdg:  0.6573556797020484  0.8286778398510242  0.8968229528997113  0.9154449268289477  0.9258709887562367  precision:  0.6573556797020484  0.4143389199255121  0.3122284295468653  0.24348230912476723  0.19962756052141528  recall:  0.6573556797020484  0.8286778398510242  0.9366852886405959  0.9739292364990689  0.9981378026070763  cur\_exp\_param: hd  ncdg:  0.4543761638733706  0.7243947858472998  0.7972395618648614  0.8344835097233347  0.852929619287  precision:  0.4543761638733706  0.3621973929236499  0.27995034140285535  0.22858472998137802  0.1914338919925512  recall:  0.4543761638733706  0.7243947858472998  0.839851024208566  0.9143389199255121  0.957169459962756  cur\_exp\_param: screen  ncdg:  0.7281191806331471  0.9013035381750466  0.936551010441609  0.9467930961026889  0.9524071294481523  precision:  0.7281191806331471  0.4506517690875233  0.319056486654252  0.24441340782122906  0.19813780260707636  recall:  0.7281191806331471  0.9013035381750466  0.957169459962756  0.9776536312849162  0.9906890130353817  cur\_exp\_param: cpu  ncdg:  0.31843575418994413  0.5121042830540037  0.5908236377826583  0.6476206582668297  0.6740868154668711  precision:  0.31843575418994413  0.25605214152700184  0.2122905027932961  0.18761638733705774  0.16238361266294227  recall:  0.31843575418994413  0.5121042830540037  0.6368715083798883  0.750465549348231  0.8119180633147114 |
| The concatenation of the pointwise average and maximum of word embedding  (concat) | cur\_sent\_embd\_type: concat  cur\_exp\_param: gpu  ncdg:  0.5586592178770949  0.8305400372439479  0.8869359928704476  0.9092823615855313  0.9165004044582699  precision:  0.5586592178770949  0.41527001862197394  0.30664183736809436  0.24115456238361266  0.1962756052141527  recall:  0.5586592178770949  0.8305400372439479  0.9199255121042831  0.9646182495344506  0.9813780260707635  cur\_exp\_param: ram  ncdg:  0.62756052141527  0.8175046554934823  0.8797751898310754  0.9011904598496975  0.916428550358812  precision:  0.62756052141527  0.40875232774674114  0.3054003724394786  0.23975791433891994  0.19888268156424582  recall:  0.62756052141527  0.8175046554934823  0.9162011173184358  0.9590316573556797  0.994413407821229  cur\_exp\_param: hd  ncdg:  0.41899441340782123  0.6741154562383612  0.7540097267092354  0.7996335628358646  0.815673658108617  precision:  0.41899441340782123  0.3370577281191806  0.2669149596523898  0.22299813780260708  0.18584729981378026  recall:  0.41899441340782123  0.6741154562383612  0.8007448789571695  0.8919925512104283  0.9292364990689013  cur\_exp\_param: screen  ncdg:  0.6964618249534451  0.8864059590316573  0.928702925751532  0.9445316035913831  0.9493436321732088  precision:  0.6964618249534451  0.44320297951582865  0.31781502172563625  0.2462756052141527  0.19925512104283055  recall:  0.6964618249534451  0.8864059590316573  0.9534450651769087  0.9851024208566108  0.9962756052141527  cur\_exp\_param: cpu  ncdg:  0.31098696461824954  0.515828677839851  0.5874985381151933  0.6275357820630519  0.658813967844919  precision:  0.31098696461824954  0.2579143389199255  0.20980757293606456  0.17737430167597765  0.1564245810055866  recall:  0.31098696461824954  0.515828677839851  0.6294227188081937  0.7094972067039106  0.7821229050279329 |