Keros Epoch results:

GLOVE – full data set, no POS tags

Starting training at 2017-08-15 00:07:55.578227

Train on 327474 samples, validate on 36387 samples

Epoch 1/25

542s - loss: 0.5391 - acc: 0.7276 - val\_loss: 0.4932 - val\_acc: 0.7544

Epoch 2/25

536s - loss: 0.4876 - acc: 0.7606 - val\_loss: 0.4723 - val\_acc: 0.7721

Epoch 3/25

537s - loss: 0.4623 - acc: 0.7768 - val\_loss: 0.4478 - val\_acc: 0.7814

Epoch 4/25

543s - loss: 0.4430 - acc: 0.7887 - val\_loss: 0.4445 - val\_acc: 0.7811

Epoch 5/25

538s - loss: 0.4229 - acc: 0.8004 - val\_loss: 0.4342 - val\_acc: 0.7893

Epoch 6/25

536s - loss: 0.4085 - acc: 0.8099 - val\_loss: 0.4299 - val\_acc: 0.7943

Epoch 7/25

535s - loss: 0.3934 - acc: 0.8189 - val\_loss: 0.4284 - val\_acc: 0.7916

Epoch 8/25

536s - loss: 0.3813 - acc: 0.8260 - val\_loss: 0.4135 - val\_acc: 0.8027

Epoch 9/25

534s - loss: 0.3712 - acc: 0.8320 - val\_loss: 0.4160 - val\_acc: 0.8008

Epoch 10/25

533s - loss: 0.3602 - acc: 0.8389 - val\_loss: 0.4223 - val\_acc: 0.7974

Epoch 11/25

536s - loss: 0.3518 - acc: 0.8442 - val\_loss: 0.4148 - val\_acc: 0.8044

Epoch 12/25

536s - loss: 0.3411 - acc: 0.8490 - val\_loss: 0.4095 - val\_acc: 0.8083

Epoch 13/25

533s - loss: 0.3332 - acc: 0.8536 - val\_loss: 0.4147 - val\_acc: 0.8060

Epoch 14/25

536s - loss: 0.3264 - acc: 0.8572 - val\_loss: 0.4079 - val\_acc: 0.8108

Epoch 15/25

533s - loss: 0.3172 - acc: 0.8631 - val\_loss: 0.4092 - val\_acc: 0.8085

Epoch 16/25

533s - loss: 0.3105 - acc: 0.8657 - val\_loss: 0.4153 - val\_acc: 0.8101

Epoch 17/25

533s - loss: 0.3063 - acc: 0.8682 - val\_loss: 0.4512 - val\_acc: 0.7911

Epoch 18/25

533s - loss: 0.3036 - acc: 0.8696 - val\_loss: 0.4185 - val\_acc: 0.8086

Epoch 19/25

534s - loss: 0.2969 - acc: 0.8730 - val\_loss: 0.4280 - val\_acc: 0.8028

Epoch 20/25

533s - loss: 0.2938 - acc: 0.8744 - val\_loss: 0.4143 - val\_acc: 0.8077

Epoch 21/25

533s - loss: 0.2874 - acc: 0.8782 - val\_loss: 0.4590 - val\_acc: 0.7965

Epoch 22/25

534s - loss: 0.2830 - acc: 0.8799 - val\_loss: 0.4288 - val\_acc: 0.8079

Epoch 23/25

533s - loss: 0.2791 - acc: 0.8814 - val\_loss: 0.4325 - val\_acc: 0.8103

Epoch 24/25

534s - loss: 0.2758 - acc: 0.8834 - val\_loss: 0.4386 - val\_acc: 0.8047

Epoch 25/25

533s - loss: 0.2696 - acc: 0.8858 - val\_loss: 0.4337 - val\_acc: 0.8086

Training ended at 2017-08-15 03:51:08.272810

Minutes elapsed: 223.211568

Keros Epoch Results

GLOVE – training lite data set with POS tags

Starting training at 2017-08-15 13:53:19.069567

Train on 8100 samples, validate on 900 samples

Epoch 1/25

26s - loss: 0.6648 - acc: 0.6174 - val\_loss: 0.7386 - val\_acc: 0.5244

Epoch 2/25

25s - loss: 0.6163 - acc: 0.6659 - val\_loss: 0.6197 - val\_acc: 0.6433

Epoch 3/25

25s - loss: 0.5824 - acc: 0.6977 - val\_loss: 0.6028 - val\_acc: 0.6600

Epoch 4/25

25s - loss: 0.5501 - acc: 0.7183 - val\_loss: 0.7347 - val\_acc: 0.6489

Epoch 5/25

25s - loss: 0.5313 - acc: 0.7268 - val\_loss: 1.7306 - val\_acc: 0.6144

Epoch 6/25

26s - loss: 0.4991 - acc: 0.7580 - val\_loss: 0.6244 - val\_acc: 0.6756

Epoch 7/25

26s - loss: 0.4532 - acc: 0.7896 - val\_loss: 0.7375 - val\_acc: 0.6656

Epoch 8/25

26s - loss: 0.4115 - acc: 0.8091 - val\_loss: 0.6112 - val\_acc: 0.6689

Epoch 9/25

25s - loss: 0.3695 - acc: 0.8363 - val\_loss: 0.6941 - val\_acc: 0.6522

Epoch 10/25

24s - loss: 0.3165 - acc: 0.8623 - val\_loss: 0.8078 - val\_acc: 0.6644

Epoch 11/25

25s - loss: 0.2755 - acc: 0.8826 - val\_loss: 1.0024 - val\_acc: 0.6589

Epoch 12/25

24s - loss: 0.2227 - acc: 0.9091 - val\_loss: 1.1022 - val\_acc: 0.5644

Epoch 13/25

24s - loss: 0.1905 - acc: 0.9242 - val\_loss: 0.9526 - val\_acc: 0.6511

Epoch 14/25

26s - loss: 0.1911 - acc: 0.9264 - val\_loss: 0.9314 - val\_acc: 0.6522

Epoch 15/25

25s - loss: 0.1772 - acc: 0.9295 - val\_loss: 0.9174 - val\_acc: 0.6533

Epoch 16/25

26s - loss: 0.1542 - acc: 0.9402 - val\_loss: 1.1237 - val\_acc: 0.6478

Epoch 17/25

25s - loss: 0.1364 - acc: 0.9480 - val\_loss: 1.3143 - val\_acc: 0.6044

Epoch 18/25

25s - loss: 0.1267 - acc: 0.9521 - val\_loss: 1.3494 - val\_acc: 0.6511

Epoch 19/25

25s - loss: 0.1130 - acc: 0.9583 - val\_loss: 1.1869 - val\_acc: 0.6233

Epoch 20/25

25s - loss: 0.1170 - acc: 0.9581 - val\_loss: 1.2810 - val\_acc: 0.6800

Epoch 21/25

25s - loss: 0.0989 - acc: 0.9647 - val\_loss: 1.1086 - val\_acc: 0.6589

Epoch 22/25

25s - loss: 0.1192 - acc: 0.9563 - val\_loss: 1.0534 - val\_acc: 0.6889

Epoch 23/25

25s - loss: 0.0853 - acc: 0.9709 - val\_loss: 1.3227 - val\_acc: 0.6811

Epoch 24/25

25s - loss: 0.0817 - acc: 0.9710 - val\_loss: 2.5097 - val\_acc: 0.5322

Epoch 25/25

25s - loss: 0.1269 - acc: 0.9520 - val\_loss: 1.2223 - val\_acc: 0.6489

Training ended at 2017-08-15 14:03:55.721090

Minutes elapsed: 10.610859

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Keras, Glove, Including POS, full training set

Starting training at 2017-08-16 01:49:53.125830

Train on 293106 samples, validate on 32568 samples

Epoch 1/25

872s - loss: 0.5605 - acc: 0.7109 - val\_loss: 0.5131 - val\_acc: 0.7436

Epoch 2/25

865s - loss: 0.4992 - acc: 0.7547 - val\_loss: 0.4962 - val\_acc: 0.7580

Epoch 3/25

866s - loss: 0.4763 - acc: 0.7698 - val\_loss: 0.4849 - val\_acc: 0.7649

Epoch 4/25

18119s - loss: 0.4533 - acc: 0.7852 - val\_loss: 0.4898 - val\_acc: 0.7528

Epoch 5/25

878s - loss: 0.4305 - acc: 0.7987 - val\_loss: 0.4735 - val\_acc: 0.7594

Epoch 6/25

887s - loss: 0.4142 - acc: 0.8079 - val\_loss: 0.4482 - val\_acc: 0.7810

Epoch 7/25

905s - loss: 0.4001 - acc: 0.8164 - val\_loss: 0.4294 - val\_acc: 0.7954

Epoch 8/25

891s - loss: 0.3864 - acc: 0.8235 - val\_loss: 0.4295 - val\_acc: 0.7937

Epoch 9/25

882s - loss: 0.3730 - acc: 0.8327 - val\_loss: 0.5006 - val\_acc: 0.7499

Epoch 10/25

869s - loss: 0.3633 - acc: 0.8378 - val\_loss: 0.4299 - val\_acc: 0.7939

Epoch 11/25

865s - loss: 0.3534 - acc: 0.8433 - val\_loss: 0.4549 - val\_acc: 0.7770

Epoch 12/25

874s - loss: 0.3433 - acc: 0.8484 - val\_loss: 0.4288 - val\_acc: 0.7955

Epoch 13/25

867s - loss: 0.3336 - acc: 0.8531 - val\_loss: 0.4267 - val\_acc: 0.8014

Epoch 14/25

869s - loss: 0.3283 - acc: 0.8562 - val\_loss: 0.4304 - val\_acc: 0.7968

Epoch 15/25

867s - loss: 0.3192 - acc: 0.8612 - val\_loss: 0.4316 - val\_acc: 0.8019

Epoch 16/25

868s - loss: 0.3122 - acc: 0.8637 - val\_loss: 0.4292 - val\_acc: 0.8020

Epoch 17/25

865s - loss: 0.3064 - acc: 0.8673 - val\_loss: 0.4485 - val\_acc: 0.7915

Epoch 18/25

867s - loss: 0.3009 - acc: 0.8707 - val\_loss: 0.4374 - val\_acc: 0.7950

Epoch 19/25

887s - loss: 0.2953 - acc: 0.8730 - val\_loss: 0.4447 - val\_acc: 0.7884

Epoch 20/25

925s - loss: 0.2907 - acc: 0.8751 - val\_loss: 0.4334 - val\_acc: 0.7943

Epoch 21/25

885s - loss: 0.2865 - acc: 0.8774 - val\_loss: 0.4361 - val\_acc: 0.8000

Epoch 22/25

866s - loss: 0.2804 - acc: 0.8799 - val\_loss: 0.4482 - val\_acc: 0.7935

Epoch 23/25

864s - loss: 0.2770 - acc: 0.8821 - val\_loss: 0.4645 - val\_acc: 0.7873

Epoch 24/25

865s - loss: 0.2723 - acc: 0.8844 - val\_loss: 0.4546 - val\_acc: 0.7826

Epoch 25/25

864s - loss: 0.2683 - acc: 0.8860 - val\_loss: 0.4394 - val\_acc: 0.7986

Training ended at 2017-08-16 12:42:19.197918

Minutes elapsed: 652.434535

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Keras – standard embedding, train with POS tags

Starting training at 2017-08-16 14:55:31.118556

Train on 293106 samples, validate on 32568 samples

Epoch 1/25

870s - loss: 0.5667 - acc: 0.7064 - val\_loss: 0.5352 - val\_acc: 0.7298

Epoch 2/25

901s - loss: 0.5071 - acc: 0.7499 - val\_loss: 0.5065 - val\_acc: 0.7417

Epoch 3/25

946s - loss: 0.4773 - acc: 0.7693 - val\_loss: 0.4842 - val\_acc: 0.7620

Epoch 4/25

920s - loss: 0.4580 - acc: 0.7825 - val\_loss: 0.5259 - val\_acc: 0.7374

Epoch 5/25

942s - loss: 0.4421 - acc: 0.7919 - val\_loss: 0.4701 - val\_acc: 0.7716

Epoch 6/25

929s - loss: 0.4213 - acc: 0.8055 - val\_loss: 0.4650 - val\_acc: 0.7758

Epoch 7/25

945s - loss: 0.4028 - acc: 0.8173 - val\_loss: 0.4565 - val\_acc: 0.7801

Epoch 8/25

871s - loss: 0.3863 - acc: 0.8260 - val\_loss: 0.4607 - val\_acc: 0.7804

Epoch 9/25

869s - loss: 0.3710 - acc: 0.8348 - val\_loss: 0.4643 - val\_acc: 0.7776

Epoch 10/25

891s - loss: 0.3569 - acc: 0.8421 - val\_loss: 0.4566 - val\_acc: 0.7826

Epoch 11/25

913s - loss: 0.3428 - acc: 0.8504 - val\_loss: 0.4676 - val\_acc: 0.7781

Epoch 12/25

898s - loss: 0.3297 - acc: 0.8574 - val\_loss: 0.4779 - val\_acc: 0.7703

Epoch 13/25

868s - loss: 0.3214 - acc: 0.8608 - val\_loss: 0.6461 - val\_acc: 0.7128

Epoch 14/25

866s - loss: 0.3118 - acc: 0.8662 - val\_loss: 0.6280 - val\_acc: 0.6993

Epoch 15/25

868s - loss: 0.3037 - acc: 0.8701 - val\_loss: 0.5103 - val\_acc: 0.7782

Epoch 16/25

865s - loss: 0.2958 - acc: 0.8744 - val\_loss: 0.5348 - val\_acc: 0.7537

Epoch 17/25

865s - loss: 0.2855 - acc: 0.8785 - val\_loss: 0.4824 - val\_acc: 0.7761

Epoch 18/25

866s - loss: 0.2789 - acc: 0.8822 - val\_loss: 0.5519 - val\_acc: 0.7560

Epoch 19/25

866s - loss: 0.2766 - acc: 0.8832 - val\_loss: 0.5307 - val\_acc: 0.7619

Epoch 20/25

918s - loss: 0.2704 - acc: 0.8862 - val\_loss: 0.4683 - val\_acc: 0.7844

Epoch 21/25

881s - loss: 0.2639 - acc: 0.8895 - val\_loss: 0.5247 - val\_acc: 0.7744

Epoch 22/25

869s - loss: 0.2588 - acc: 0.8919 - val\_loss: 0.5067 - val\_acc: 0.7777

Epoch 23/25

923s - loss: 0.2534 - acc: 0.8945 - val\_loss: 0.5330 - val\_acc: 0.7839

Epoch 24/25

869s - loss: 0.2467 - acc: 0.8973 - val\_loss: 0.5569 - val\_acc: 0.7607

Epoch 25/25

872s - loss: 0.2392 - acc: 0.9007 - val\_loss: 0.5493 - val\_acc: 0.7705

Training ended at 2017-08-16 21:07:16.634244

Minutes elapsed: 371.758595

Keras – Co-occurance matrix, no POS

Starting training at 2017-08-16 21:47:38.629253

Train on 293106 samples, validate on 32568 samples

Epoch 1/25

508s - loss: 0.5553 - acc: 0.7141 - val\_loss: 0.5037 - val\_acc: 0.7481

Epoch 2/25

510s - loss: 0.5001 - acc: 0.7548 - val\_loss: 0.4961 - val\_acc: 0.7523

Epoch 3/25

510s - loss: 0.4729 - acc: 0.7734 - val\_loss: 0.4790 - val\_acc: 0.7647

Epoch 4/25

519s - loss: 0.4466 - acc: 0.7892 - val\_loss: 0.4609 - val\_acc: 0.7775

Epoch 5/25

519s - loss: 0.4245 - acc: 0.8031 - val\_loss: 0.4739 - val\_acc: 0.7640

Epoch 6/25

520s - loss: 0.4027 - acc: 0.8161 - val\_loss: 0.4694 - val\_acc: 0.7655

Epoch 7/25

495s - loss: 0.3850 - acc: 0.8268 - val\_loss: 0.4544 - val\_acc: 0.7799

Epoch 8/25

474s - loss: 0.3710 - acc: 0.8355 - val\_loss: 0.4898 - val\_acc: 0.7606

Epoch 9/25

463s - loss: 0.3544 - acc: 0.8450 - val\_loss: 0.4519 - val\_acc: 0.7873

Epoch 10/25

461s - loss: 0.3391 - acc: 0.8536 - val\_loss: 0.4601 - val\_acc: 0.7844

Epoch 11/25

480s - loss: 0.3256 - acc: 0.8608 - val\_loss: 0.4663 - val\_acc: 0.7864

Epoch 12/25

479s - loss: 0.3159 - acc: 0.8654 - val\_loss: 0.5078 - val\_acc: 0.7614

Epoch 13/25

479s - loss: 0.3081 - acc: 0.8699 - val\_loss: 0.5823 - val\_acc: 0.7175

Epoch 14/25

484s - loss: 0.2965 - acc: 0.8753 - val\_loss: 0.4963 - val\_acc: 0.7776

Epoch 15/25

480s - loss: 0.2854 - acc: 0.8807 - val\_loss: 0.4912 - val\_acc: 0.7678

Epoch 16/25

480s - loss: 0.2793 - acc: 0.8827 - val\_loss: 0.4870 - val\_acc: 0.7800

Epoch 17/25

494s - loss: 0.2705 - acc: 0.8877 - val\_loss: 0.4977 - val\_acc: 0.7740

Epoch 18/25

490s - loss: 0.2643 - acc: 0.8912 - val\_loss: 0.4756 - val\_acc: 0.7799

Epoch 19/25

484s - loss: 0.2569 - acc: 0.8943 - val\_loss: 0.5305 - val\_acc: 0.7598

Epoch 20/25

488s - loss: 0.2492 - acc: 0.8969 - val\_loss: 0.5150 - val\_acc: 0.7659

Epoch 21/25

488s - loss: 0.2418 - acc: 0.9011 - val\_loss: 0.4968 - val\_acc: 0.7772

Epoch 22/25

488s - loss: 0.2393 - acc: 0.9019 - val\_loss: 0.5078 - val\_acc: 0.7823

Epoch 23/25

492s - loss: 0.2320 - acc: 0.9062 - val\_loss: 0.6028 - val\_acc: 0.7418

Epoch 24/25

482s - loss: 0.2282 - acc: 0.9076 - val\_loss: 0.5464 - val\_acc: 0.7468

Epoch 25/25

467s - loss: 0.2216 - acc: 0.9103 - val\_loss: 0.5561 - val\_acc: 0.7904

Training ended at 2017-08-17 01:11:44.502862

Minutes elapsed: 204.097877