WARNING: Logging before flag parsing goes to stderr.

W0528 17:57:32.103082 140492119091072 deprecation.py:323] From /usr/local/lib/python2.7/dist-packages/tensorflow\_core/python/compat/v2\_compat.py:88: disable\_resource\_variables (from tensorflow.python.ops.variable\_scope) is deprecated and will be removed in a future version.

Instructions for updating:

non-resource variables are not supported in the long term

Loading pretrained word vectors from /content/drive/My Drive/NLP Project/LEAR-master/word-vectors/endeitru.txt

665906 vectors loaded from /content/drive/My Drive/NLP Project/LEAR-master/word-vectors/endeitru.txt

SimLex score (Spearman's rho coefficient) of initial vectors is:

SimLex score for english is: 0.706 Original SimLex score is: 0.75 coverage: 998 / 999

SimVerb score for english is: 0.675 coverage: 3490 / 3500

HyperLex score for english is: 0.3 coverage: 2612 / 2616

HyperLex-Nouns score for english is: 0.243 coverage: 2161 / 2163

WordSim score for english is: 0.625 coverage: 348 / 353

SimLex score for german is: 0.615 coverage: 934 / 999

WordSim score for german is: 0.605 coverage: 339 / 353

SimLex score for italian is: 0.674 coverage: 984 / 999

WordSim score for italian is: 0.594 coverage: 345 / 353

SimLex score for russian is: 0.612 coverage: 984 / 999

WordSim score for russian is: 0.573 coverage: 327 / 353

Experiment hyperparameters (attract\_margin\_mono, attract\_margin\_cl, repel\_margin, batch\_size, l2\_reg\_constant, max\_iter): 0.6 0.6 0.0 128 1e-09 5.0

W0528 17:59:00.315192 140492119091072 deprecation.py:506] From /usr/local/lib/python2.7/dist-packages/tensorflow\_core/python/training/adagrad.py:76: calling \_\_init\_\_ (from tensorflow.python.ops.init\_ops) with dtype is deprecated and will be removed in a future version.

Instructions for updating:

Call initializer instance with the dtype argument instead of passing it to the constructor

2020-05-28 17:59:00.349515: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcuda.so.1

2020-05-28 17:59:00.419701: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:00.420363: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1555] Found device 0 with properties:

pciBusID: 0000:00:04.0 name: Tesla T4 computeCapability: 7.5

coreClock: 1.59GHz coreCount: 40 deviceMemorySize: 14.73GiB deviceMemoryBandwidth: 298.08GiB/s

2020-05-28 17:59:00.420711: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcudart.so.10.1

2020-05-28 17:59:00.671366: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcublas.so.10

2020-05-28 17:59:00.795524: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcufft.so.10

2020-05-28 17:59:00.827411: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcurand.so.10

2020-05-28 17:59:01.090384: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcusolver.so.10

2020-05-28 17:59:01.125029: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcusparse.so.10

2020-05-28 17:59:01.601986: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcudnn.so.7

2020-05-28 17:59:01.602168: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:01.602861: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:01.603432: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1697] Adding visible gpu devices: 0

2020-05-28 17:59:01.604649: I tensorflow/core/platform/cpu\_feature\_guard.cc:142] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX512F

2020-05-28 17:59:01.669685: I tensorflow/core/platform/profile\_utils/cpu\_utils.cc:94] CPU Frequency: 2000179999 Hz

2020-05-28 17:59:01.670212: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x55931d5d0840 initialized for platform Host (this does not guarantee that XLA will be used). Devices:

2020-05-28 17:59:01.670247: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): Host, Default Version

2020-05-28 17:59:01.808399: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:01.809097: I tensorflow/compiler/xla/service/service.cc:168] XLA service 0x55931d5d0bc0 initialized for platform CUDA (this does not guarantee that XLA will be used). Devices:

2020-05-28 17:59:01.809127: I tensorflow/compiler/xla/service/service.cc:176] StreamExecutor device (0): Tesla T4, Compute Capability 7.5

2020-05-28 17:59:01.810363: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:01.810925: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1555] Found device 0 with properties:

pciBusID: 0000:00:04.0 name: Tesla T4 computeCapability: 7.5

coreClock: 1.59GHz coreCount: 40 deviceMemorySize: 14.73GiB deviceMemoryBandwidth: 298.08GiB/s

2020-05-28 17:59:01.811038: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcudart.so.10.1

2020-05-28 17:59:01.811070: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcublas.so.10

2020-05-28 17:59:01.811093: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcufft.so.10

2020-05-28 17:59:01.811115: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcurand.so.10

2020-05-28 17:59:01.811142: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcusolver.so.10

2020-05-28 17:59:01.811165: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcusparse.so.10

2020-05-28 17:59:01.811187: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcudnn.so.7

2020-05-28 17:59:01.811261: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:01.811872: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:01.812469: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1697] Adding visible gpu devices: 0

2020-05-28 17:59:01.816021: I tensorflow/stream\_executor/platform/default/dso\_loader.cc:44] Successfully opened dynamic library libcudart.so.10.1

2020-05-28 17:59:01.820152: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1096] Device interconnect StreamExecutor with strength 1 edge matrix:

2020-05-28 17:59:01.820183: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1102] 0

2020-05-28 17:59:01.820196: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1115] 0: N

2020-05-28 17:59:01.824772: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:01.825729: I tensorflow/stream\_executor/cuda/cuda\_gpu\_executor.cc:981] successful NUMA node read from SysFS had negative value (-1), but there must be at least one NUMA node, so returning NUMA node zero

2020-05-28 17:59:01.829203: W tensorflow/core/common\_runtime/gpu/gpu\_bfc\_allocator.cc:39] Overriding allow\_growth setting because the TF\_FORCE\_GPU\_ALLOW\_GROWTH environment variable is set. Original config value was 0.

2020-05-28 17:59:01.829259: I tensorflow/core/common\_runtime/gpu/gpu\_device.cc:1241] Created TensorFlow device (/job:localhost/replica:0/task:0/device:GPU:0 with 14221 MB memory) -> physical GPU (device: 0, name: Tesla T4, pci bus id: 0000:00:04.0, compute capability: 7.5)

2020-05-28 17:59:02.435496: W tensorflow/core/framework/cpu\_allocator\_impl.cc:81] Allocation of 799087200 exceeds 10% of system memory.

2020-05-28 17:59:02.596054: W tensorflow/core/framework/cpu\_allocator\_impl.cc:81] Allocation of 799087200 exceeds 10% of system memory.

2020-05-28 17:59:02.753014: W tensorflow/core/framework/cpu\_allocator\_impl.cc:81] Allocation of 799087200 exceeds 10% of system memory.

2020-05-28 17:59:02.910337: W tensorflow/core/framework/cpu\_allocator\_impl.cc:81] Allocation of 799087200 exceeds 10% of system memory.

2020-05-28 17:59:03.629453: W tensorflow/core/framework/cpu\_allocator\_impl.cc:81] Allocation of 799087200 exceeds 10% of system memory.

Antonym pairs: 124920 Synonym pairs (Symetric/CL): 483281 Synonym pairs (Asym/Mono) 1045271

Running the optimisation procedure for 5 epochs...

Number of batches per epoch: 12916

Starting epoch: 1

SimLex score for english is: 0.665 Original SimLex score is: 0.714 coverage: 998 / 999

SimVerb score for english is: 0.699 coverage: 3490 / 3500

HyperLex score for english is: 0.693 coverage: 2612 / 2616

HyperLex-Nouns score for english is: 0.709 coverage: 2161 / 2163

WordSim score for english is: 0.528 coverage: 348 / 353

SimLex score for german is: 0.615 coverage: 934 / 999

WordSim score for german is: 0.605 coverage: 339 / 353

SimLex score for italian is: 0.674 coverage: 984 / 999

WordSim score for italian is: 0.594 coverage: 345 / 353

SimLex score for russian is: 0.612 coverage: 984 / 999

WordSim score for russian is: 0.573 coverage: 327 / 353

Starting epoch: 2 Last epoch took: 189.9 seconds.

SimLex score for english is: 0.662 Original SimLex score is: 0.719 coverage: 998 / 999

SimVerb score for english is: 0.703 coverage: 3490 / 3500

HyperLex score for english is: 0.69 coverage: 2612 / 2616

HyperLex-Nouns score for english is: 0.707 coverage: 2161 / 2163

WordSim score for english is: 0.529 coverage: 348 / 353

SimLex score for german is: 0.615 coverage: 934 / 999

WordSim score for german is: 0.605 coverage: 339 / 353

SimLex score for italian is: 0.674 coverage: 984 / 999

WordSim score for italian is: 0.594 coverage: 345 / 353

SimLex score for russian is: 0.612 coverage: 984 / 999

WordSim score for russian is: 0.573 coverage: 327 / 353

Starting epoch: 3 Last epoch took: 160.9 seconds.

SimLex score for english is: 0.679 Original SimLex score is: 0.731 coverage: 998 / 999

SimVerb score for english is: 0.704 coverage: 3490 / 3500

HyperLex score for english is: 0.684 coverage: 2612 / 2616

HyperLex-Nouns score for english is: 0.703 coverage: 2161 / 2163

WordSim score for english is: 0.529 coverage: 348 / 353

SimLex score for german is: 0.615 coverage: 934 / 999

WordSim score for german is: 0.605 coverage: 339 / 353

SimLex score for italian is: 0.674 coverage: 984 / 999

WordSim score for italian is: 0.594 coverage: 345 / 353

SimLex score for russian is: 0.612 coverage: 984 / 999

WordSim score for russian is: 0.573 coverage: 327 / 353

Starting epoch: 4 Last epoch took: 157.7 seconds.

SimLex score for english is: 0.67 Original SimLex score is: 0.72 coverage: 998 / 999

SimVerb score for english is: 0.706 coverage: 3490 / 3500

HyperLex score for english is: 0.685 coverage: 2612 / 2616

HyperLex-Nouns score for english is: 0.705 coverage: 2161 / 2163

WordSim score for english is: 0.538 coverage: 348 / 353

SimLex score for german is: 0.615 coverage: 934 / 999

WordSim score for german is: 0.605 coverage: 339 / 353

SimLex score for italian is: 0.674 coverage: 984 / 999

WordSim score for italian is: 0.594 coverage: 345 / 353

SimLex score for russian is: 0.612 coverage: 984 / 999

WordSim score for russian is: 0.573 coverage: 327 / 353

Starting epoch: 5 Last epoch took: 162.4 seconds.

SimLex score for english is: 0.673 Original SimLex score is: 0.723 coverage: 998 / 999

SimVerb score for english is: 0.711 coverage: 3490 / 3500

HyperLex score for english is: 0.682 coverage: 2612 / 2616

HyperLex-Nouns score for english is: 0.702 coverage: 2161 / 2163

WordSim score for english is: 0.505 coverage: 348 / 353

SimLex score for german is: 0.615 coverage: 934 / 999

WordSim score for german is: 0.605 coverage: 339 / 353

SimLex score for italian is: 0.674 coverage: 984 / 999

WordSim score for italian is: 0.594 coverage: 345 / 353

SimLex score for russian is: 0.612 coverage: 984 / 999

WordSim score for russian is: 0.573 coverage: 327 / 353

SimLex score (Spearman's rho coefficient) of the final vectors is:

SimLex score for english is: 0.673 Original SimLex score is: 0.723 coverage: 998 / 999

SimVerb score for english is: 0.711 coverage: 3490 / 3500

HyperLex score for english is: 0.682 coverage: 2612 / 2616

HyperLex-Nouns score for english is: 0.702 coverage: 2161 / 2163

WordSim score for english is: 0.505 coverage: 348 / 353

SimLex score for german is: 0.615 coverage: 934 / 999

WordSim score for german is: 0.605 coverage: 339 / 353

SimLex score for italian is: 0.674 coverage: 984 / 999

WordSim score for italian is: 0.594 coverage: 345 / 353

SimLex score for russian is: 0.612 coverage: 984 / 999

WordSim score for russian is: 0.573 coverage: 327 / 353

Printed 665906 word vectors to: /content/drive/My Drive/NLP Project/LEAR-master/results/wv\_final.txt