MSiA 490_SEC20
Special Topics: Text Analytics

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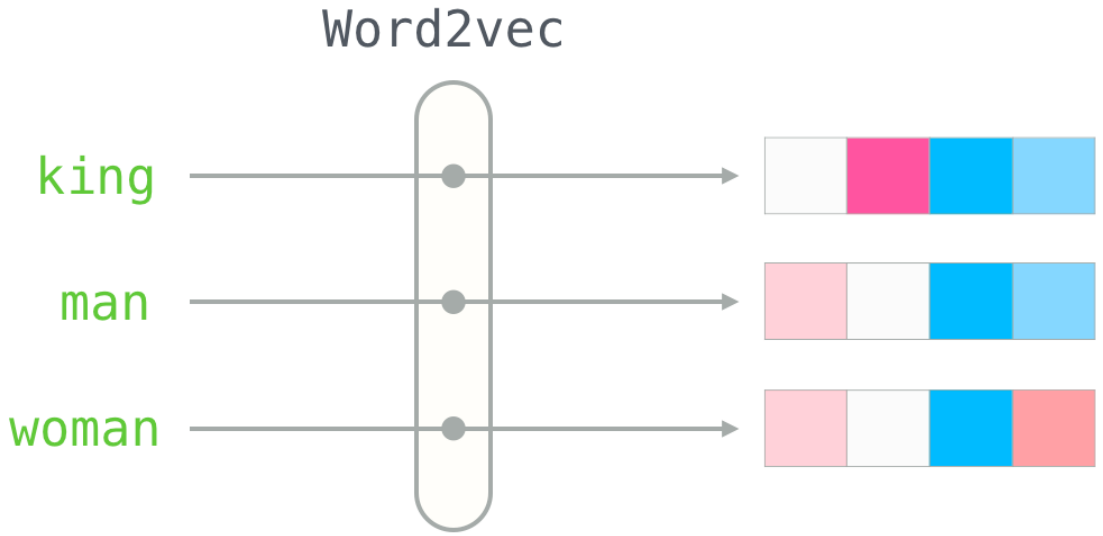
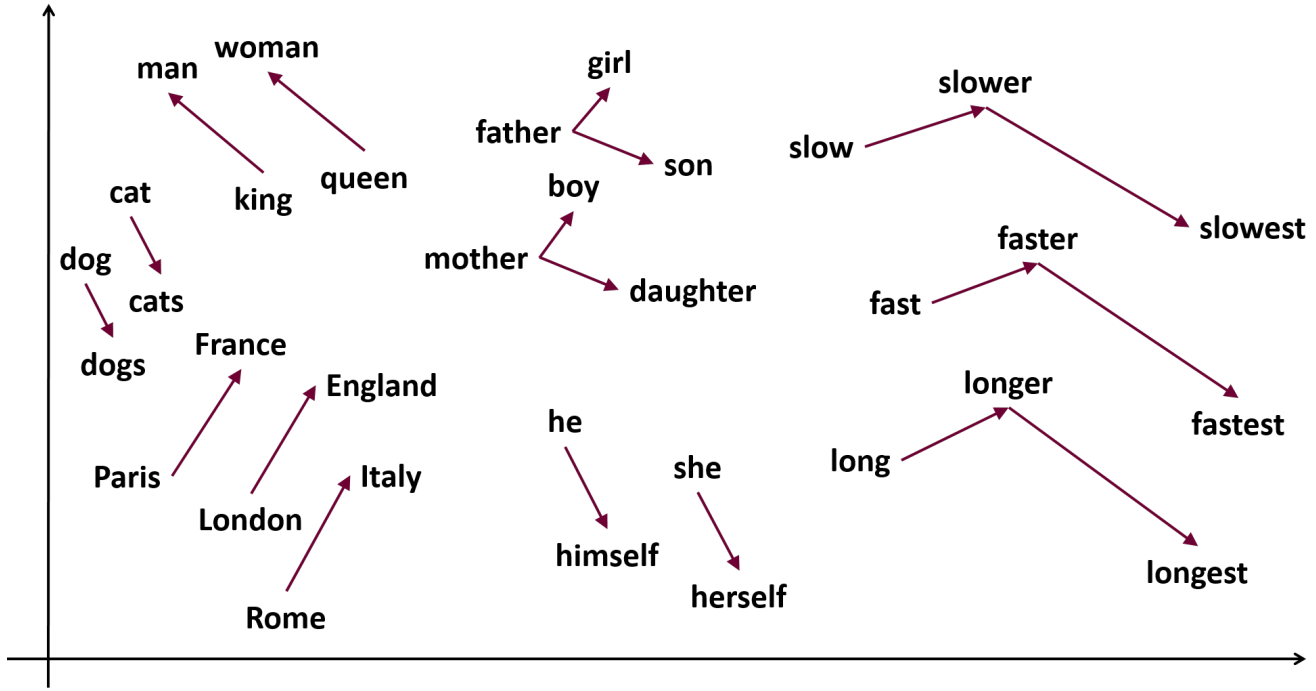
Word2Vec

2. Lab

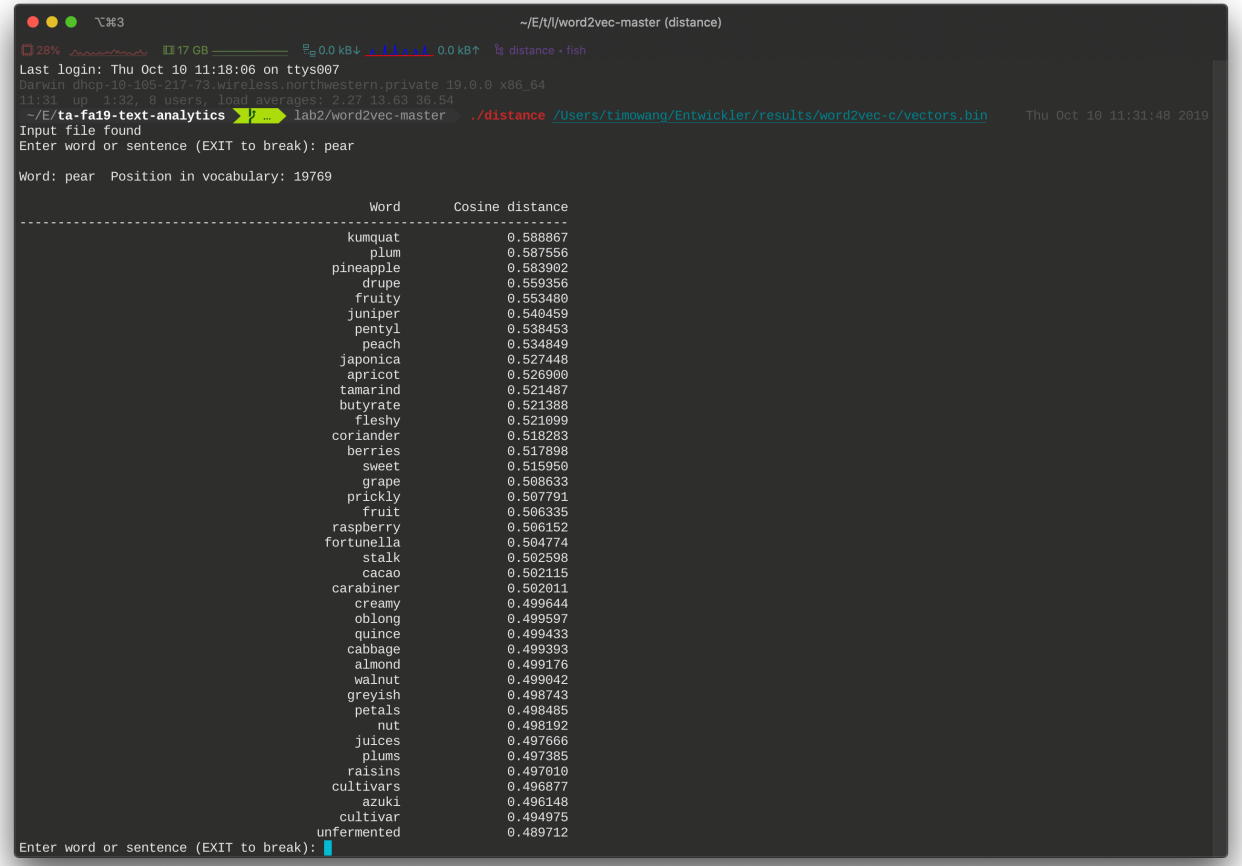
What



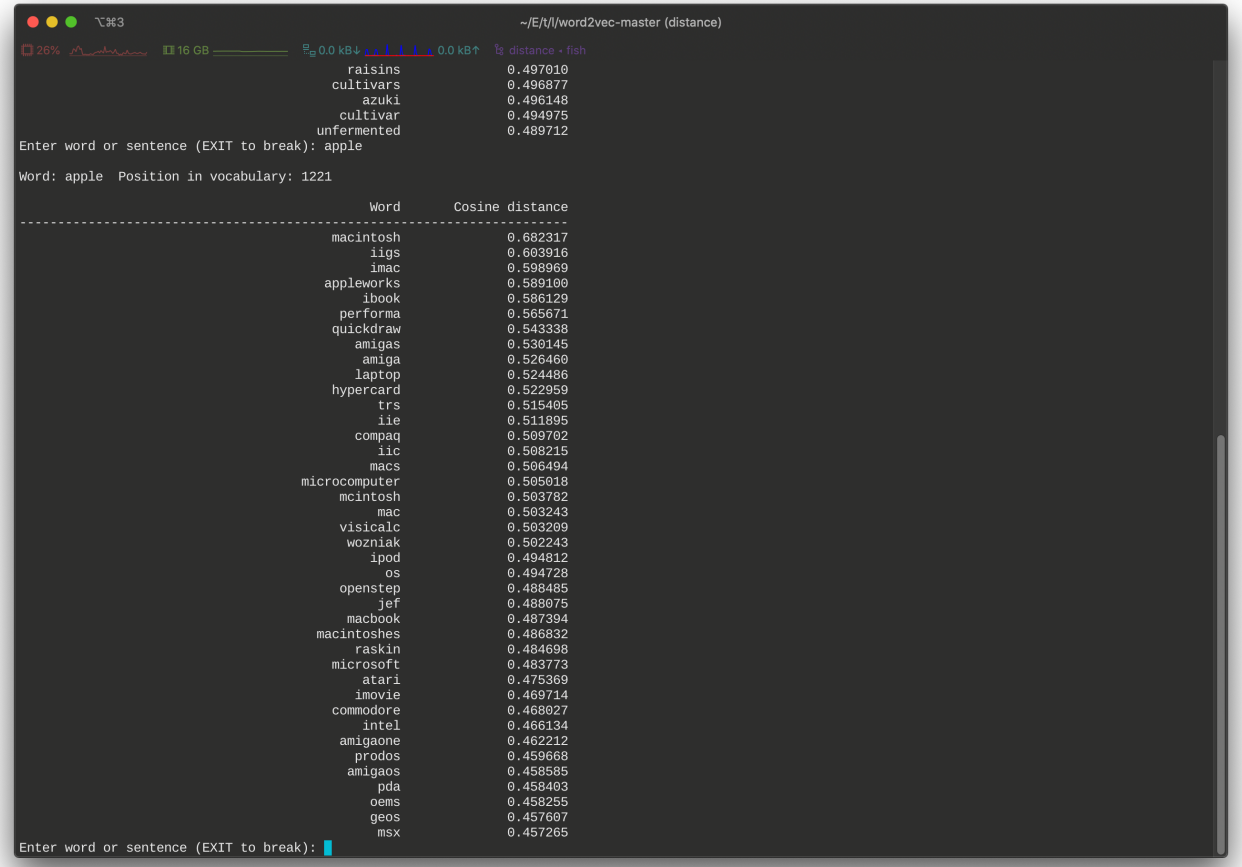
Why


man
woman
king
queen
girl
father
son
boy
mother
daughter
slow
slower
slowest
cat
cats
dog
dogs
fast
faster
fastest
France
England
Paris
London
Italy
Rome
he
himself
she
herself
long
longer
longest

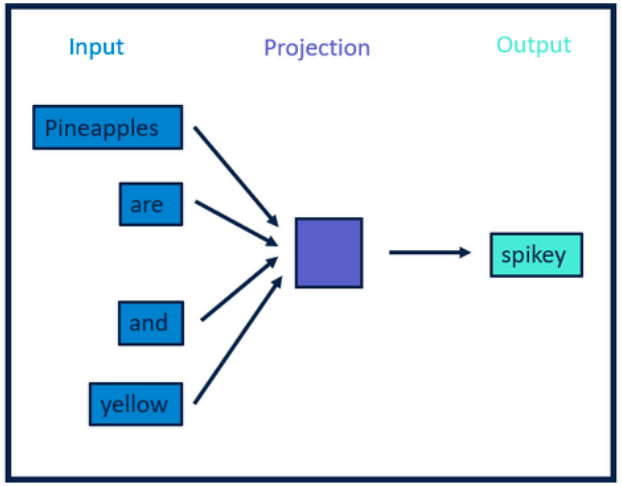
Why


~/E/t/l/word2vec-master (distance)
Last login: Thu Oct 10 11:18:06 on ttys007
Darwin dhcp-10-105-217-73.wireless.northwestern.private 19.0.0 x86_64
11:31 up 1:32, 8 users, load averages: 2.27 13.63 36.54
~/E/ta-fa19-text-analytics lab2/word2vec-master ./distance /Users/timowang/Entwickler/results/word2vec-c/vectors.bin Thu Oct 10 11:31:48 2019
Input file found
Enter word or sentence (EXIT to break): pear
Word: pear Position in vocabulary: 19769
Word Cosine distance
kumquat 0.588867
plum 0.587556
pineapple 0.583902
drupe 0.559356
fruity 0.553480
juniper 0.540459
pentyl 0.538453
peach 0.534849
japonica 0.527448
apricot 0.526900
tamarind 0.521487
butyrate 0.521388
fleshy 0.521099
coriander 0.518283
berries 0.517898
sweet 0.515950
grape 0.508633
prickly 0.507791
fruit 0.506335
raspberry 0.506152
fortunella 0.504774
stalk 0.502598
cacao 0.502115
carabiner 0.502011
creamy 0.499644
oblong 0.499597
quince 0.499433
cabbage 0.499393
almond 0.499176
walnut 0.499042
greyish 0.498743
petals 0.498485
nut 0.498192
juices 0.497666
plums 0.497385
raisins 0.497010
cultivars 0.496877
azuki 0.496148
cultivar 0.494975
unfermented 0.489712
Enter word or sentence (EXIT to break):

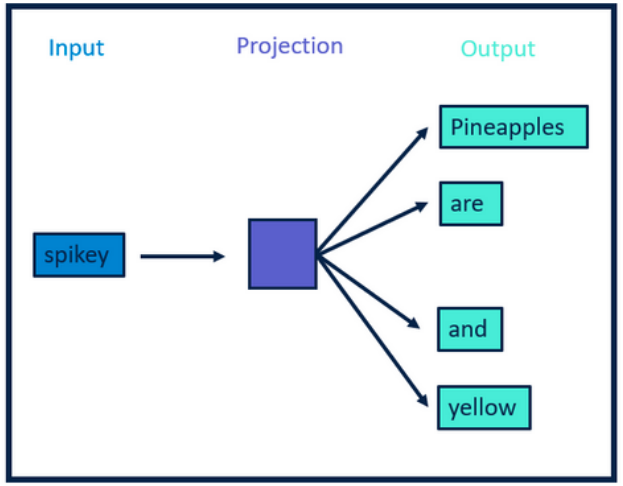
Why


~/E/t/l/word2vec-master (distance)
26%
16 GB
0.0 kB↓
0.0 kB↑
distance • fish
raisins 0.497010
cultivars 0.496877
azuki 0.496148
cultivar 0.494975
unfermented 0.489712
Enter word or sentence (EXIT to break): apple
Word: apple Position in vocabulary: 1221
Word Cosine distance
macintosh 0.682317
iigs 0.603916
imac 0.598969
appleworks 0.589100
ibook 0.586129
performa 0.565671
quickdraw 0.543338
amigas 0.530145
amiga 0.526460
laptop 0.524486
hypercard 0.522959
trs 0.515405
iie 0.511895
compaq 0.509702
iic 0.508215
macs 0.506494
microcomputer 0.505018
mcintosh 0.503782
mac 0.503243
visicalc 0.503209
wozniak 0.502243
ipod 0.494812
os 0.494728
openstep 0.488485
jef 0.488075
macbook 0.487394
macintoshes 0.486832
raskin 0.484698
microsoft 0.483773
atari 0.475369
imovie 0.469714
commodore 0.468027
intel 0.466134
amigaone 0.462212
prodos 0.459668
amigaos 0.458585
pda 0.458403
oems 0.458255
geos 0.457607
msx 0.457265
Enter word or sentence (EXIT to break):

How



CBOW



Skip-gram

Option 1 – The Original C Library

- Step1 – Download the project from https://github.com/tmikolov/word2vec
- Step 2 – Read `demo-word.sh`
- Step 3 – Follow the script as a guideline and train on your own corpus

Option 1 – The Original C Library

Tips for troubleshooting (macOS Catalina)

1. `./distance` results in a segmentation fault

   => remove `-march=native` from `makefile`

2. `Undefined symbols for architecture x86_64:`
   `"_fgetc_unlocked", referenced from:`

   => replace `fgetc_unlocked` with `getc_unlocked` , `fputc_unlocked` with `putc_unlocked`.

Option 2 – Gensim Library

- Step 1 – Download Gensim library through `pip`
- Step 2 – Load and format the corpus as required: List[List[str]]
- Step 3 – Train and save the `Word2Vec` model
- Step 4 – Play with the word embeddings

Option 2 – Gensim Library

More details and tutorials

- https://towardsdatascience.com/a-beginners-guide-to-word-embedding-with-gensim-word2vec-model-5970fa56cc92
- https://radimrehurek.com/gensim/models/word2vec.html

One More Thing

- Geoffrey Hinton and Yann LeCun, 2018 ACM Turing Award Lecture "The Deep Learning Revolution"