Retrain.py exploration! This is a script hidden within the tensorflow training folders, that I’m using to understand what’s going on behind the scenes. Thought processes only here, not meant for actualy documentation.

First run retrain.py to train the images on the flower photos. only issue is, I don’t know how this connects to docker.

* Able to import tensorflow as tf, but had trouble importing tensorflow\_hub as hub. Looking into it in 5/5. (had not pip installed.)
* Next error: <urlopen error [SSL: CERTIFICATE\_VERIFY\_FAILED] certificate verify failed: unable to get local issuer certificate (\_ssl.c:1045)>. Got all the way to line 1281 though!!
* Solution found through github references: cd /Applications/Python\ 3.7/./Install\ Certificates.command which updates certificates or permissions I guess. This fixed I think!
* Note: there were a LOT of deprecated names that were still able to be parsed so that’s nice. But if I were to be doing this professionally, I would likely not leave my script out-of-date.

WHEN RUN: (no idea if I ended up connected this to docker, but I rain it in my terminal and it all worked out)

first input python [directory of program]/retrain.py --image\_dir ./flowers. This is everything that followed in terminal:

Yellow means deprecated things that I have fixed, green means issues that I don’t get yet, blue means not-yet deprecated things that shouldn’t have an impact but WIL EVENTUALLY

WARNING: Logging before flag parsing goes to stderr.

W0505 13:11:48.139408 4428060096 deprecation\_wrapper.py:119] From retrain.py:1281: The name tf.app.run is deprecated. Please use tf.compat.v1.app.run instead.

W0505 13:11:48.141517 4428060096 deprecation\_wrapper.py:119] From retrain.py:914: The name tf.logging.FATAL is deprecated. Please use tf.compat.v1.logging.FATAL instead.

W0505 13:11:48.141936 4428060096 deprecation\_wrapper.py:119] From retrain.py:915: The name tf.logging.ERROR is deprecated. Please use tf.compat.v1.logging.ERROR instead.

W0505 13:11:48.142432 4428060096 deprecation\_wrapper.py:119] From retrain.py:916: The name tf.logging.WARN is deprecated. Please use tf.compat.v1.logging.WARN instead.

W0505 13:11:48.142729 4428060096 deprecation\_wrapper.py:119] From retrain.py:917: The name tf.logging.INFO is deprecated. Please use tf.compat.v1.logging.INFO instead.

W0505 13:11:48.142977 4428060096 deprecation\_wrapper.py:119] From retrain.py:918: The name tf.logging.DEBUG is deprecated. Please use tf.compat.v1.logging.DEBUG instead.

W0505 13:11:48.143226 4428060096 deprecation\_wrapper.py:119] From retrain.py:857: The name tf.gfile.Exists is deprecated. Please use tf.io.gfile.exists instead.

W0505 13:11:48.143484 4428060096 deprecation\_wrapper.py:119] From retrain.py:858: The name tf.gfile.DeleteRecursively is deprecated. Please use tf.io.gfile.rmtree instead.

W0505 13:11:48.153812 4428060096 deprecation\_wrapper.py:119] From retrain.py:859: The name tf.gfile.MakeDirs is deprecated. Please use tf.io.gfile.makedirs instead.

W0505 13:11:48.154397 4428060096 deprecation\_wrapper.py:119] From retrain.py:148: The name tf.gfile.Walk is deprecated. Please use tf.io.gfile.walk instead.

I0505 13:11:48.341036 4428060096 retrain.py:165] Looking for images in 'daisy'

W0505 13:11:48.341253 4428060096 deprecation\_wrapper.py:119] From retrain.py:168: The name tf.gfile.Glob is deprecated. Please use tf.io.gfile.glob instead.

I0505 13:11:48.392346 4428060096 retrain.py:165] Looking for images in 'dandelion'

I0505 13:11:48.456355 4428060096 retrain.py:165] Looking for images in 'rose'

I0505 13:11:48.520730 4428060096 retrain.py:165] Looking for images in 'sunflower'

I0505 13:11:48.601981 4428060096 retrain.py:165] Looking for images in 'tulip'

I0505 13:11:48.684587 4428060096 resolver.py:79] Using /var/folders/73/8j0fq3md3qsdmzztqmmdkjtm0000gn/T/tfhub\_modules to cache modules.

I0505 13:11:48.686339 4428060096 resolver.py:398] Downloading TF-Hub Module 'https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1'.

I0505 13:12:27.422143 4428060096 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 13.14MB

I0505 13:13:02.893652 4428060096 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 23.14MB

I0505 13:13:20.761512 4428060096 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 33.14MB

I0505 13:13:39.588668 4428060096 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 43.14MB

I0505 13:14:02.208744 4428060096 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 53.14MB

I0505 13:14:31.638776 4428060096 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 63.14MB

I0505 13:15:04.325188 4428060096 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 73.14MB

I0505 13:15:27.815160 4428060096 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 83.14MB

I0505 13:15:32.735569 4428060096 resolver.py:122] Downloaded https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1, Total size: 86.32MB

I0505 13:15:32.740367 4428060096 resolver.py:413] Downloaded TF-Hub Module 'https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1'.

W0505 13:15:32.909967 4428060096 deprecation\_wrapper.py:119] From retrain.py:282: The name tf.placeholder is deprecated. Please use tf.compat.v1.placeholder instead.

2019-05-05 13:15:33.243218: W tensorflow/core/graph/graph\_constructor.cc:1352] Importing a graph with a lower producer version 26 into an existing graph with producer version 29. Shape inference will have run different parts of the graph with different producer versions.

I0505 13:15:37.879848 4428060096 saver.py:1495] Saver not created because there are no variables in the graph to restore

W0505 13:15:38.499618 4428060096 deprecation\_wrapper.py:119] From retrain.py:694: The name tf.placeholder\_with\_default is deprecated. Please use tf.compat.v1.placeholder\_with\_default instead.

W0505 13:15:38.501974 4428060096 deprecation\_wrapper.py:119] From retrain.py:706: The name tf.truncated\_normal is deprecated. Please use tf.random.truncated\_normal instead.

W0505 13:15:38.527415 4428060096 deprecation\_wrapper.py:119] From retrain.py:661: The name tf.summary.scalar is deprecated. Please use tf.compat.v1.summary.scalar instead.

W0505 13:15:38.546928 4428060096 deprecation\_wrapper.py:119] From retrain.py:667: The name tf.summary.histogram is deprecated. Please use tf.compat.v1.summary.histogram instead.

W0505 13:15:38.583938 4428060096 deprecation\_wrapper.py:119] From retrain.py:738: The name tf.losses.sparse\_softmax\_cross\_entropy is deprecated. Please use tf.compat.v1.losses.sparse\_softmax\_cross\_entropy instead.

W0505 13:15:38.609035 4428060096 deprecation\_wrapper.py:119] From retrain.py:744: The name tf.train.GradientDescentOptimizer is deprecated. Please use tf.compat.v1.train.GradientDescentOptimizer instead.

W0505 13:15:38.669675 4428060096 deprecation\_wrapper.py:119] From retrain.py:971: The name tf.Session is deprecated. Please use tf.compat.v1.Session instead.

2019-05-05 13:15:38.675100: I tensorflow/core/platform/cpu\_feature\_guard.cc:142] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX2 FMA

W0505 13:15:38.676181 4428060096 deprecation\_wrapper.py:119] From retrain.py:974: The name tf.global\_variables\_initializer is deprecated. Please use tf.compat.v1.global\_variables\_initializer instead.

W0505 13:15:40.757637 4428060096 deprecation\_wrapper.py:119] From retrain.py:883: The name tf.image.resize\_bilinear is deprecated. Please use tf.compat.v1.image.resize\_bilinear instead.

I0505 13:15:59.829337 4428060096 retrain.py:442] 100 bottleneck files created.

I0505 13:16:18.085193 4428060096 retrain.py:442] 200 bottleneck files created.

I0505 13:16:36.970303 4428060096 retrain.py:442] 300 bottleneck files created.

I0505 13:16:56.399029 4428060096 retrain.py:442] 400 bottleneck files created.

…

I0505 13:27:52.194885 4428060096 retrain.py:442] 3600 bottleneck files created.

W0505 13:28:08.001816 4428060096 deprecation\_wrapper.py:119] From retrain.py:998: The name tf.summary.merge\_all is deprecated. Please use tf.compat.v1.summary.merge\_all instead.

W0505 13:28:08.004617 4428060096 deprecation\_wrapper.py:119] From retrain.py:999: The name tf.summary.FileWriter is deprecated. Please use tf.compat.v1.summary.FileWriter instead.

W0505 13:28:10.653828 4428060096 deprecation\_wrapper.py:119] From retrain.py:1007: The name tf.train.Saver is deprecated. Please use tf.compat.v1.train.Saver instead.

I0505 13:28:13.796365 4428060096 retrain.py:1042] 2019-05-05 13:28:13.790959: Step 0: Train accuracy = 54.0%

I0505 13:28:13.796712 4428060096 retrain.py:1044] 2019-05-05 13:28:13.796678: Step 0: Cross entropy = 1.546398

I0505 13:28:14.878334 4428060096 retrain.py:1063] 2019-05-05 13:28:14.878258: Step 0: Validation accuracy = 47.0% (N=100)

I0505 13:28:17.225017 4428060096 retrain.py:1042] 2019-05-05 13:28:17.224941: Step 10: Train accuracy = 80.0%

I0505 13:28:17.225211 4428060096 retrain.py:1044] 2019-05-05 13:28:17.225191: Step 10: Cross entropy = 1.213855

I0505 13:28:17.383816 4428060096 retrain.py:1063] 2019-05-05 13:28:17.383737: Step 10: Validation accuracy = 73.0% (N=100)

…

I0505 13:37:51.780936 4428060096 retrain.py:1042] 2019-05-05 13:37:51.780856: Step 3999: Train accuracy = 99.0%

I0505 13:37:51.781156 4428060096 retrain.py:1044] 2019-05-05 13:37:51.781127: Step 3999: Cross entropy = 0.086518

I0505 13:37:51.904309 4428060096 retrain.py:1063] 2019-05-05 13:37:51.904231: Step 3999: Validation accuracy = 93.0% (N=100)

2019-05-05 13:37:55.555917: W tensorflow/core/graph/graph\_constructor.cc:1352] Importing a graph with a lower producer version 26 into an existing graph with producer version 29. Shape inference will have run different parts of the graph with different producer versions.

I0505 13:38:00.840775 4428060096 saver.py:1495] Saver not created because there are no variables in the graph to restore

W0505 13:38:02.148337 4428060096 deprecation.py:323] From /Library/Frameworks/Python.framework/Versions/3.7/lib/python3.7/site-packages/tensorflow/python/training/saver.py:1272: checkpoint\_exists (from tensorflow.python.training.checkpoint\_management) is deprecated and will be removed in a future version.

Instructions for updating:

Use standard file APIs to check for files with this prefix.

I0505 13:38:02.149805 4428060096 saver.py:1276] Restoring parameters from /tmp/\_retrain\_checkpoint

I0505 13:38:04.701403 4428060096 retrain.py:801] Final test accuracy = 90.3% (N=350)

I0505 13:38:04.847465 4428060096 retrain.py:1091] Save final result to : /tmp/output\_graph.pb

2019-05-05 13:38:05.616241: W tensorflow/core/graph/graph\_constructor.cc:1352] Importing a graph with a lower producer version 26 into an existing graph with producer version 29. Shape inference will have run different parts of the graph with different producer versions.

I0505 13:38:11.094079 4428060096 saver.py:1495] Saver not created because there are no variables in the graph to restore

I0505 13:38:12.430097 4428060096 saver.py:1276] Restoring parameters from /tmp/\_retrain\_checkpoint

W0505 13:38:13.756632 4428060096 deprecation.py:323] From retrain.py:849: convert\_variables\_to\_constants (from tensorflow.python.framework.graph\_util\_impl) is deprecated and will be removed in a future version.

Instructions for updating:

Use `tf.compat.v1.graph\_util.convert\_variables\_to\_constants`

W0505 13:38:13.756871 4428060096 deprecation.py:323] From /Library/Frameworks/Python.framework/Versions/3.7/lib/python3.7/site-packages/tensorflow/python/framework/graph\_util\_impl.py:270: extract\_sub\_graph (from tensorflow.python.framework.graph\_util\_impl) is deprecated and will be removed in a future version.

Instructions for updating:

Use `tf.compat.v1.graph\_util.extract\_sub\_graph`

I0505 13:38:14.935276 4428060096 graph\_util\_impl.py:311] Froze 378 variables.

I0505 13:38:15.414703 4428060096 graph\_util\_impl.py:364] Converted 378 variables to const ops.

All of these errors are making me nervous that my label\_image.py script won’t run, but let’s hope that the deprecated bits won’t be an issue. My only worry is that in the galaxy example repo, a “bottlenecks” folder was created and one didn’t show up in my repo.

Not going to look at it but trying to just run the label.py and see what happens.

What's a bottleneck?

“A **bottleneck** is an informal term we often use for the layer just before the final output layer that actually does the classification. "Bottleneck" is not used to imply that the layer is slowing down the network. We use the term bottleneck because near the output, the representation is much more compact than in the main body of the network.

Every image is reused multiple times during training. Calculating the layers behind the bottleneck for each image takes a significant amount of time. Since these lower layers of the network are not being modified their outputs can be cached and reused.

So the script is running the constant part of the network, everything below the node labeled Bottlene... above, and caching the results.

The command you ran saves these files to the bottlenecks/ directory. If you rerun the script, they'll be reused, so you don't have to wait for this part again.”

SECOND RUN. Didn’t think about this, but it seems that the deprecated lines were preventing my script from running *more* deprecated lines, that are now showing up. Layers, man.

maris-macbook:FCC\_flowers marisilva$ python ~/retrain.py --image\_dir ./flowers

WARNING: Logging before flag parsing goes to stderr.

W0506 21:25:06.268897 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:1281: The name tf.app.run is deprecated. Please use tf.compat.v1.app.run instead.

W0506 21:25:06.270948 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:914: The name tf.logging.FATAL is deprecated. Please use tf.compat.v1.logging.FATAL instead.

W0506 21:25:06.271247 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:915: The name tf.logging.ERROR is deprecated. Please use tf.compat.v1.logging.ERROR instead.

W0506 21:25:06.271584 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:916: The name tf.logging.WARN is deprecated. Please use tf.compat.v1.logging.WARN instead.

W0506 21:25:06.271830 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:917: The name tf.logging.INFO is deprecated. Please use tf.compat.v1.logging.INFO instead.

W0506 21:25:06.272170 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:918: The name tf.logging.DEBUG is deprecated. Please use tf.compat.v1.logging.DEBUG instead.

W0506 21:25:06.272518 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:857: The name tf.gfile.Exists is deprecated. Please use tf.io.gfile.exists instead.

W0506 21:25:06.273550 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:859: The name tf.gfile.MakeDirs is deprecated. Please use tf.io.gfile.makedirs instead.

W0506 21:25:06.276375 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:148: The name tf.gfile.Walk is deprecated. Please use tf.io.gfile.walk instead.

I0506 21:25:06.367757 4397954496 retrain.py:165] Looking for images in 'daisy'

W0506 21:25:06.367980 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:168: The name tf.gfile.Glob is deprecated. Please use tf.io.gfile.glob instead.

I0506 21:25:06.412627 4397954496 retrain.py:165] Looking for images in 'dandelion'

I0506 21:25:06.472077 4397954496 retrain.py:165] Looking for images in 'rose'

I0506 21:25:06.513696 4397954496 retrain.py:165] Looking for images in 'sunflower'

I0506 21:25:06.560550 4397954496 retrain.py:165] Looking for images in 'tulip'

I0506 21:25:06.612866 4397954496 resolver.py:79] Using /var/folders/73/8j0fq3md3qsdmzztqmmdkjtm0000gn/T/tfhub\_modules to cache modules.

I0506 21:25:06.615104 4397954496 resolver.py:398] Downloading TF-Hub Module 'https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1'.

I0506 21:25:24.178050 4397954496 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 33.14MB

I0506 21:25:40.789821 4397954496 resolver.py:122] Downloading https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1: 63.14MB

I0506 21:25:53.160769 4397954496 resolver.py:122] Downloaded https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1, Total size: 86.32MB

I0506 21:25:53.163702 4397954496 resolver.py:413] Downloaded TF-Hub Module 'https://tfhub.dev/google/imagenet/inception\_v3/feature\_vector/1'.

W0506 21:25:53.308602 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:282: The name tf.placeholder is deprecated. Please use tf.compat.v1.placeholder instead.

2019-05-06 21:25:53.644188: W tensorflow/core/graph/graph\_constructor.cc:1352] Importing a graph with a lower producer version 26 into an existing graph with producer version 29. Shape inference will have run different parts of the graph with different producer versions.

I0506 21:25:58.096515 4397954496 saver.py:1495] Saver not created because there are no variables in the graph to restore

W0506 21:25:58.709527 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:694: The name tf.placeholder\_with\_default is deprecated. Please use tf.compat.v1.placeholder\_with\_default instead.

W0506 21:25:58.711884 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:706: The name tf.truncated\_normal is deprecated. Please use tf.random.truncated\_normal instead.

W0506 21:25:58.845859 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:661: The name tf.summary.scalar is deprecated. Please use tf.compat.v1.summary.scalar instead.

W0506 21:25:58.871378 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:667: The name tf.summary.histogram is deprecated. Please use tf.compat.v1.summary.histogram instead.

W0506 21:25:58.911190 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:738: The name tf.losses.sparse\_softmax\_cross\_entropy is deprecated. Please use tf.compat.v1.losses.sparse\_softmax\_cross\_entropy instead.

W0506 21:25:58.936494 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:744: The name tf.train.GradientDescentOptimizer is deprecated. Please use tf.compat.v1.train.GradientDescentOptimizer instead.

W0506 21:25:58.992894 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:971: The name tf.Session is deprecated. Please use tf.compat.v1.Session instead.

2019-05-06 21:25:58.996942: I tensorflow/core/platform/cpu\_feature\_guard.cc:142] Your CPU supports instructions that this TensorFlow binary was not compiled to use: AVX2 FMA

W0506 21:25:58.998620 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:974: The name tf.global\_variables\_initializer is deprecated. Please use tf.compat.v1.global\_variables\_initializer instead.

W0506 21:26:00.584501 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:883: The name tf.image.resize\_bilinear is deprecated. Please use tf.compat.v1.image.resize\_bilinear instead.

W0506 21:26:00.586688 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:333: The name tf.gfile.GFile is deprecated. Please use tf.io.gfile.GFile instead.

I0506 21:26:21.727961 4397954496 retrain.py:442] 100 bottleneck files created.

I0506 21:26:41.242506 4397954496 retrain.py:442] 200 bottleneck files created.

I0506 21:37:59.943266 4397954496 retrain.py:442] 3400 bottleneck files created.

I0506 21:38:21.266523 4397954496 retrain.py:442] 3500 bottleneck files created.

I0506 21:38:48.324997 4397954496 retrain.py:442] 3600 bottleneck files created.

W0506 21:39:03.807996 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:998: The name tf.summary.merge\_all is deprecated. Please use tf.compat.v1.summary.merge\_all instead.

W0506 21:39:03.809969 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:999: The name tf.summary.FileWriter is deprecated. Please use tf.compat.v1.summary.FileWriter instead.

W0506 21:39:06.575416 4397954496 deprecation\_wrapper.py:119] From /Users/marisilva/retrain.py:1007: The name tf.train.Saver is deprecated. Please use tf.compat.v1.train.Saver instead.

I0506 21:39:09.514423 4397954496 retrain.py:1042] 2019-05-06 21:39:09.512710: Step 0: Train accuracy = 40.0%

I0506 21:39:09.514688 4397954496 retrain.py:1044] 2019-05-06 21:39:09.514664: Step 0: Cross entropy = 1.534097

I0506 21:39:10.485291 4397954496 retrain.py:1063] 2019-05-06 21:39:10.485212: Step 0: Validation accuracy = 27.0% (N=100)

I0506 21:39:11.863070 4397954496 retrain.py:1042] 2019-05-06 21:39:11.862999: Step 10: Train accuracy = 78.0%

I0506 21:39:11.863261 4397954496 retrain.py:1044] 2019-05-06 21:39:11.863240: Step 10: Cross entropy = 1.084322

I0506 21:39:11.996742 4397954496 retrain.py:1063] 2019-05-06 21:39:11.996666: Step 10: Validation accuracy = 59.0% (N=100)

I0506 21:39:13.335988 4397954496 retrain.py:1042] 2019-05-06 21:39:13.335914: Step 20: Train accuracy = 78.0%

I0506 21:39:13.336183 4397954496 retrain.py:1044] 2019-05-06 21:39:13.336161: Step 20: Cross entropy = 1.015728

I0506 21:39:13.468512 4397954496 retrain.py:1063] 2019-05-06 21:39:13.468435: Step 20: Validation accuracy = 72.0% (N=100)

…

I0506 21:47:40.480607 4397954496 retrain.py:1042] 2019-05-06 21:47:40.480536: Step 3999: Train accuracy = 95.0%

I0506 21:47:40.480798 4397954496 retrain.py:1044] 2019-05-06 21:47:40.480778: Step 3999: Cross entropy = 0.182960

I0506 21:47:40.598735 4397954496 retrain.py:1063] 2019-05-06 21:47:40.598657: Step 3999: Validation accuracy = 95.0% (N=100)

2019-05-06 21:47:43.863775: W tensorflow/core/graph/graph\_constructor.cc:1352] Importing a graph with a lower producer version 26 into an existing graph with producer version 29. Shape inference will have run different parts of the graph with different producer versions.

I0506 21:47:48.486850 4397954496 saver.py:1495] Saver not created because there are no variables in the graph to restore

W0506 21:47:49.727439 4397954496 deprecation.py:323] From /Library/Frameworks/Python.framework/Versions/3.7/lib/python3.7/site-packages/tensorflow/python/training/saver.py:1272: checkpoint\_exists (from tensorflow.python.training.checkpoint\_management) is deprecated and will be removed in a future version.

Instructions for updating:

Use standard file APIs to check for files with this prefix.

I0506 21:47:49.728873 4397954496 saver.py:1276] Restoring parameters from /tmp/\_retrain\_checkpoint

I0506 21:47:51.888572 4397954496 retrain.py:801] Final test accuracy = 90.3% (N=350)

I0506 21:47:52.018476 4397954496 retrain.py:1091] Save final result to : /tmp/output\_graph.pb

2019-05-06 21:47:52.726460: W tensorflow/core/graph/graph\_constructor.cc:1352] Importing a graph with a lower producer version 26 into an existing graph with producer version 29. Shape inference will have run different parts of the graph with different producer versions.

I0506 21:47:57.238573 4397954496 saver.py:1495] Saver not created because there are no variables in the graph to restore

I0506 21:47:58.381417 4397954496 saver.py:1276] Restoring parameters from /tmp/\_retrain\_checkpoint

W0506 21:47:59.564785 4397954496 deprecation.py:323] From /Users/marisilva/retrain.py:849: convert\_variables\_to\_constants (from tensorflow.python.framework.graph\_util\_impl) is deprecated and will be removed in a future version.

Instructions for updating:

Use `tf.compat.v1.graph\_util.convert\_variables\_to\_constants`

W0506 21:47:59.565007 4397954496 deprecation.py:323] From /Library/Frameworks/Python.framework/Versions/3.7/lib/python3.7/site-packages/tensorflow/python/framework/graph\_util\_impl.py:270: extract\_sub\_graph (from tensorflow.python.framework.graph\_util\_impl) is deprecated and will be removed in a future version.

Instructions for updating:

Use `tf.compat.v1.graph\_util.extract\_sub\_graph`

I0506 21:48:00.662009 4397954496 graph\_util\_impl.py:311] Froze 378 variables.

I0506 21:48:01.101605 4397954496 graph\_util\_impl.py:364] Converted 378 variables to const ops.

Just kidding. These functions look the same, which is concerning.