

DLHLP HW5-1

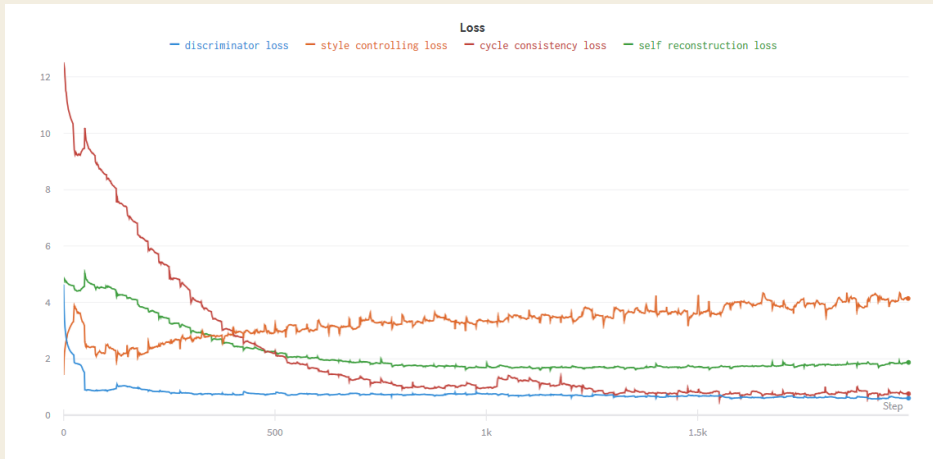
R08922067 鄭淵仁

Configuration

We changed embedding size to 512. Other settings follows the default.

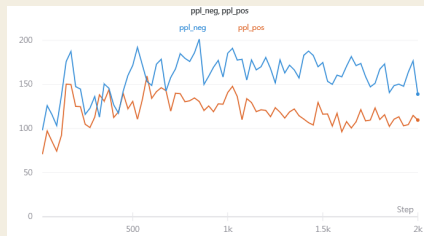
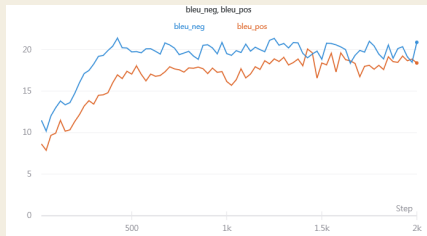
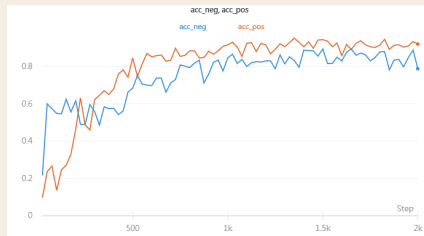
```
p main.py --do_train --use_wandb -embed_size 512
```

Loss



Evaluation - Metrics

	pos	neg	avg
accuracy	0.92	0.788	0.854
ref-bleu	18.395	20.89	19.643
perplexity	109.569	138.972	124.27



Evaluation - Good Examples

```
***** pos sample *****  
[gold] i was pleased with their service .  
[raw ] i was pleased with their service .  
[rev ] i was unhappy with their service .
```

“pleased” → “unhappy” is good.

```
***** pos sample *****  
[gold] this was the best i have ever had !  
[raw ] this was the best i have ever had !  
[rev ] this was the worst i have ever had !
```

“the best” → “the worst” is good.

Evaluation - Problematic Examples

```
***** pos sample *****  
[gold] well the food was great and the price of it was even better .  
[raw ] well the food was great and the price of it was even better .  
[rev ] well the food was horrible and the price of it was even better .
```

price should not be “better” after “even”, it should be some other adjectives, such as “even more expensive”.

```
***** pos sample *****  
[gold] he is very thorough and genuinely cares for his customers .  
[raw ] he is very thorough and genuinely cares for his customers .  
[rev ] he is very unprofessional and black cares for his customers .
```

“black” can not be used to describe “care.”

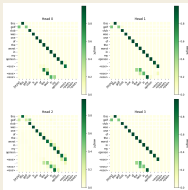
Observation

dimension 越大 performance 會越好，但是有時候也不會變好，要多跑幾次。

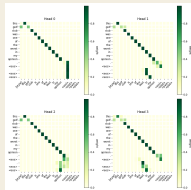
DLHLP HW5-2

R08922067 鄭淵仁

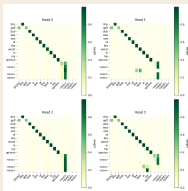
problem1



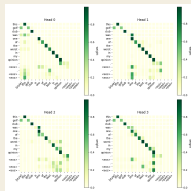
(a) layer 1



(b) layer 2



(c) layer 3



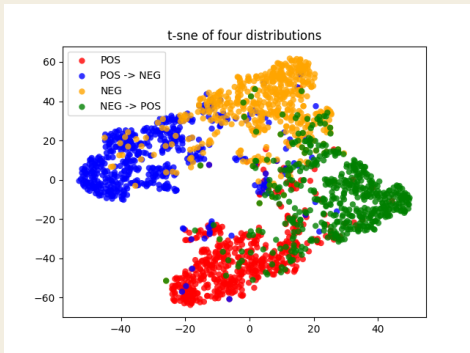
(d) layer 4

[gold] this golf club is one of the best in my opinion .
[rev] this golf club was one of the worst in my opinion .

在每一個 head 上，只有在輸出 golf 時會 attend 到 style 。

我認為這可能是因為 model 會根據 “golf club” 這個主詞來找到相對應的形容詞，以便在後面輸出，所以才會在輸出 golf 時先 attend 在 style 上。

problem2



從圖中可以發現 POS、POS \rightarrow NEG、NEG、NEG \rightarrow POS 這四類句子在 t-sne 轉換之後，被大致分開到四個區域。

但是 POS \rightarrow NEG 有一部分與 NEG 混在一起；NEG \rightarrow POS 也有一部分與 POS 混在一起。這兩個部分很可能是 discriminator 無法分類清楚的部分。這也顯示出 generator 可以在一定程度上騙過 discriminator。

problem3

```
-  
[ORG] the calzones are awesome and the lunch special they have is perfect .  
[REV] the calzones are cold and the lunch special they have is flavorless .  
-  
[ORG] <unk> calzones are awesome and the lunch special they have is perfect .  
[REV] the calzones are awesome and the lunch special they have is flavorless .  
-  
[ORG] the <unk> are awesome and the lunch special they have is perfect .  
[REV] the food are cold and the lunch special they have is flavorless .  
-  
[ORG] the calzones <unk> awesome and the lunch special they have is perfect .  
[REV] the calzones are cold and the lunch special they have is flavorless .  
-  
[ORG] the calzones are <unk> and the lunch special they have is perfect .  
[REV] the calzones are rude and the lunch special they have is flavorless .  
-  
[ORG] the calzones are awesome <unk> the lunch special they have is perfect .  
[REV] the calzones are awesome , the lunch special they have is flavorless .  
-  
[ORG] the calzones are awesome and <unk> lunch special they have is perfect .  
[REV] the calzones are cold and the lunch special they have is flavorless .  
-  
[ORG] the calzones are awesome and the <unk> special they have is perfect .  
[REV] the calzones are cold and the chicken special they have is flavorless .  
-  
[ORG] the calzones are awesome and the lunch <unk> they have is perfect .  
[REV] the calzones are cold and the lunch and they have is flavorless .  
-  
[ORG] the calzones are awesome and the lunch special <unk> have is perfect .  
[REV] the calzones are cold and the lunch special they have is flavorless .  
-  
[ORG] the calzones are awesome and the lunch special they <unk> is perfect .  
[REV] the calzones are cold and the lunch special they are is flavorless .  
-  
[ORG] the calzones are awesome and the lunch special they have <unk> perfect .  
[REV] the calzones are cold and the lunch special they have so flavorless .  
-  
[ORG] the calzones are awesome and the lunch special they have is <unk> .  
[REV] the calzones are cold and the lunch special they have is terrible .
```

從圖中我發現當 mask 在名詞或形容詞周圍時，後面相關的形容詞會有變化。例如 “the calzones” 的 “the” 被 mask 掉後，“cold” 被變回 “awesome” 了；或是 “perfect” 被 mask 掉之後，“flavorless” 變成了 “terrible”。

我認為這是因為在 model 在 output 形容詞的時候，會參考前面的名詞跟現在的形容詞。因此當兩者其中一個有變化，形容詞就會跟著變動。

DLHLP HW5-3

Add More Styles

R08922067 鄭淵仁

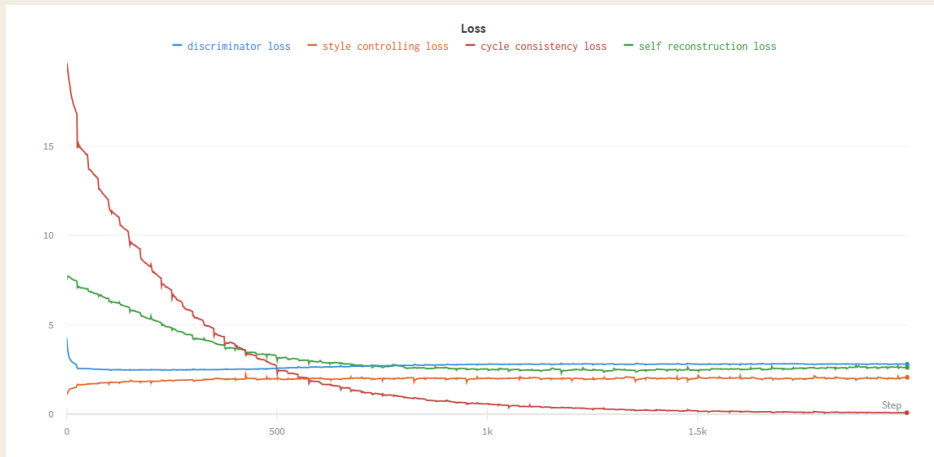
Configuration

We use the provided gender data. Other settings follows the default.

```
p main.py --do_train --use_wandb
```

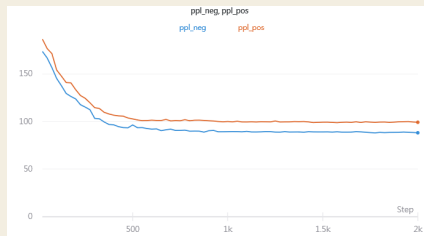
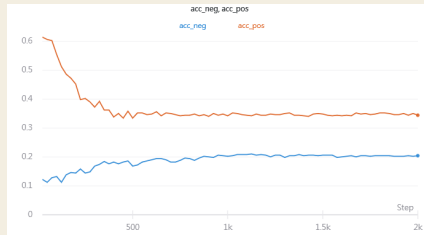
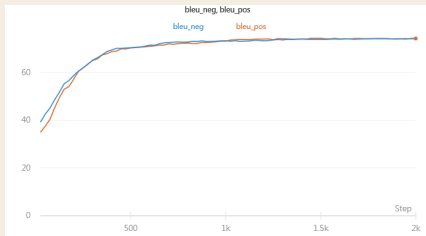
```
parser.add_argument("-data_path", default="./data/gender/"
```

Loss



Evaluation - Metric

	pos	neg	avg
accuracy	0.344	0.204	0.274
ref-bleu	74.425	74.208	74.3165
perplexity	99.224	88.175	93.695



Evaluation - Male → Female Examples

```
***** pos sample *****  
[gold] the chicken was shredded and lightly seasoned .  
[raw ] the chicken was shredded and lightly seasoned .  
[rev ] the chicken was shredded and lightly seasoned .
```

These sentences are exactly the same.

```
***** pos sample *****  
[gold] the atmosphere takes one back in time as if it was yesterday !  
[raw ] the atmosphere takes one back in time as if it was yesterday !  
[rev ] the atmosphere takes one back in time as if it was yesterday !
```

These sentences are exactly the same.

```
***** pos sample *****  
[gold] to be fair it may have been such a good conversation that my wife '  
[raw ] to be fair it may have been such a good conversation that my wife '  
[rev ] to be fair it may have been such a good conversation that my husband '
```

“wife” → “husband” means the gender of the speaker changes from male to female.

```
***** pos sample *****  
[gold] as i said , my wife and i like to hang out towards the back  
[raw ] as i said , my wife and i like to hang out towards the back  
[rev ] as i said , my husband and i like to hang out towards the back
```

“wife” → “husband” means the gender of the speaker changes from male to female.

```
***** pos sample *****  
[gold] my wife and i drive by one of the other locations to come here .  
[raw ] my wife and i drive by one of the other locations to come here .  
[rev ] my husband and i drive by one of the other locations to come here .
```

“wife” → “husband” means the gender of the speaker changes from male to female.

Evaluation - Female → Male Examples

```
***** neg sample *****  
[gold] immediately greeted by a friendly worker and a wall of soda .  
[raw ] immediately greeted by a friendly worker and a wall of soda .  
[rev ] immediately greeted by a friendly worker and a wall of soda .
```

These sentences are exactly the same.

```
***** neg sample *****  
[gold] we go to nando ' s frequently and i love it .  
[raw ] we go to nando ' s frequently and i love it .  
[rev ] we go to nando ' s frequently and i love it .
```

These sentences are exactly the same.

```
***** neg sample *****  
[gold] my husband ordered spicy beef with a side of fried rice .  
[raw ] my husband ordered spicy beef with a side of fried rice .  
[rev ] my wife ordered spicy beef with a side of fried rice .
```

“husband” → “wife” means the gender of the speaker changes from female to male.

```
***** neg sample *****  
[gold] my husband got the local dish burger and declared it good .  
[raw ] my husband got the local dish burger and declared it good .  
[rev ] my wife got the local dish burger and declared it good .
```

“husband” → “wife” means the gender of the speaker changes from female to male.

```
***** neg sample *****  
[gold] each time my husband and i come here we are always pleased .  
[raw ] each time my husband and i come here we are always pleased .  
[rev ] each time my wife and i come here we are always pleased .
```

“husband” → “wife” means the gender of the speaker changes from female to male.

Observation

除了「丈夫」、「男朋友」等詞以外，其他詞幾乎都不會被變動。