HW3-2 Report

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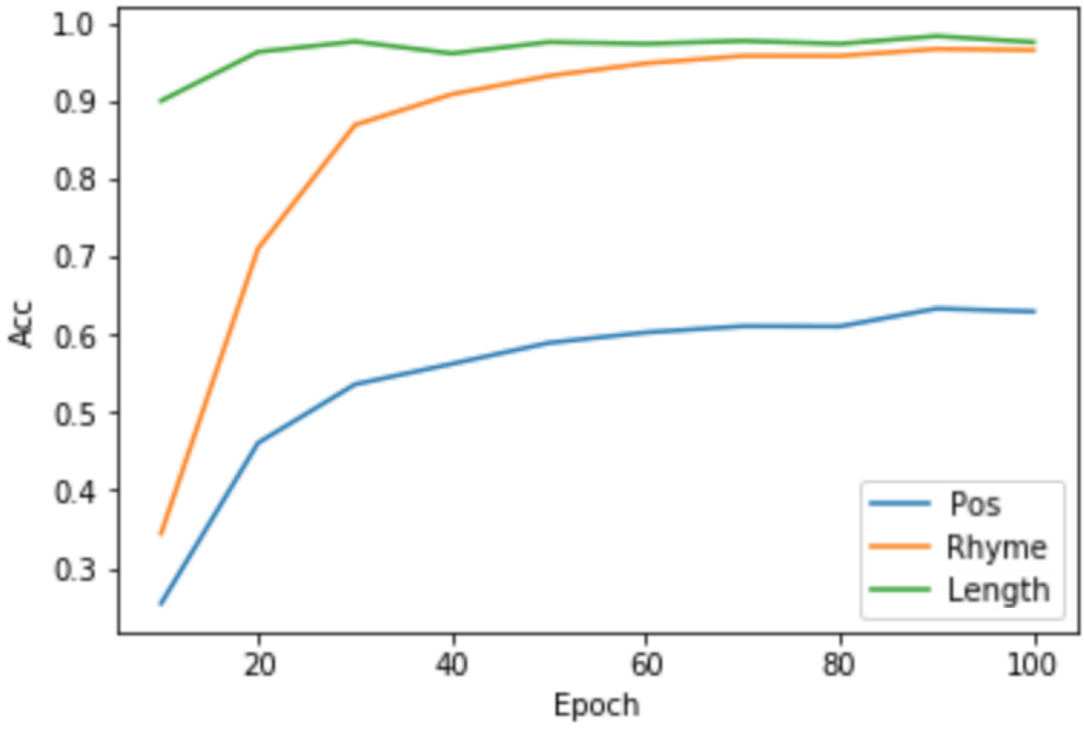
Model:

```
VanillaEncoder(
  (embedding): Embedding(91626, 256)
  (gru): GRU(256, 256)
)
VanillaDecoder(
  (embedding): Embedding(91626, 256)
  (gru): GRU(256, 256)
  (out): Linear(in_features=256, out_features=91626, bias=True)
  (log_softmax): LogSoftmax()
)
```

Improvement with the learning epoch:



Experiment

Original (Epoch=20, batch_size=64, hidden_size=256, learning_rate=0.001)

Accuracy:

POS: 0.4608428571428571

Rhyme: 0.7106714285714286

Length: 0.9634714285714285

Case 1: Remove 'NOP', 'NOE', 'NOR' from input

Accuracy:

POS: 0.4442142857142857

Rhyme: 0.7696285714285714

Length: 0.9239857142857143

Case 2: Move number of segment to the beginning of input

Accuracy:

POS: 0.43561428571428573

Rhyme: 0.7191285714285715

Length: 0.9388285714285715

Case 3: Move half of number of segment to the beginning of input

Accuracy:

POS: 0.3971

Rhyme: 0.3426714285714286

Length: 0.8786285714285714

Case 4: Flip POS order

Accuracy:

POS: 0.4348142857142857

Rhyme: 0.7143714285714285

Length: 0.9269428571428572

Case 5: Shuffle POS order

Accuracy:

POS: 0.06951428571428575

Rhyme: 0.8271999999999999

Length: 0.9624285714285714

Observation

1. 從Case 1 可以知道不加入'NOE', 'NOP', 'POS'並不影響準確率
2. Case 2 如果把全部的NOR換位置，不影響準確率。Case 3如果把部分的NOR換位置，影響了Rhyme, Length的準確率。可以理解成Length, POS, Rhyme的相對位置是重要的
3. Case 4 中把詞性的順序顛倒，不影響準確率。Case 5 中把詞性的順序suffle，嚴重影響了POS準確率，所以能知道詞性的相對位置是重要的
4. 綜合上述，能將model的學習歸功於Length, Rhyme, POS，以及POS內順序的相對位置