

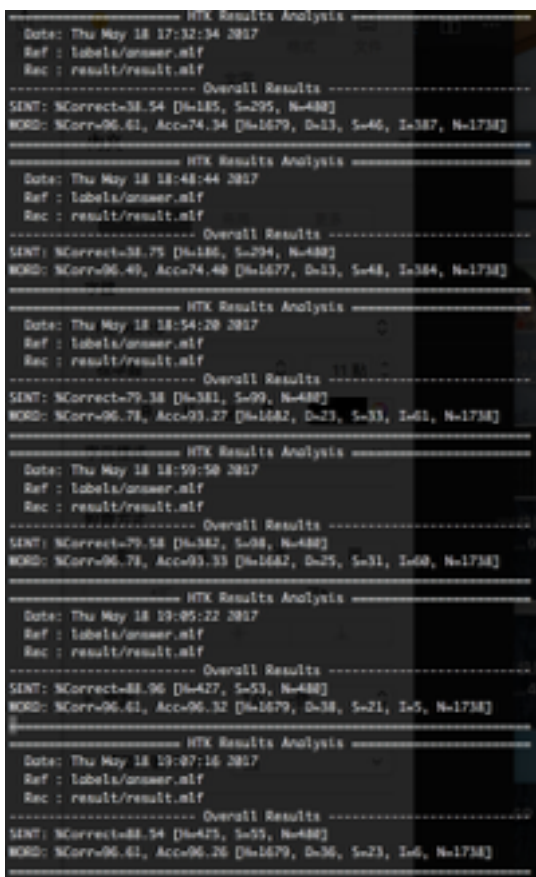
1. Modification

- (1) Proto State: 我對hmm的proto做了一些更動，將state的數量從5個提升至10個，accuracy就從baseline的73.34%爬升到93.27%。而後我又在做了一次相同的事情把state的數量從10個提升至15個，就得到了96.26%的結果。
- (2) Gaussian Mixture: 再來我改了state變化的數量，將原本的[2-4]改成[2-14]，並將gaussian mixture的數量從2改成14，這兩個改變使我的performance從93.27%提升至93.33%。
- (3) training: 我將HERest的iteration的數量皆改成10個，使我的performance從96.26%提升至96.32%。

2. Changes Effect on Performance

- (1) Proto State: 這個更動對performance的影響最為顯著，而這也不難想像，因為這就是初始每個model有多少個hidden state的來源，如果我增加這些hidden state的數量，可以有效的運用更多參數來描述觀察到同一個事件(就跟增加節點有點類似)，能使描述同一個事件得更加精準。
- (2) training: 提升的效果不太顯著，我認為這是因為在一開始他就已經接近maximum了，所以重複train他並不會提升他的效果。

以下為performance截圖：



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HTK Results Analysis
Date: Thu May 18 17:32:34 2017
Ref : labels/answer.mif
Res : result/result.mif
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Overall Results
SINT: NCorrect=38.54 [N=185, S=295, N=480]
WORD: NCorr=96.61, Acc=74.34 [N=1679, D=13, S=46, I=387, N=1738]

HTK Results Analysis
Date: Thu May 18 18:48:44 2017
Ref : labels/answer.mif
Res : result/result.mif
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Overall Results
SINT: NCorrect=38.75 [N=186, S=294, N=480]
WORD: NCorr=96.49, Acc=74.40 [N=1677, D=13, S=48, I=384, N=1738]

HTK Results Analysis
Date: Thu May 18 18:54:20 2017
Ref : labels/answer.mif
Res : result/result.mif
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Overall Results
SINT: NCorrect=79.38 [N=381, S=99, N=480]
WORD: NCorr=96.78, Acc=93.27 [N=1682, D=23, S=33, I=61, N=1738]

HTK Results Analysis
Date: Thu May 18 18:59:50 2017
Ref : labels/answer.mif
Res : result/result.mif
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Overall Results
SINT: NCorrect=79.58 [N=382, S=98, N=480]
WORD: NCorr=96.78, Acc=93.33 [N=1682, D=25, S=31, I=60, N=1738]

HTK Results Analysis
Date: Thu May 18 19:05:22 2017
Ref : labels/answer.mif
Res : result/result.mif
-----
Overall Results
SINT: NCorrect=88.96 [N=427, S=53, N=480]
WORD: NCorr=96.61, Acc=96.32 [N=1679, D=38, S=21, I=5, N=1738]

HTK Results Analysis
Date: Thu May 18 19:07:16 2017
Ref : labels/answer.mif
Res : result/result.mif
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Overall Results
SINT: NCorrect=88.54 [N=425, S=55, N=480]
WORD: NCorr=96.61, Acc=96.26 [N=1679, D=36, S=23, I=6, N=1738]
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3. Environment

C++ 4.2.1