Machine Learning 2014, project 2
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Viterbi

Status

Our implementations have been done in C++, for no apparent reason other than us wanting to spend a lot more time than necessary on doing the assignment. Our non-log implementation works pretty well on the smaller sample, while giving a segfalt on the large sample. We believe this has to do with the probablilities becoming to small. The logarithmic implementations yield a likelihood that is somewhat close to the ones from the example, however the statesequences are for some reason always 312312312... We have not been able to figure out why, though it is clearly not correct behaviour
Our code is accessible through github, at https://github.com/dingbattt/viterbi.

Implementations

We have implemented both algorithms in a single file, vit.cpp, which implements vit.h. The HMM can be found in our repository as well, and is read dynamically into the program. Upon running the compiled program the log algorithms will run on both of the given test-sequences and output the results. The non-log algorithms will run on the small test-sequence and output the results. The file is compiled using boost:

g++ -I <path to boost> vit.h -std=c++11 vit.cpp -o vit.o && ./vit.o

The compiled file can be found in the repository as well, to avoid any issues.

Output

Non-logarithmic implementation:

prob: 1.91143e-31

44444444444444444444444444442134432132132132132132

Logarithmic implementation:

prob: -74.1022 (6.57391e-33)

13213213213213213213213213213213213213213213213210

prob: -1430.23

13213213213213213213213213213213213213213213213213213213213213213213213213213213
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