

## D.2 HDP-HMM: Speaker Diarization

We use a full covariance Gaussian likelihood.

```
--gamma 10  
--alpha 1.0  
--startAlpha 1.0  
--stickyKappa 0  
--nu 1000  
--ECovMat covdata  
--sF 0.75  
--kappa 0.0001
```

## D.3 HDP-HMM: Motion Capture

We use a first order AR Gaussian likelihood.

```
--gamma 10  
--alpha 0.5  
--startAlpha 5  
--stickyKappa 300  
--nu D+2  
--ECovMat diagcovfirstdiff  
--sF 0.5  
--VMat same  
--sV 0.5  
--MMat eye
```

## D.4 HDP-aMMSB Experiments

Both of our HDP-aMMSB experiments use a 1-D bernouli likelihood with a beta prior  $\text{Beta}(\lambda_1, \lambda_0)$  and identical hyperparameter settings:

```
--gamma 10  
--alpha 1.0  
--epsilon 1e-5  
--lam1 10.0  
--lam0 0.0
```