

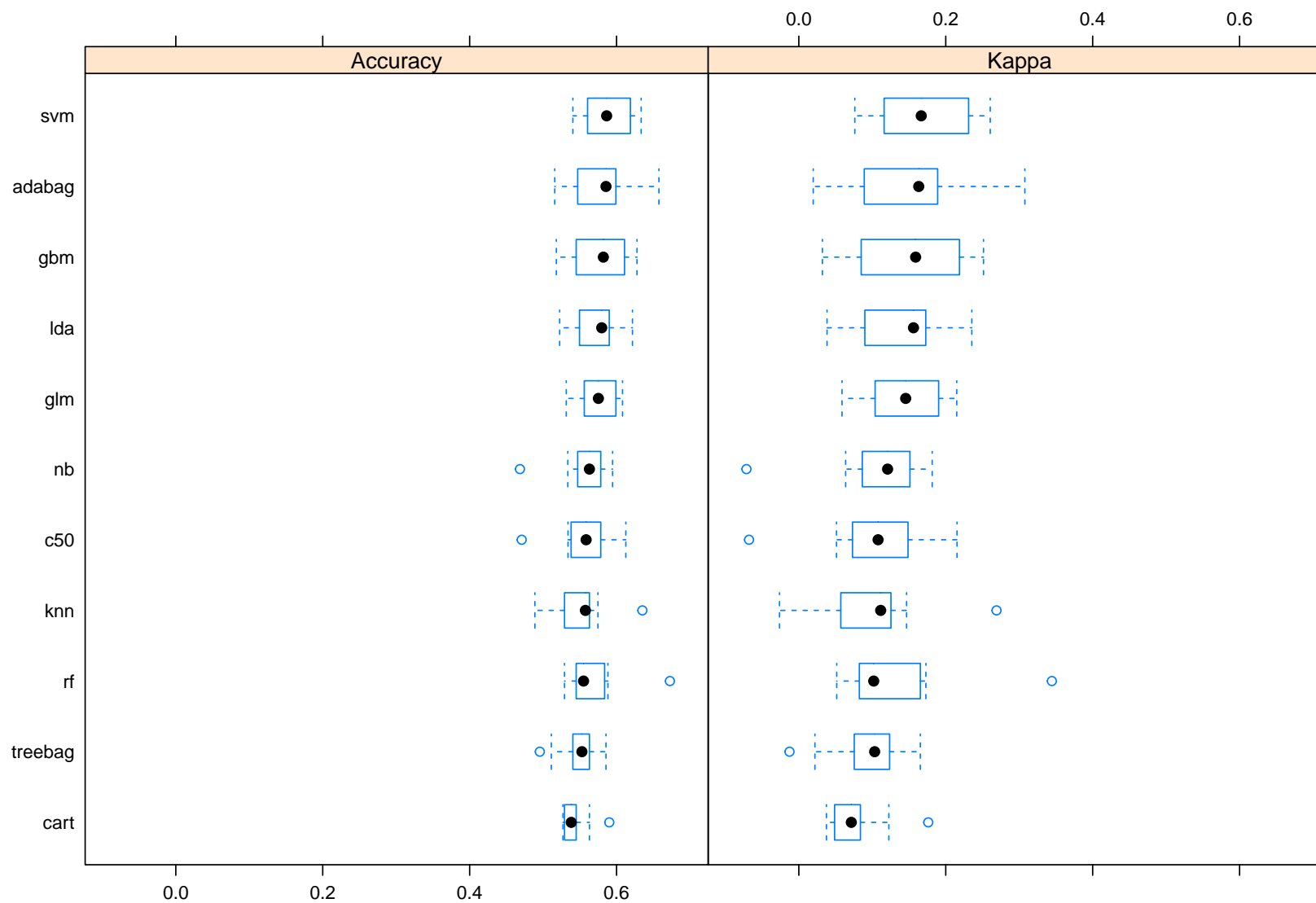
IBQ_R

Erich Seamon

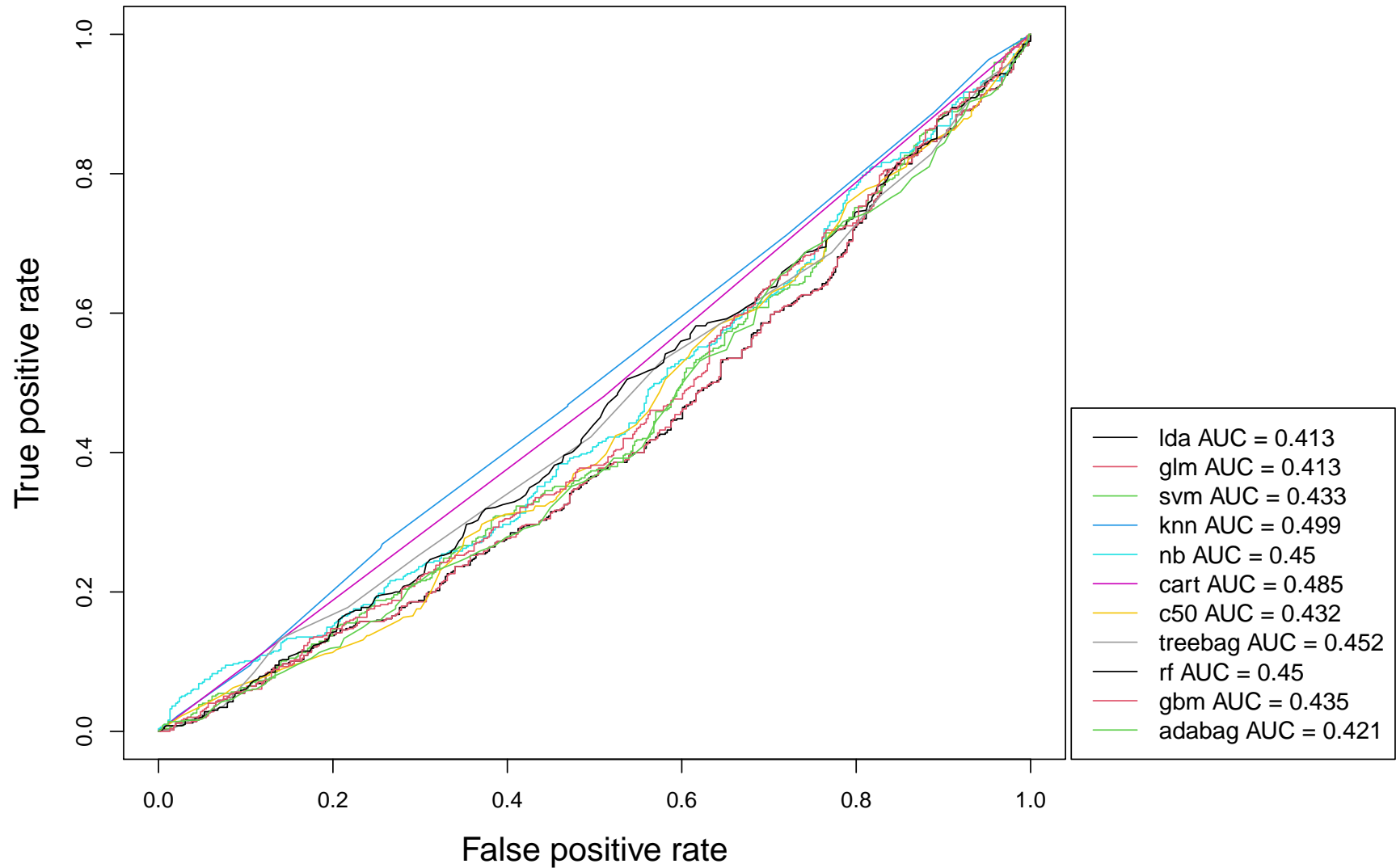
08/30/2021

Model Development and Output: Infant gender for all ages

Model Accuracy Estimates: Gender vs. Temperament (All Age Groups)



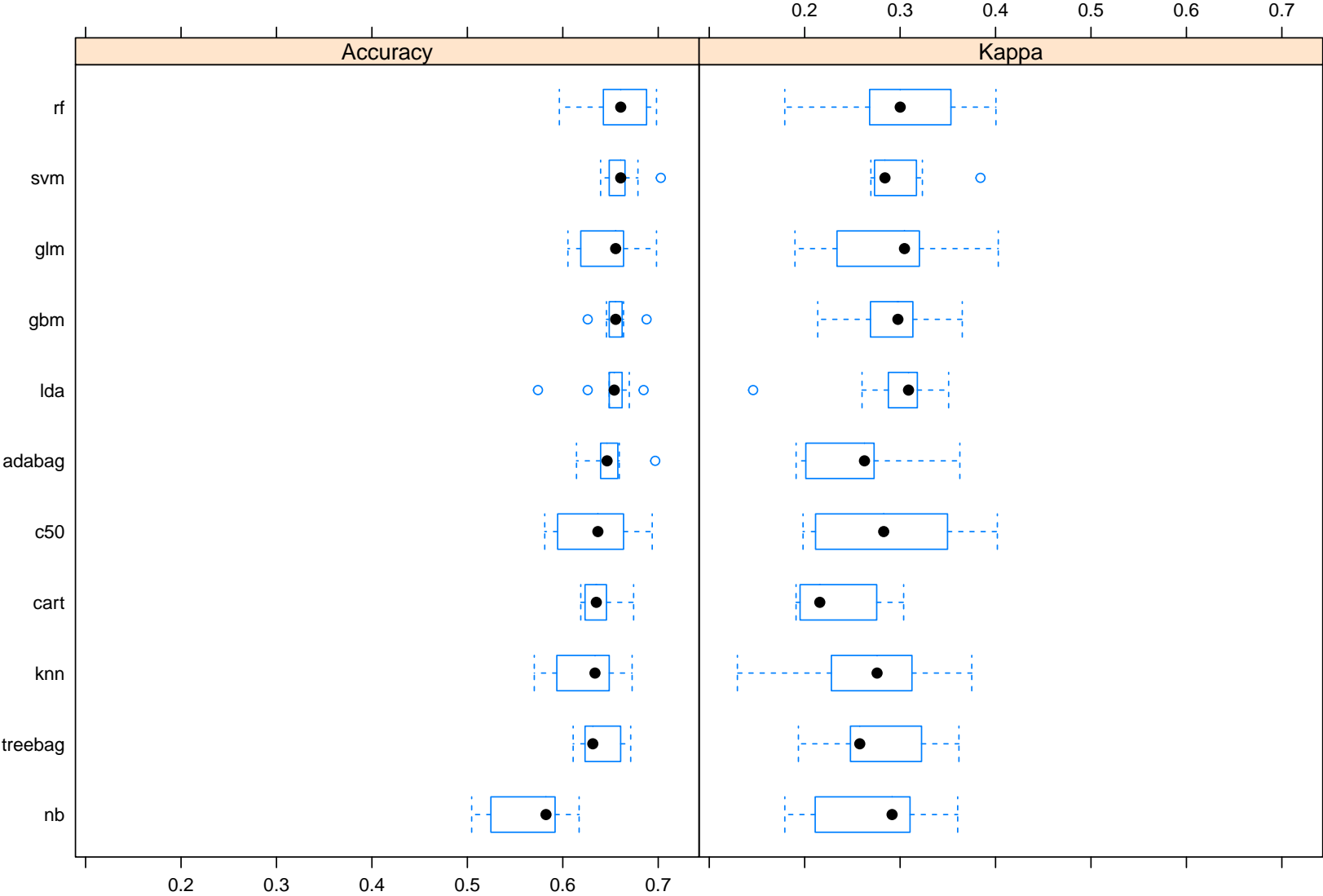
ROC Curve: Gender vs. Temperament (All Age Groups)



Model Development and Output: Age Groups for all genders

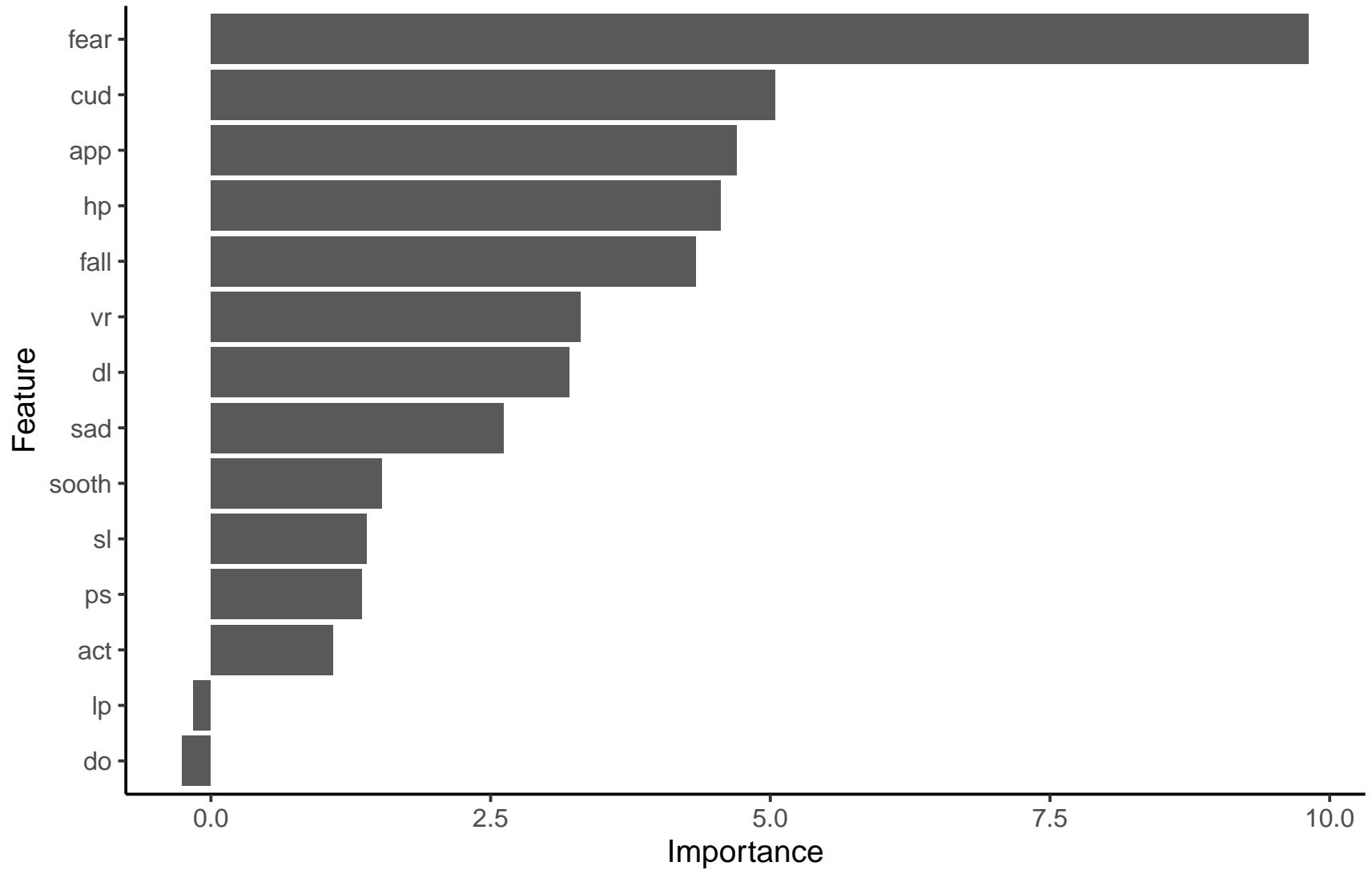
```
## # weights:  48 (30 variable)
## initial  value 2441.116505
## iter   10 value 1940.034256
## iter   20 value 1742.931533
## iter   30 value 1685.719883
## iter   40 value 1672.041448
## iter   40 value 1672.041442
## iter   40 value 1672.041442
## final   value 1672.041442
## converged
```

Model Accuracy Estimates: Age Groups vs. Gender



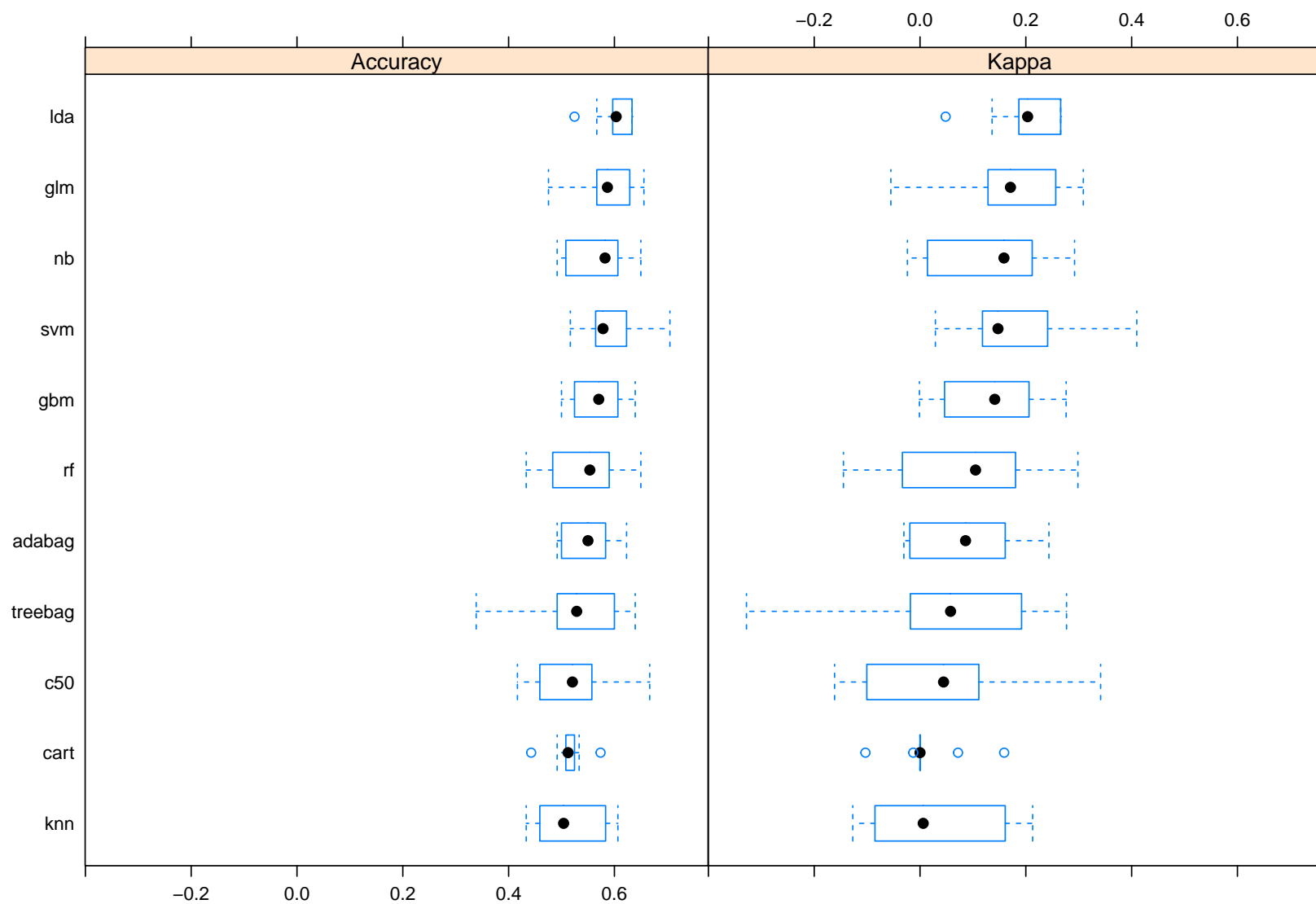
Random Forest Gender Model

All Age Groups

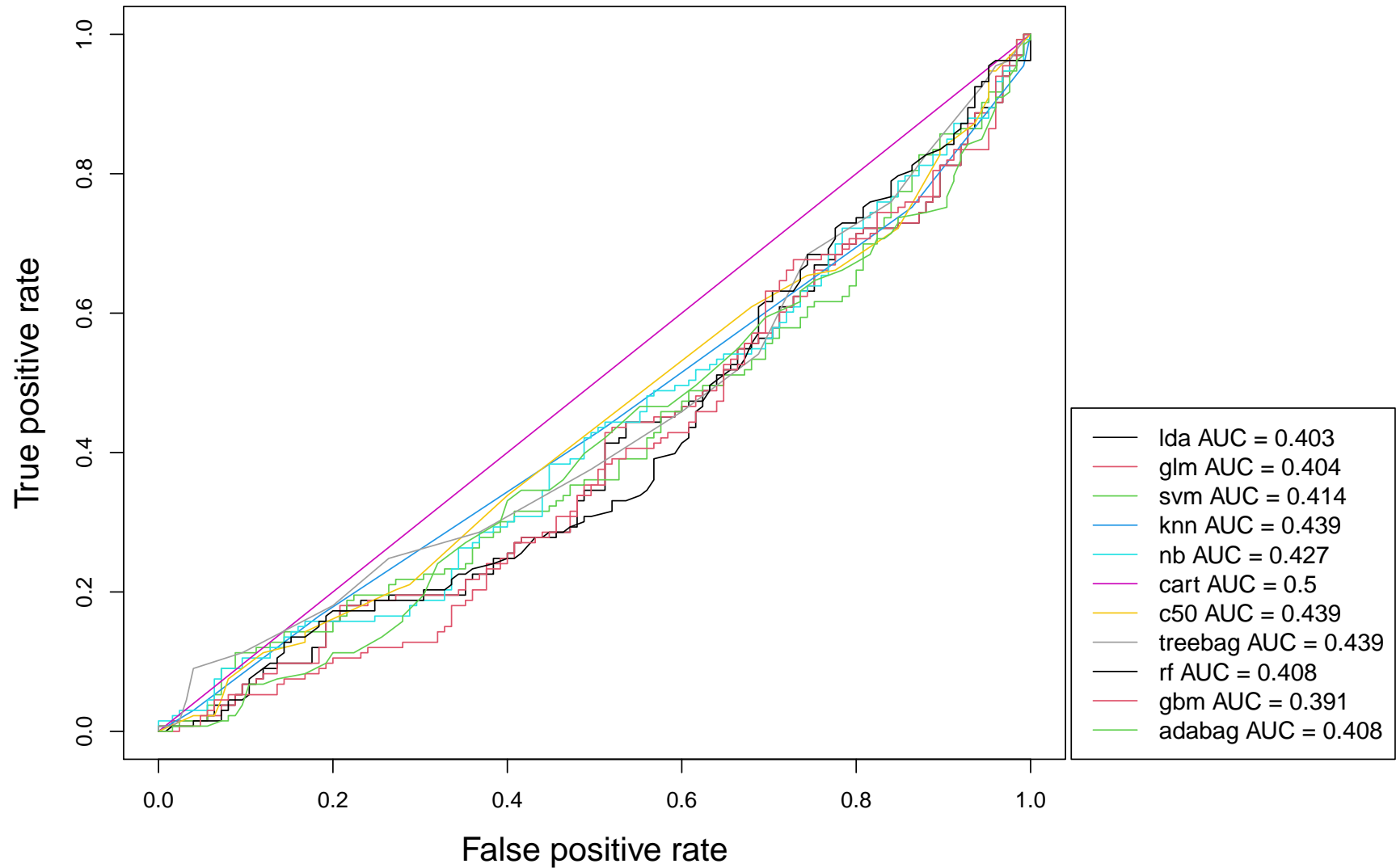


Model Development and Output: Infant gender for Age Group 1

Model Accuracy Estimates: Gender vs. Temperament: Age Group 1

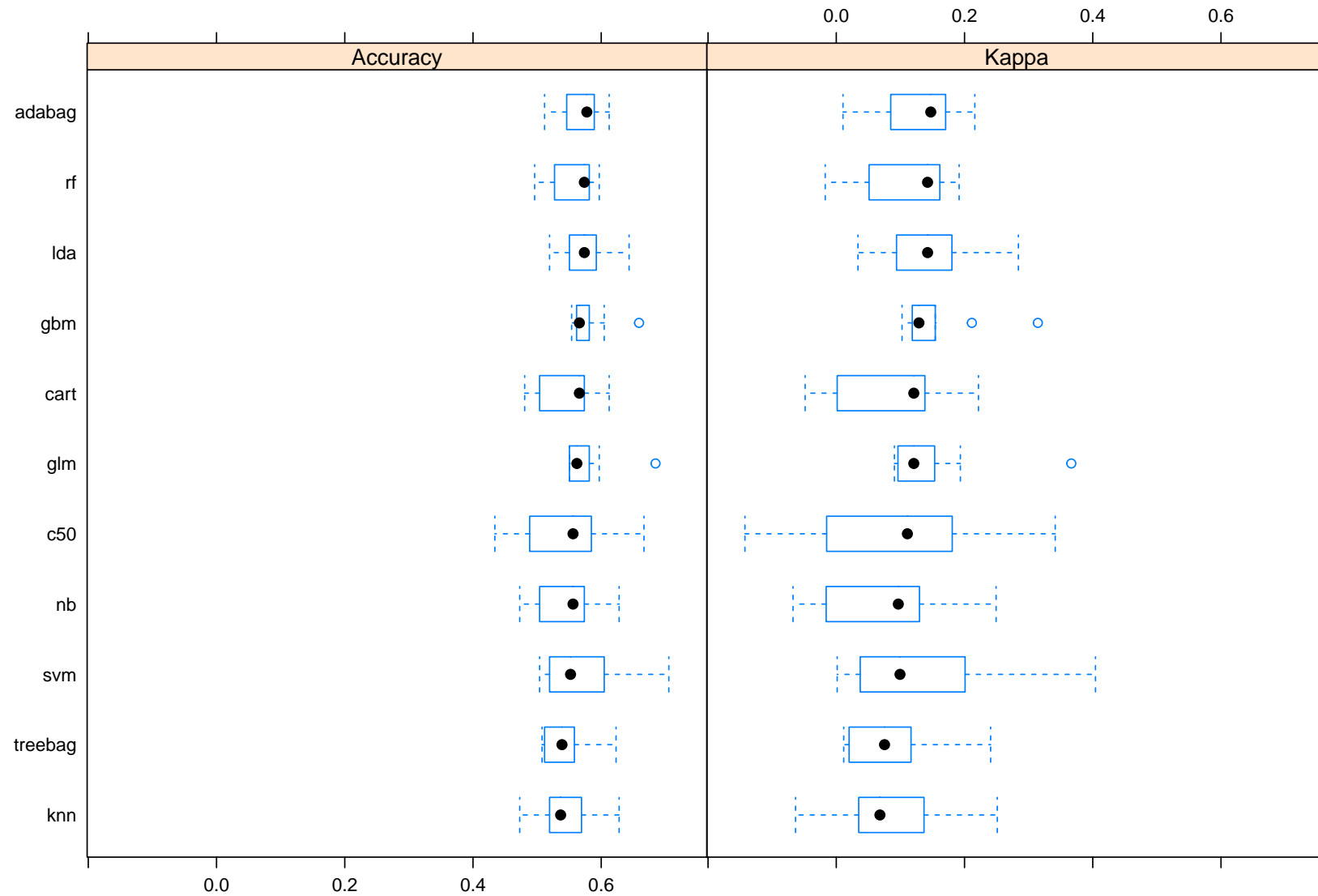


ROC Curve: Gender vs. Temperament: Age Group 1

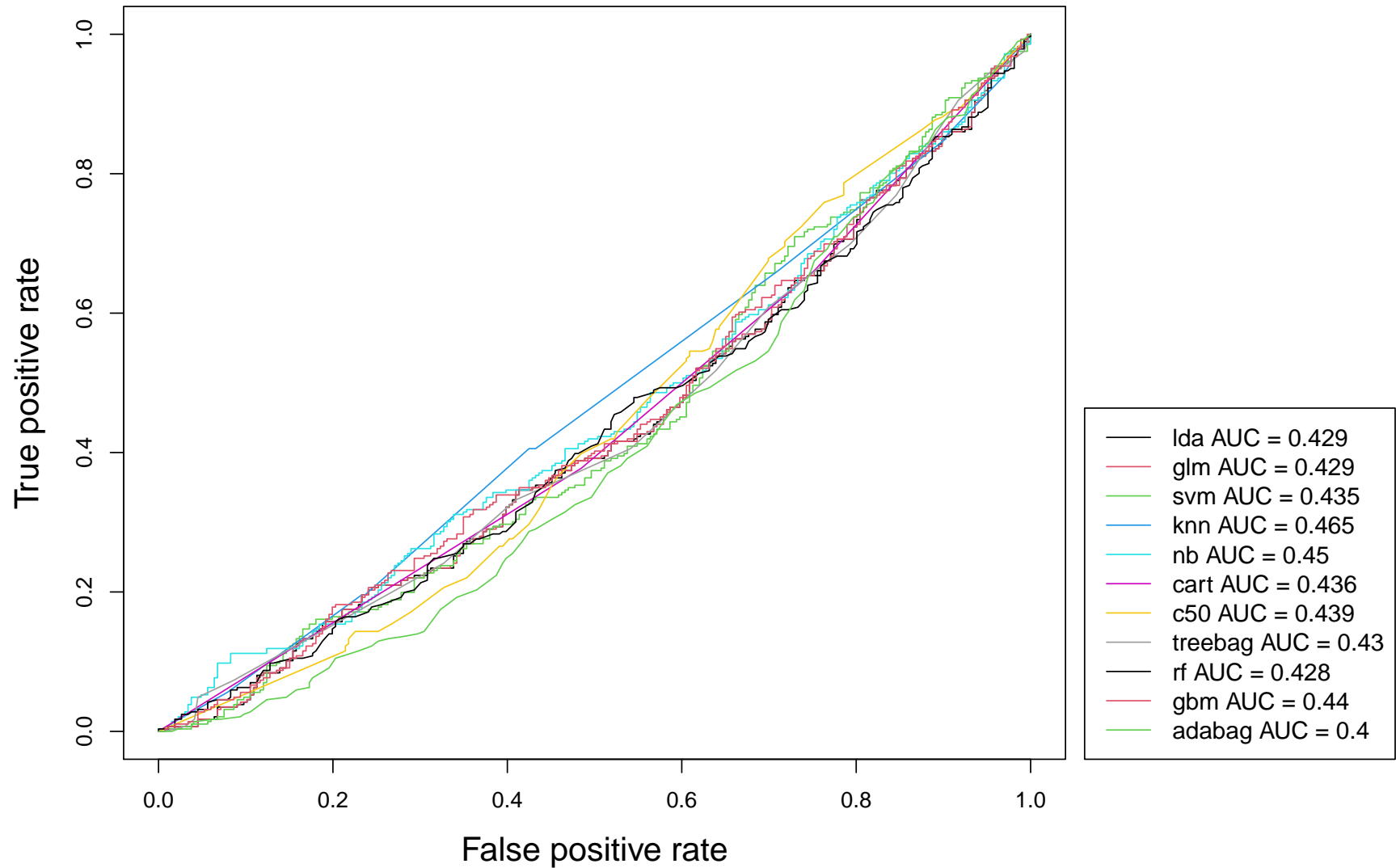


Model Development and Output: Infant gender for Age Group 2

Model Accuracy Estimates: Gender vs. Temperament: Age Group 2

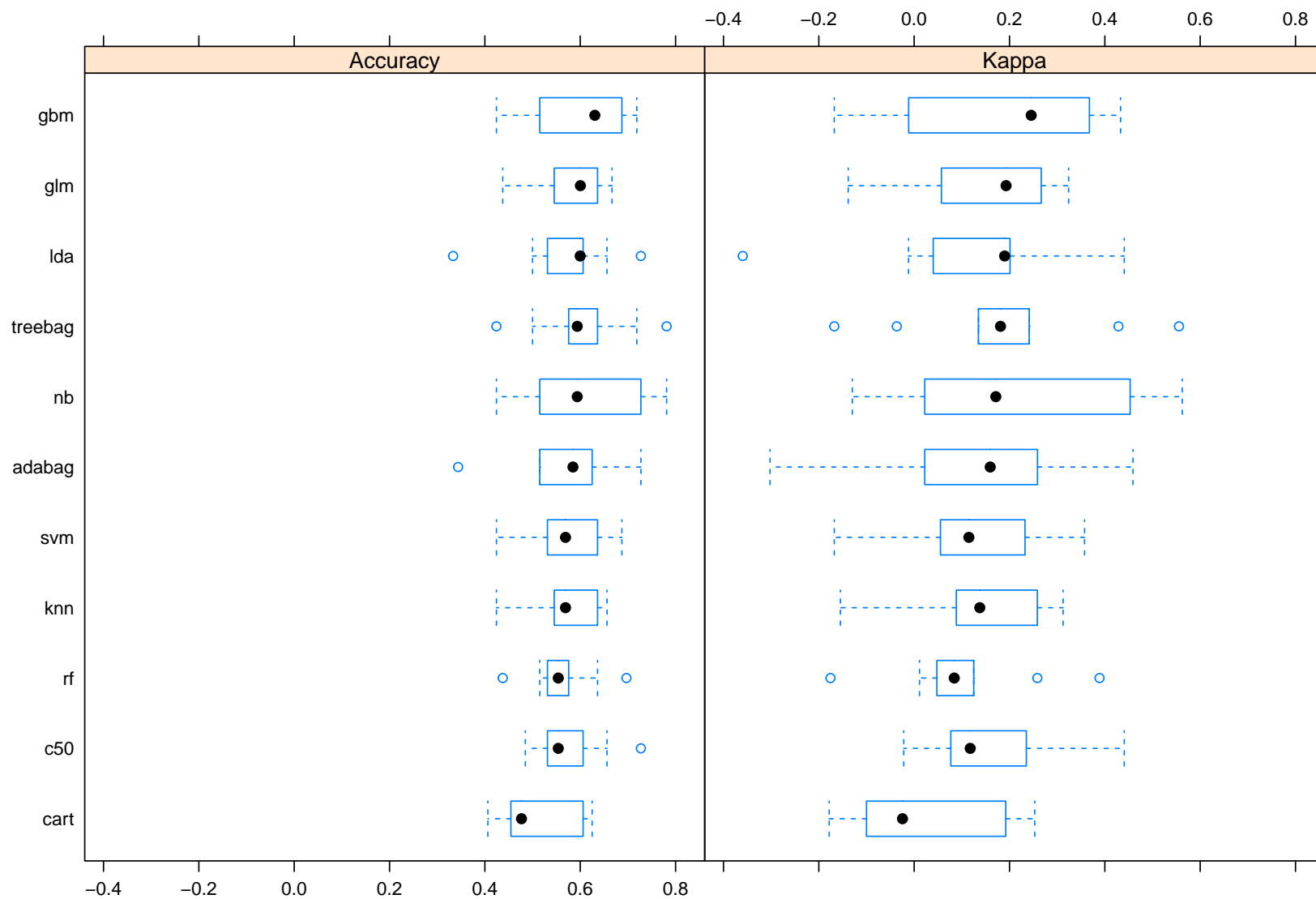


ROC Curve: Gender vs. Temperament: Age Group 2

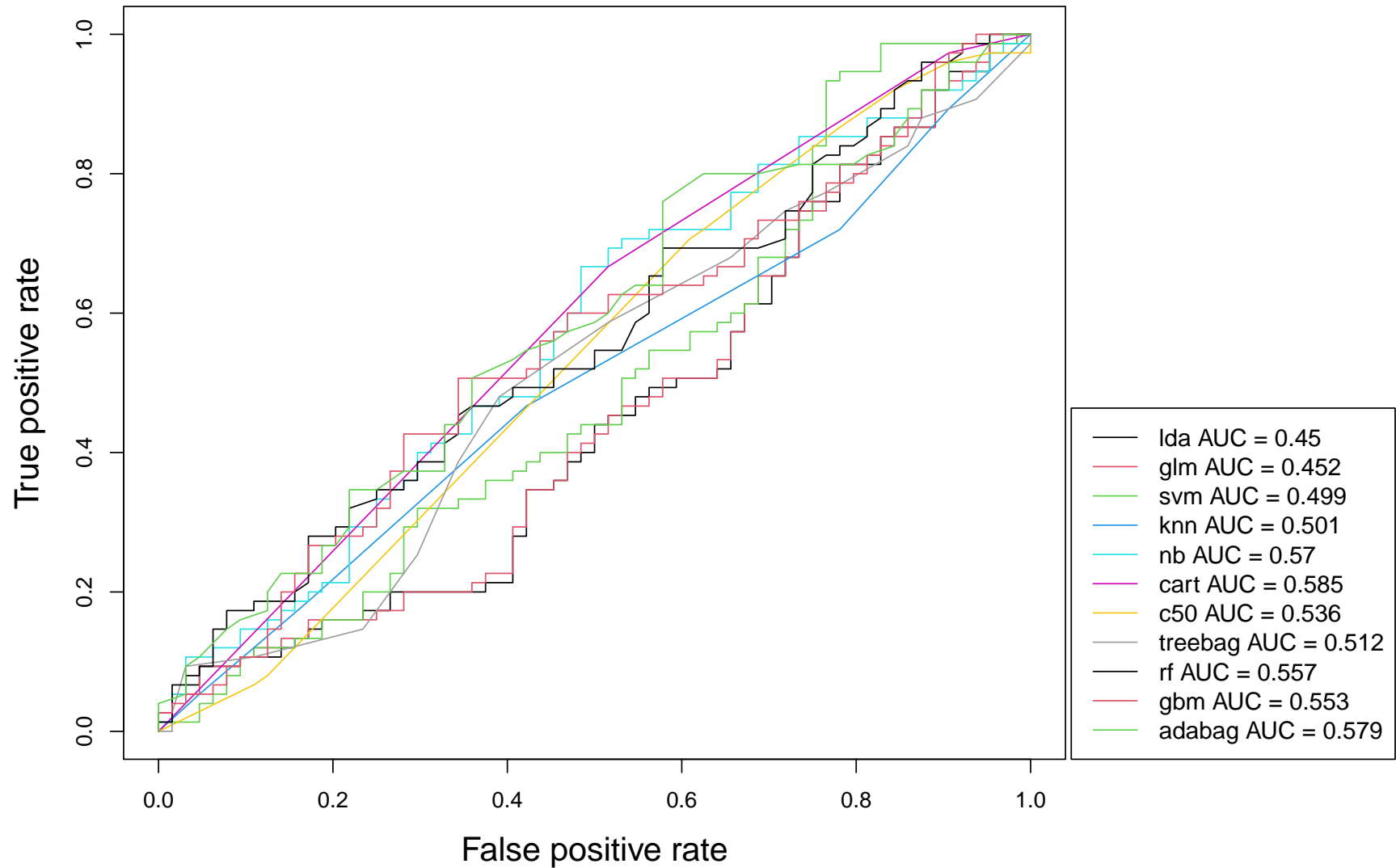


Model Development and Output: Infant gender for Age Group 3

Model Accuracy Estimates: Gender vs. Temperament: Age Group 3

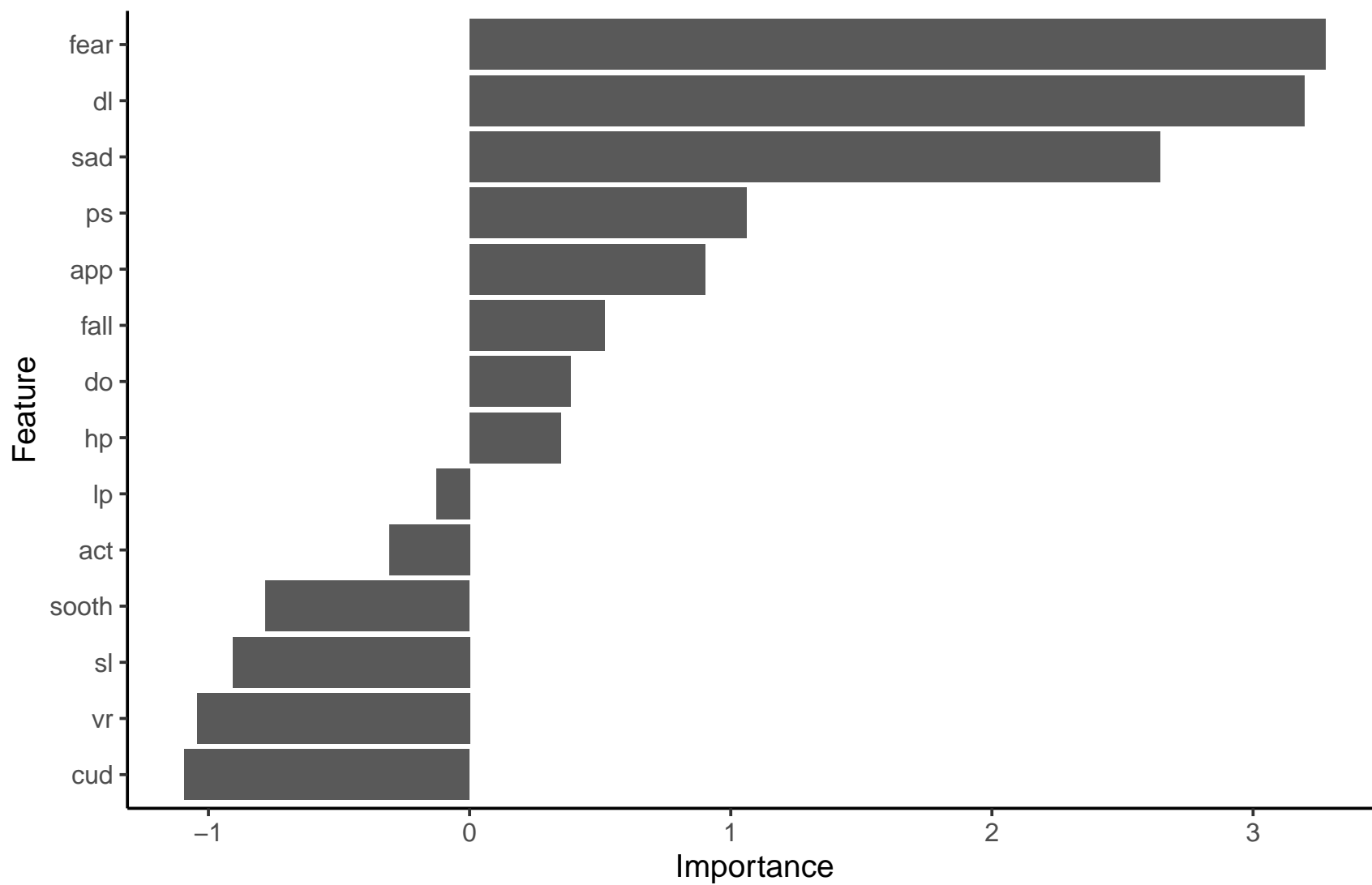


ROC Curve: Gender vs. Temperament: Age Group 3



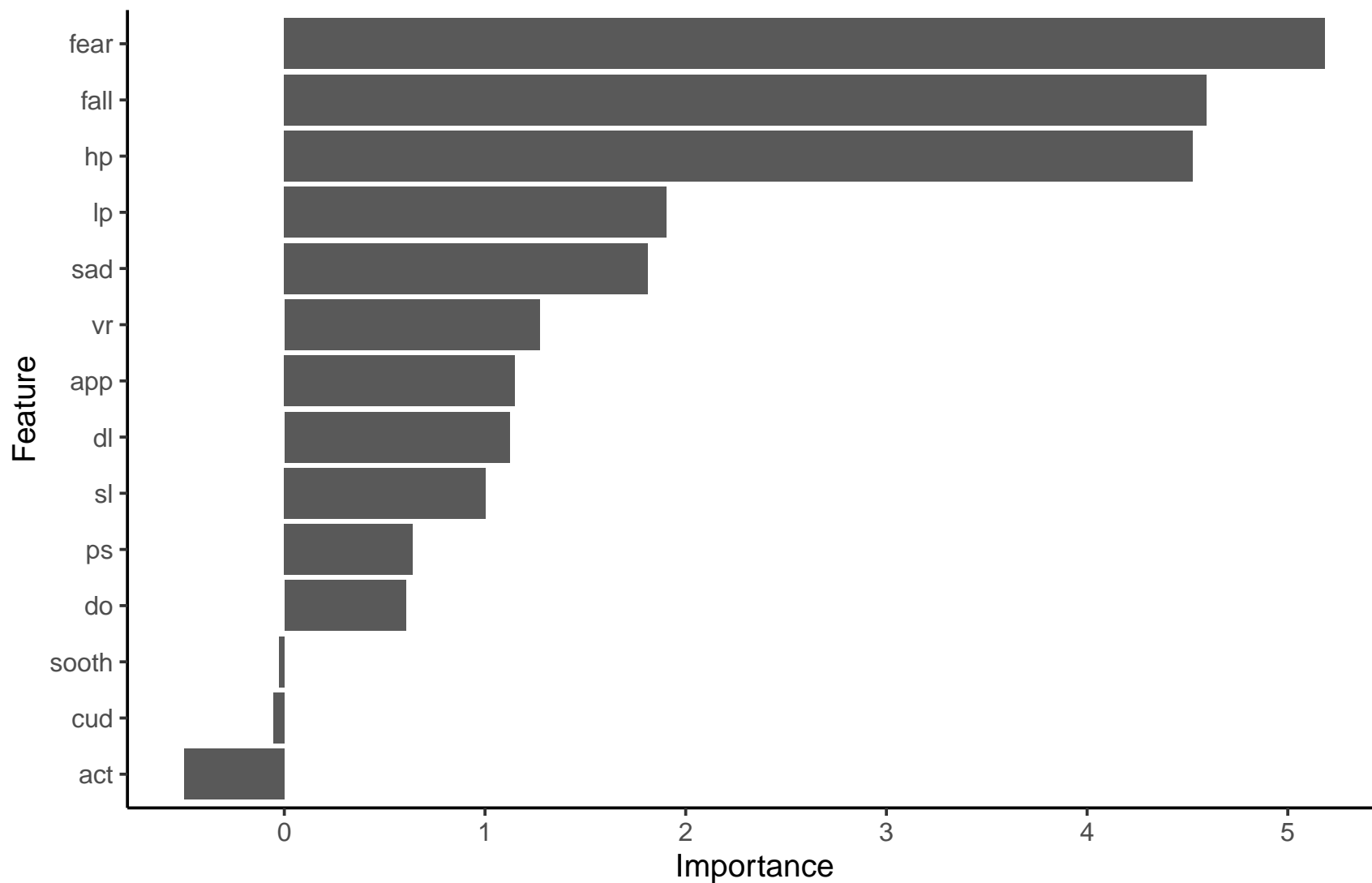
Random Forest Gender Model

Age Group 1



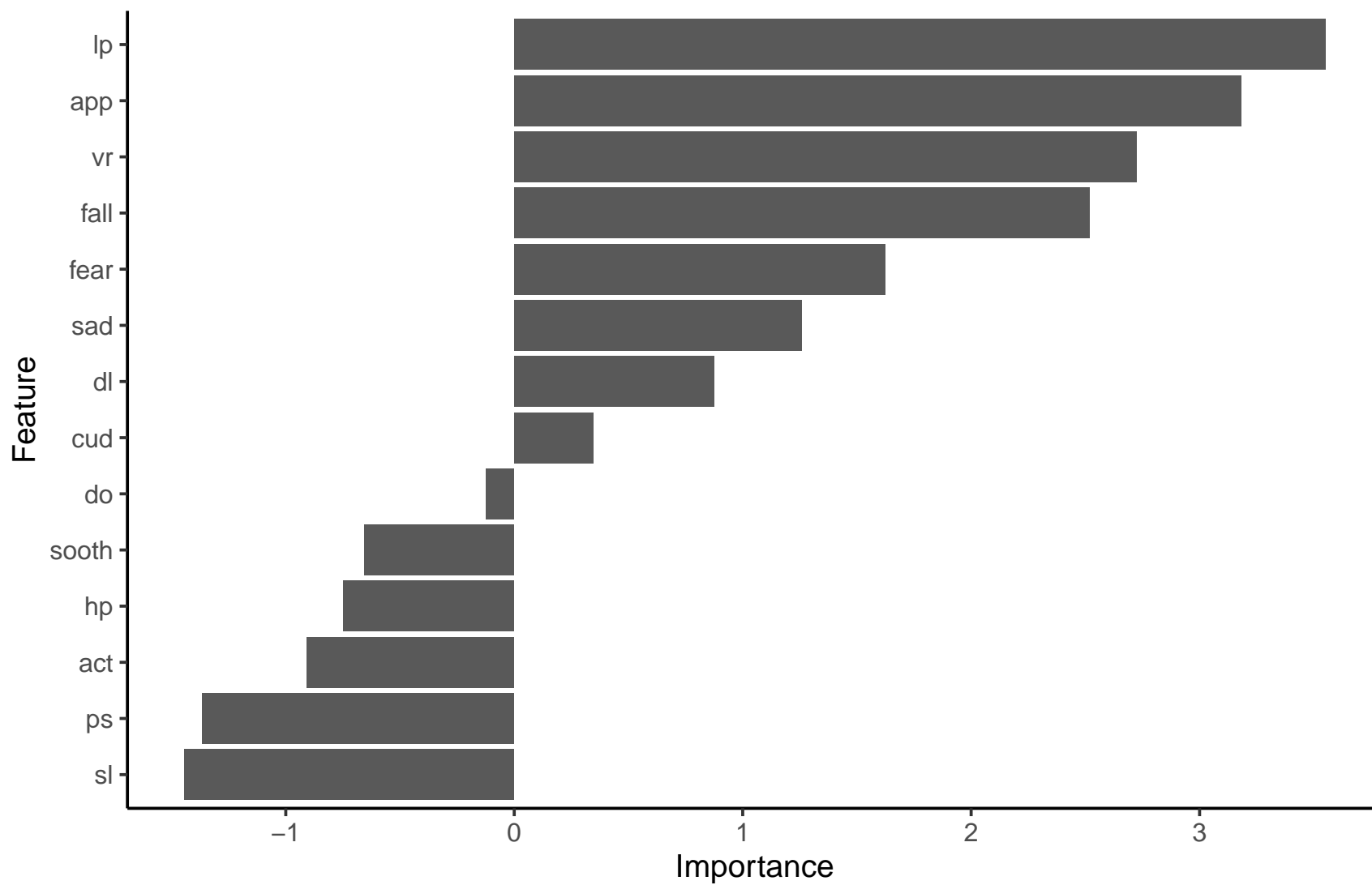
Random Forest Gender Model

Age Group 2



Random Forest Gender Model

Age Group 3



models	gender classification			age classification		
	gender accuracy	gender kappa	gender AUC	age accuracy	age kappa	age AUC
lda	0.566	0.139	0.413	0.634	0.292	0.809
glm	0.577	0.144	0.433	0.638	0.292	0.808
svm	0.578	0.166	0.499	0.649	0.297	0.776
knn	0.558	0.102	0.450	0.641	0.266	0.776
nb	0.557	0.105	0.485	0.646	0.271	0.667
cart	0.568	0.079	0.432	0.634	0.234	0.777
c5.0	0.552	0.100	0.452	0.631	0.285	0.779
bagging	0.571	0.094	0.450	0.637	0.278	0.808
rf	0.572	0.134	0.435	0.641	0.303	0.803
gbm	0.550	0.145	0.421	0.635	0.293	0.720
adabag	0.566	0.153	0.413	0.634	0.252	0.809

Models	Age Group 1 (< 24 weeks; n=1102)			Age Group 2 (24 to 48 weeks; n=2557)			Age Group 3 (> 48 weeks; n=779)		
	accuracy	kappa	AUC	accuracy	kappa	AUC	accuracy	kappa	AUC
lda	0.551	0.201	0.404	0.560	0.145	0.429	0.579	0.138	0.452
glm	0.562	0.167	0.414	0.556	0.149	0.435	0.567	0.160	0.499
svm	0.531	0.181	0.439	0.573	0.137	0.465	0.601	0.119	0.501
knn	0.575	0.030	0.427	0.568	0.086	0.450	0.571	0.145	0.570
nb	0.571	0.138	0.500	0.525	0.077	0.436	0.628	0.218	0.585
cart	0.545	0.011	0.439	0.577	0.088	0.439	0.577	0.023	0.536
c5.0	0.534	0.037	0.439	0.571	0.104	0.430	0.545	0.155	0.512
bagging	0.577	0.050	0.408	0.540	0.090	0.428	0.562	0.186	0.557
rf	0.551	0.082	0.391	0.568	0.110	0.440	0.571	0.099	0.553
gbm	0.534	0.137	0.408	0.564	0.153	0.400	0.557	0.186	0.579
adabag	0.551	0.085	0.404	0.560	0.126	0.429	0.579	0.140	0.452