

# IBQ\_R 2022

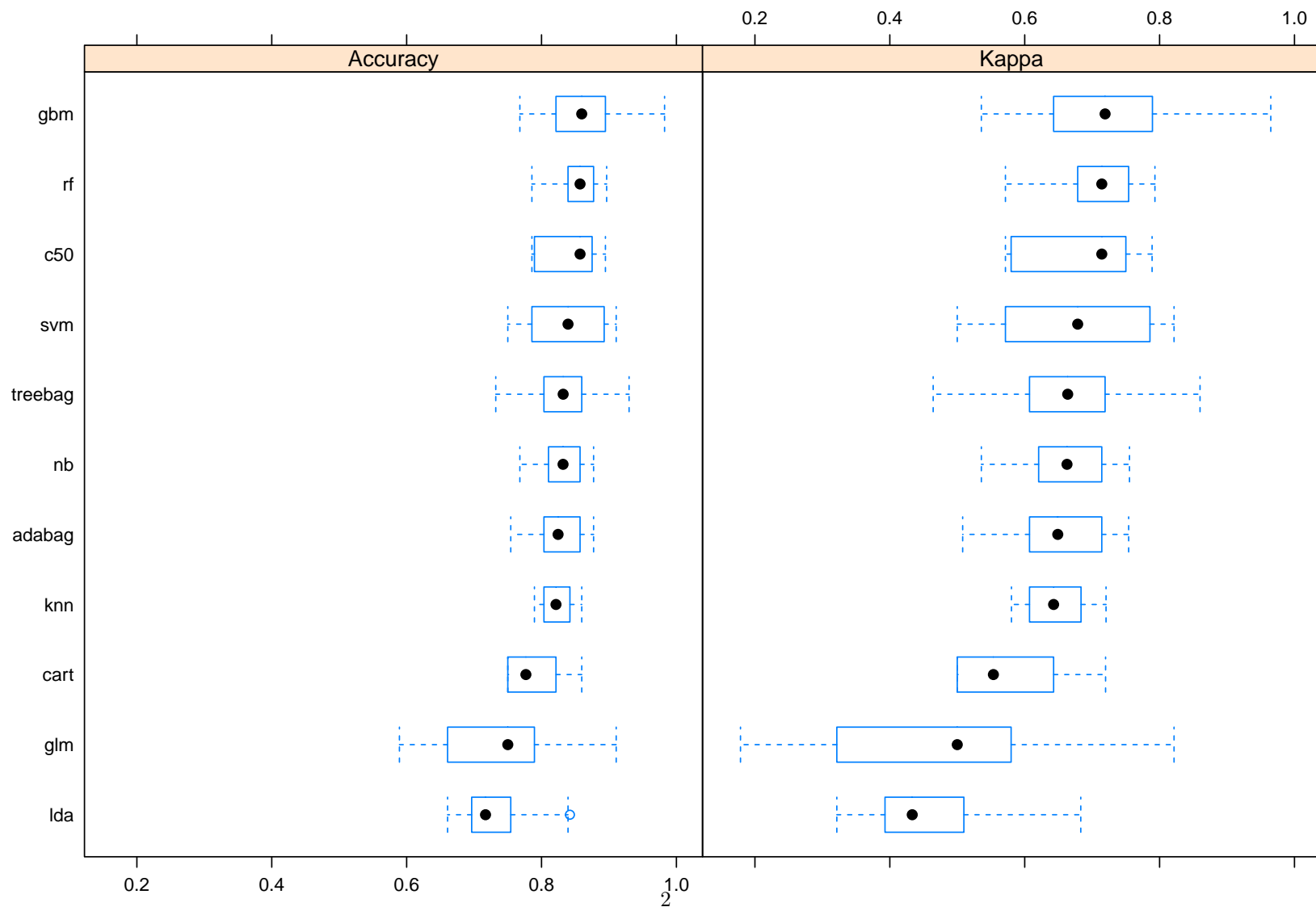
Masha Gartstein, Erich Seamon

10/25/2022

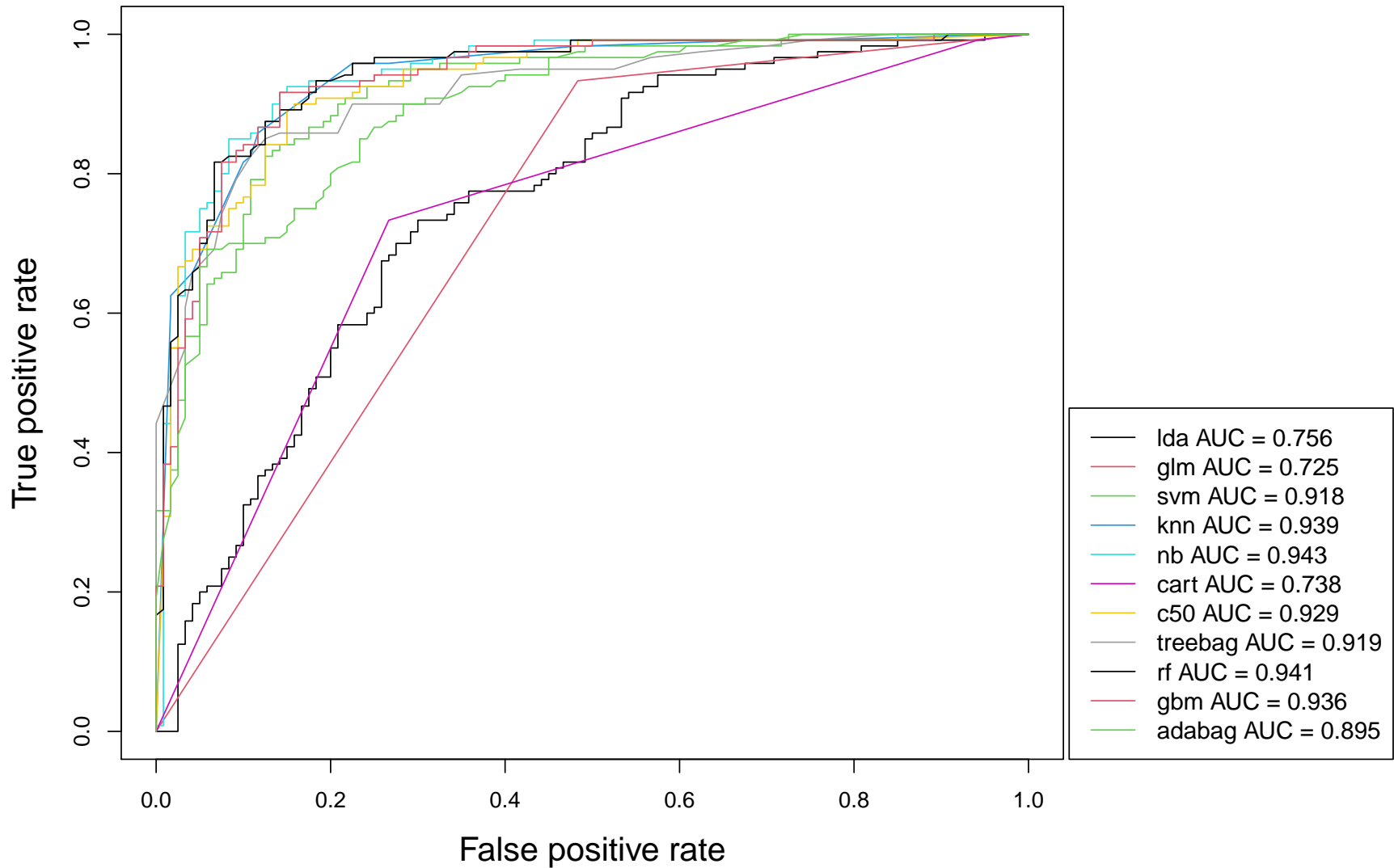
## Exploratory Data Analysis

Model Development and Output: Control Group One VS. Experimental - ALL VARIABLES

**Model Accuracy Estimates: Control Group One VS. Experimental Group – All Variables**

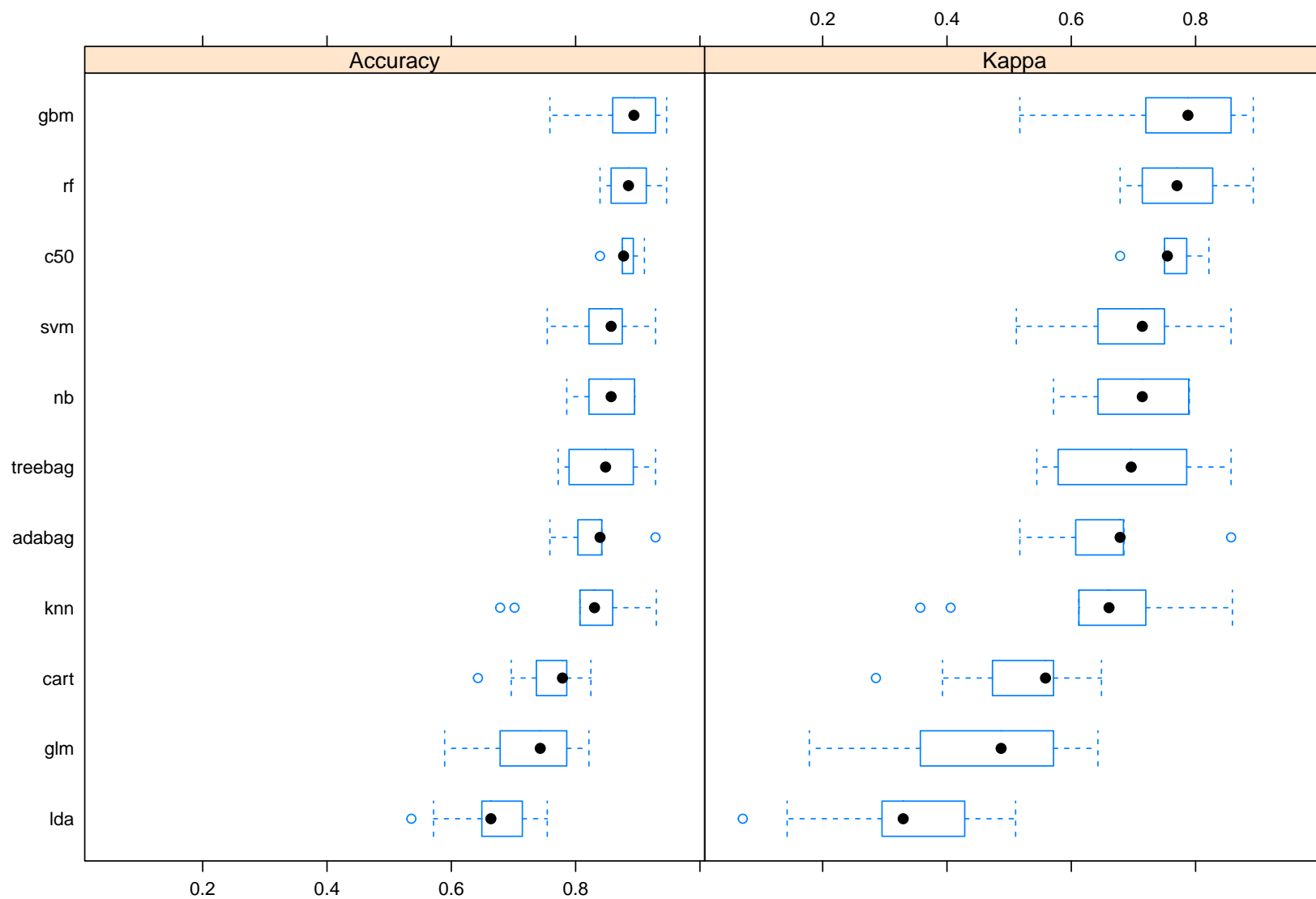


## ROC Curve: Control Group One VS. Experimental – All Variables

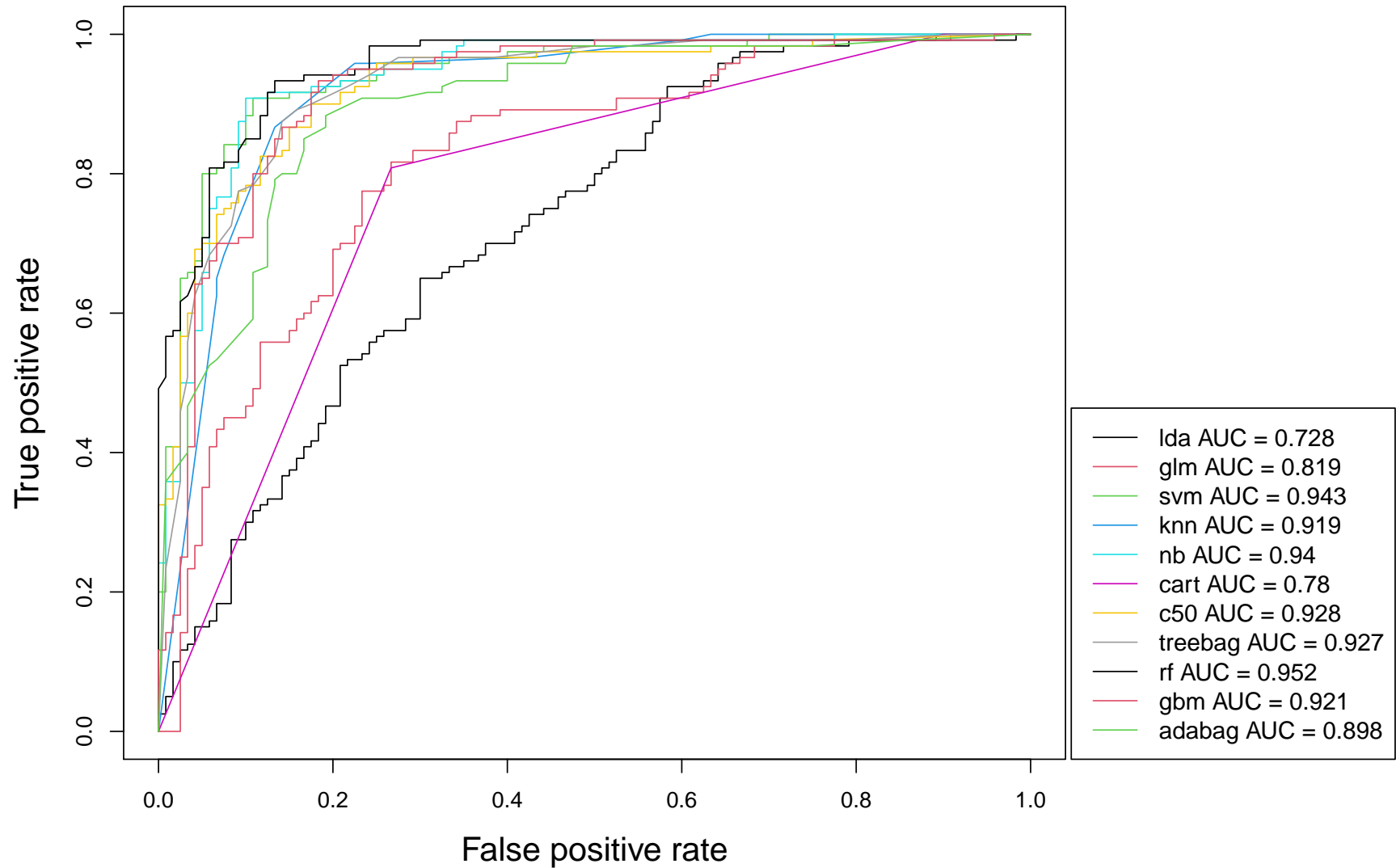


## Model Development and Output: Control Group Two VS. Experimental - ALL VARIABLES

**Model Accuracy Estimates: Control Group Two VS. Experimental Group – All Variables**

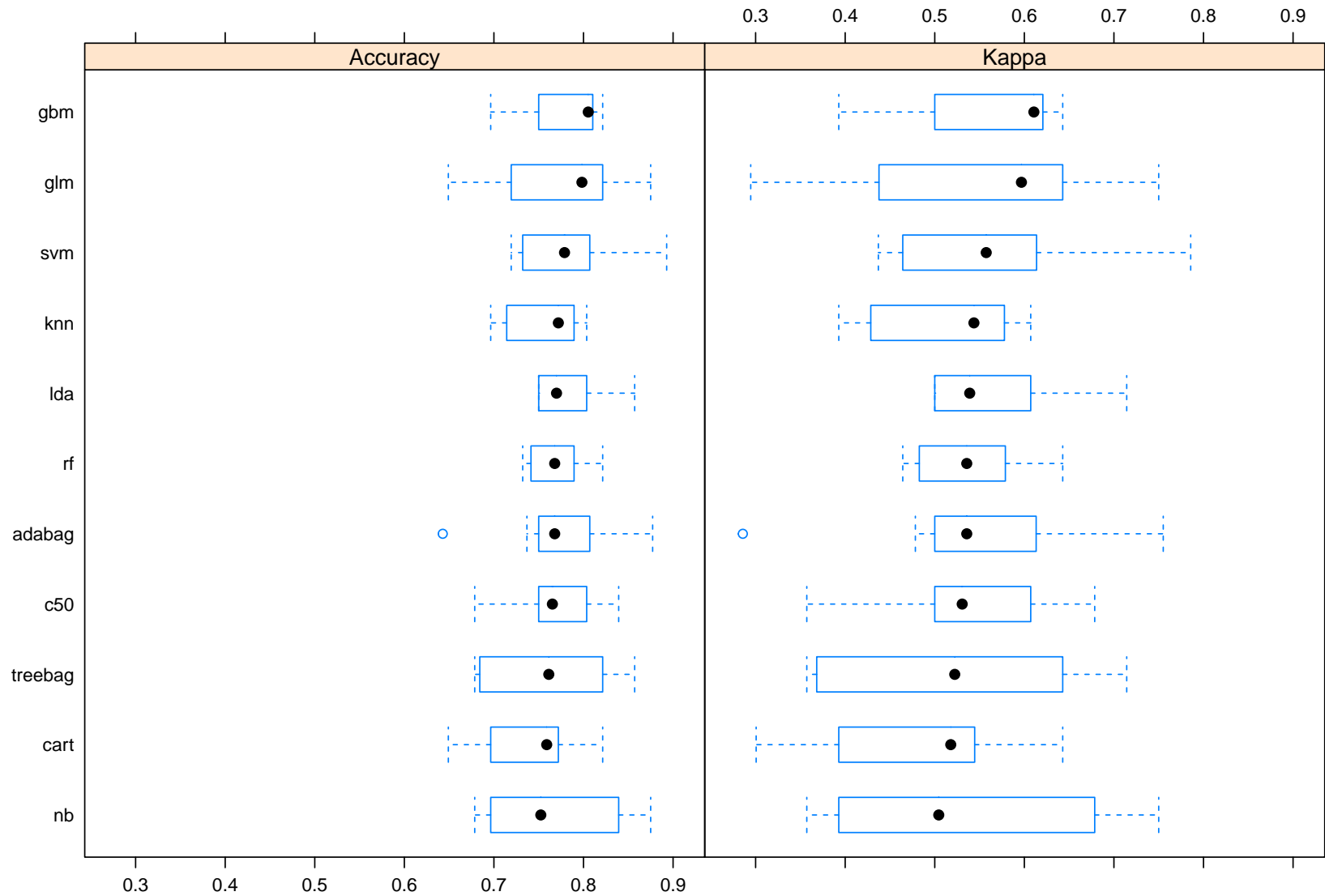


## ROC Curve: Control Group Two VS. Experimental – All Variables

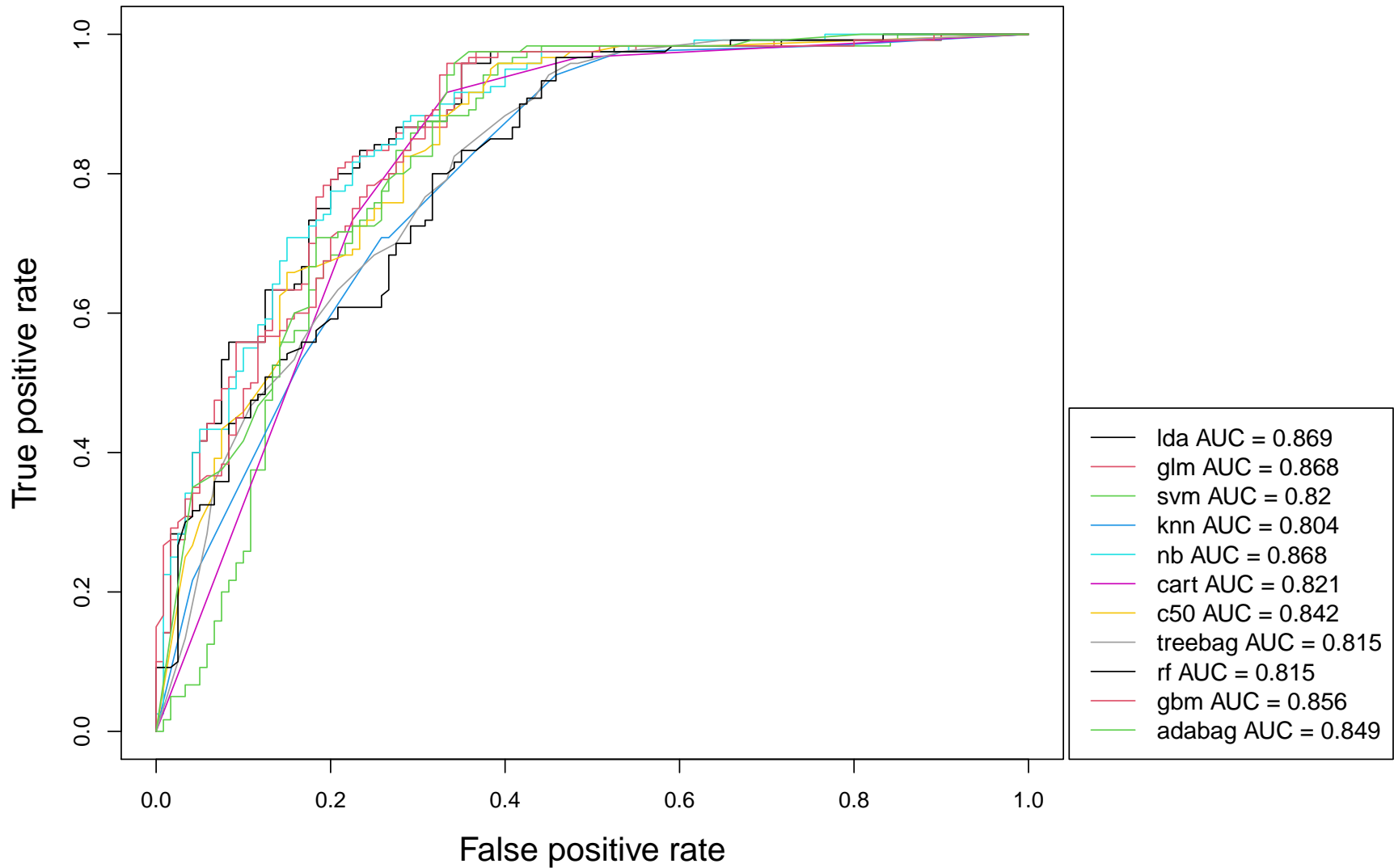


## Model Development and Output: Control Group One VS. Experimental - TRANSFORMED VARIABLES

**Model Accuracy Estimates: Control Group One VS. Experimental Group – Transformed Variables**

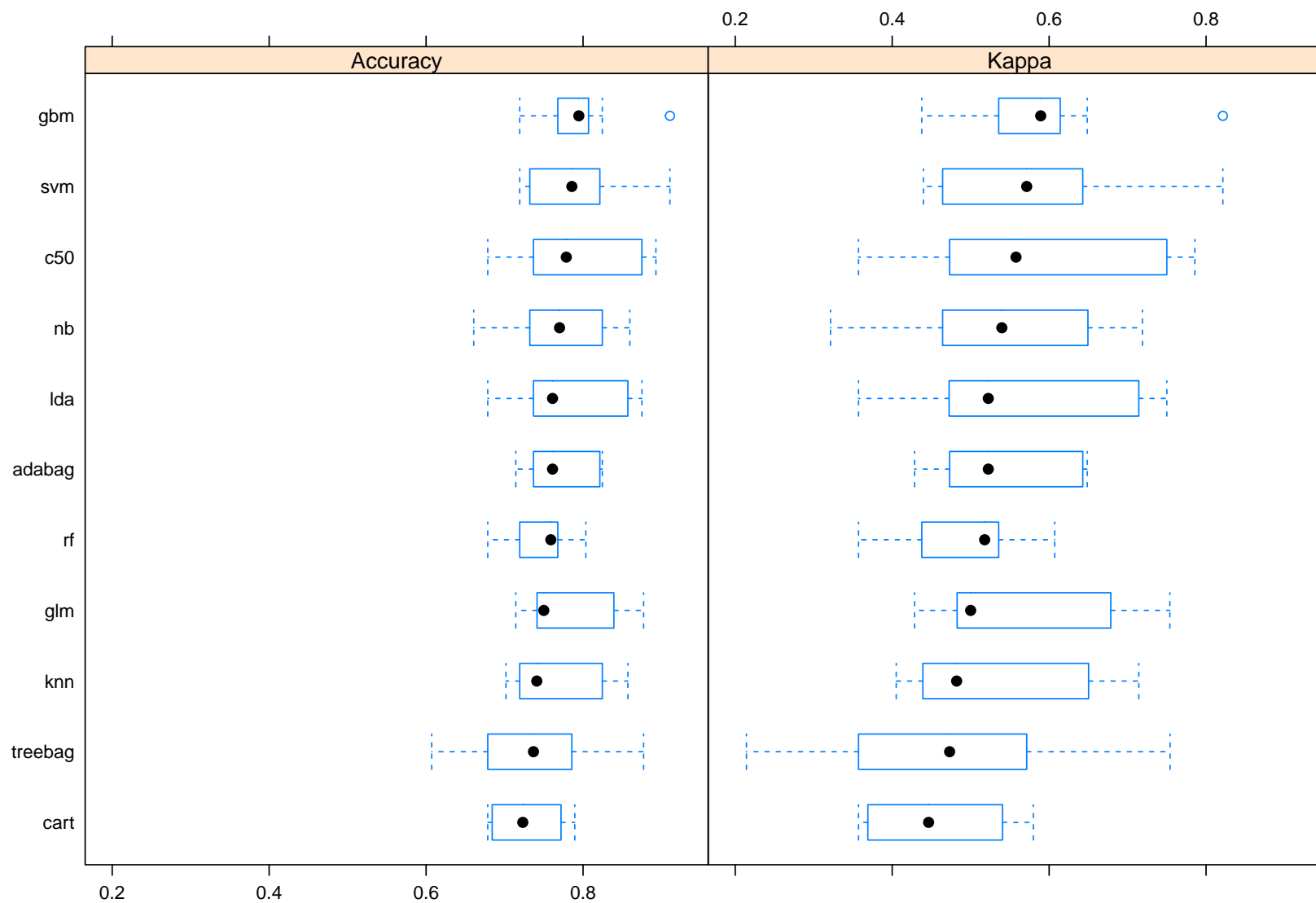


## ROC Curve: Control Group One VS. Experimental – Transformed Variables



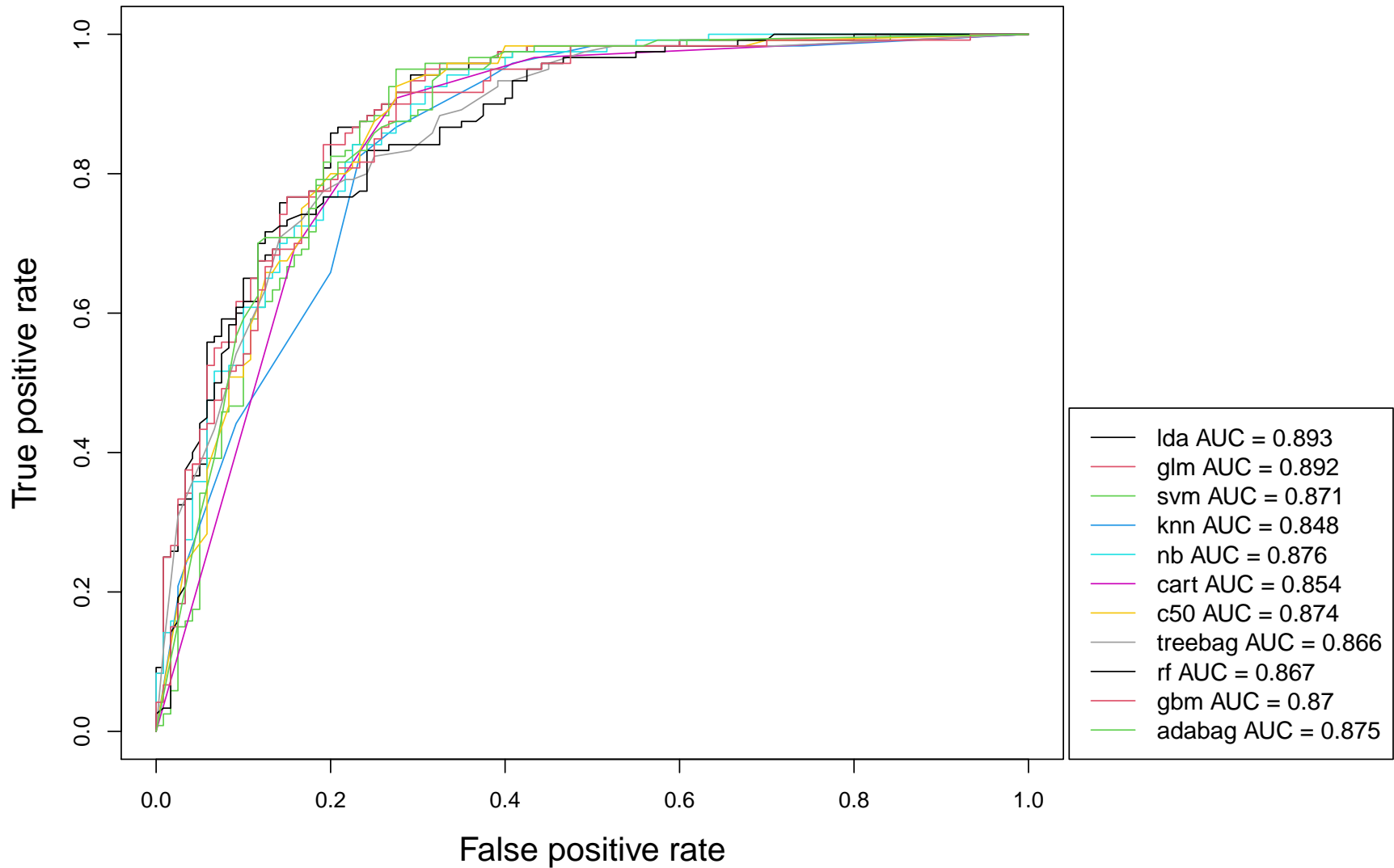
## Model Development and Output: Control Group Two VS. Experimental - TRANSFORMED VARIABLES

**Model Accuracy Estimates: Control Group Two VS. Experimental Group – Transformed Variables**

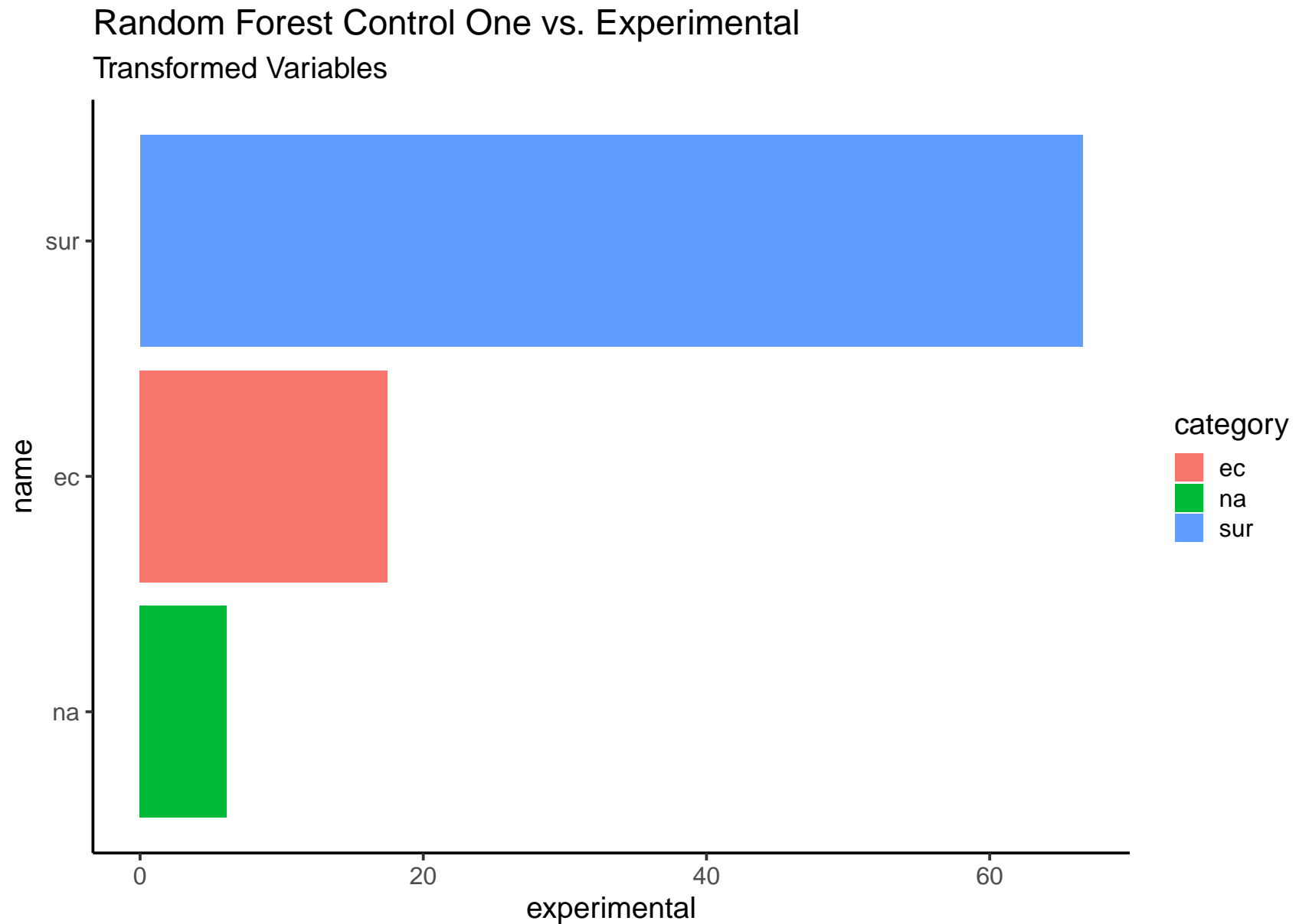




## ROC Curve: Control Group Two VS. Experimental – Transformed Variables

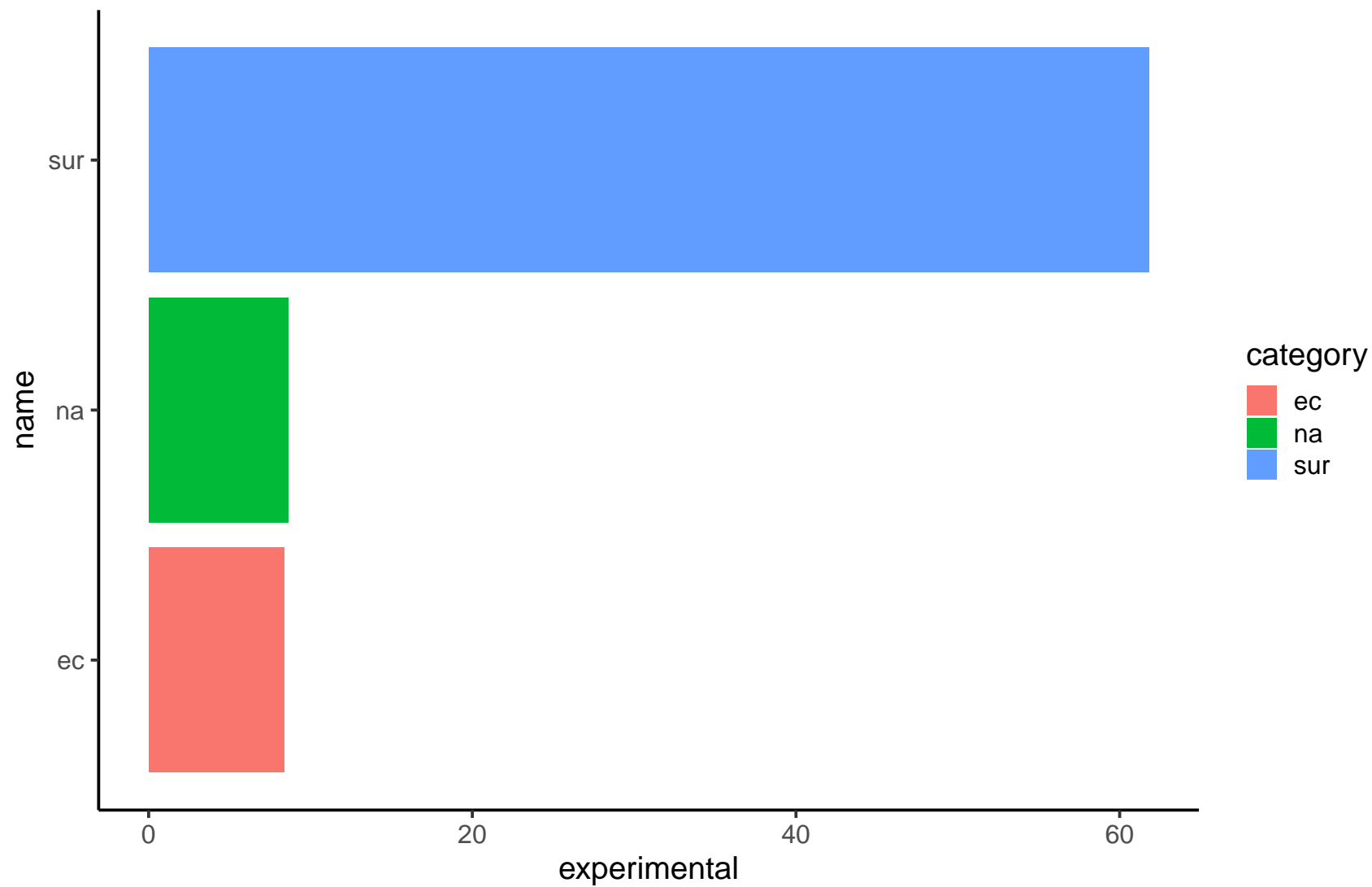


## Feature Importance - Random Forest Model Results: Transformed Variables

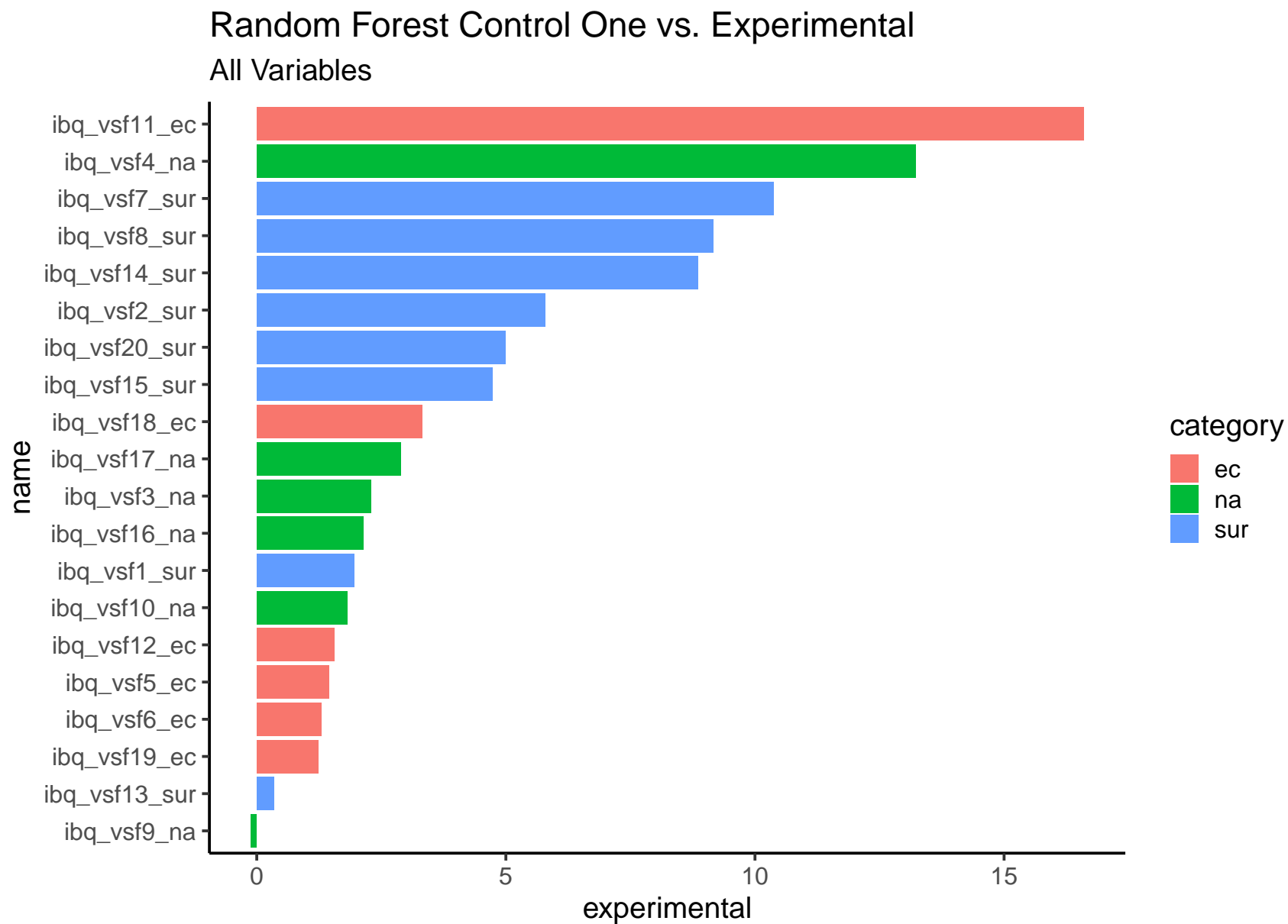


## Random Forest Control Two vs. Experimental

### Transformed Variables

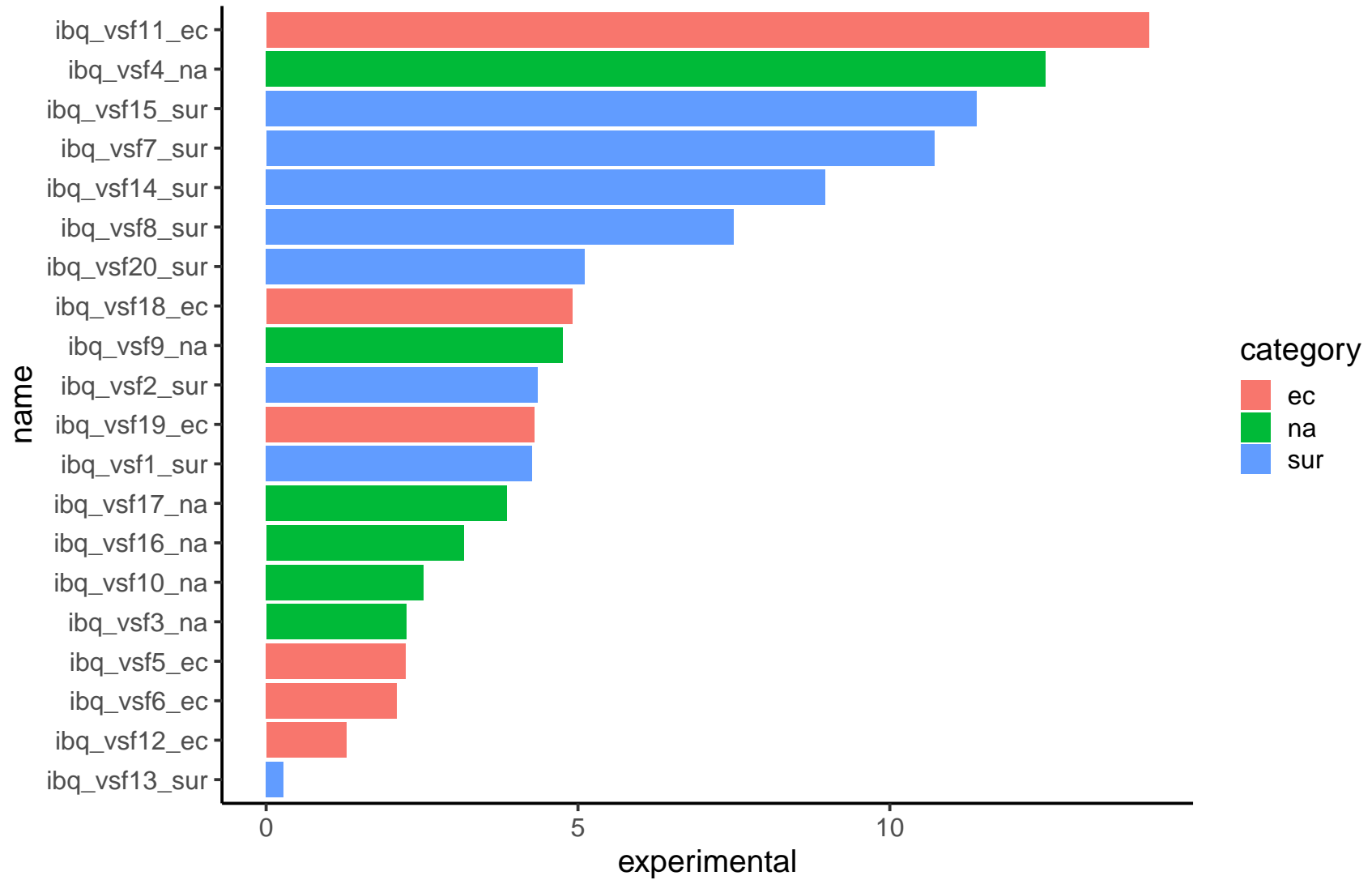


## Feature Importance - Random Forest Model Results: All Variables



## Random Forest Control Two vs. Experimental

All Variables



models	Exp. VS. CG1 classification: All Variabes			Exp. VS. CG2 classification: All Variables		
	accuracy	kappa	AUC	accuracy	kappa	AUC
lda	0.816	0.468	0.725	0.845	0.333	0.819
glm	0.790	0.471	0.918	0.811	0.460	0.943
svm	0.825	0.663	0.939	0.799	0.696	0.919
knn	0.795	0.649	0.943	0.814	0.638	0.940
nb	0.819	0.659	0.738	0.825	0.709	0.780
cart	0.819	0.578	0.929	0.830	0.521	0.928
c5.0	0.837	0.681	0.919	0.815	0.762	0.927
bagging	0.812	0.652	0.941	0.812	0.688	0.952
rf	0.828	0.712	0.936	0.822	0.777	0.921
gbm	0.807	0.734	0.895	0.815	0.771	0.898
adabag	0.816	0.656	0.725	0.845	0.660	0.819

models	Exp. VS. CG1 classification: Transformed Variables			Exp. VS. CG2 classification: Transformed Variables		
	accuracy	kappa	AUC	accuracy	kappa	AUC
lda	0.777	0.567	0.868	0.763	0.567	0.892
glm	0.780	0.568	0.820	0.790	0.560	0.871
svm	0.764	0.567	0.804	0.767	0.575	0.848
knn	0.769	0.517	0.868	0.760	0.536	0.876
nb	0.784	0.532	0.821	0.815	0.539	0.854
cart	0.757	0.482	0.842	0.722	0.457	0.874
c5.0	0.778	0.546	0.815	0.771	0.589	0.866
bagging	0.751	0.518	0.815	0.759	0.471	0.867
rf	0.769	0.536	0.856	0.783	0.497	0.870
gbm	0.774	0.564	0.849	0.764	0.592	0.875
adabag	0.777	0.549	0.868	0.763	0.543	0.892