IBQ_R 2022

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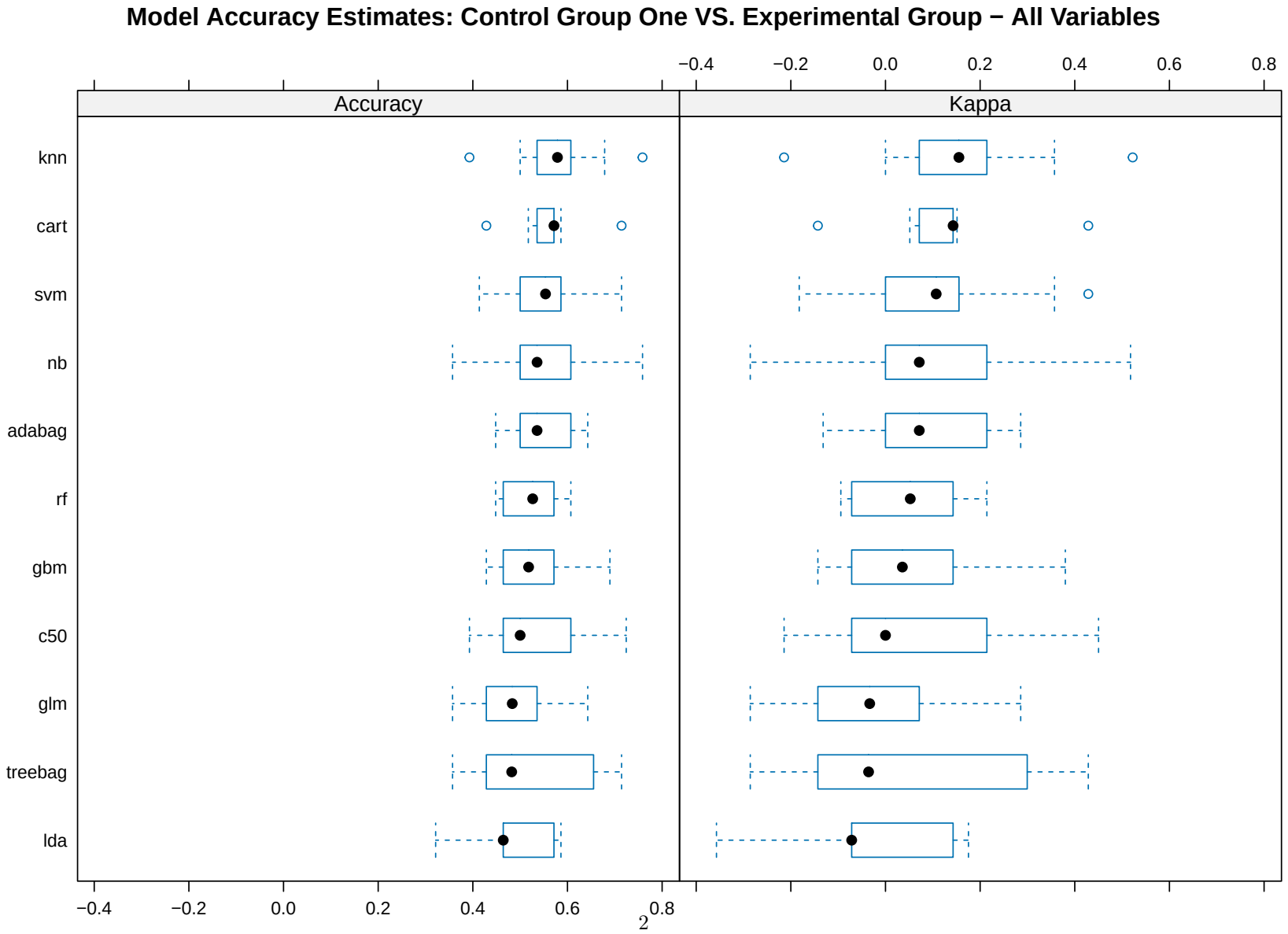
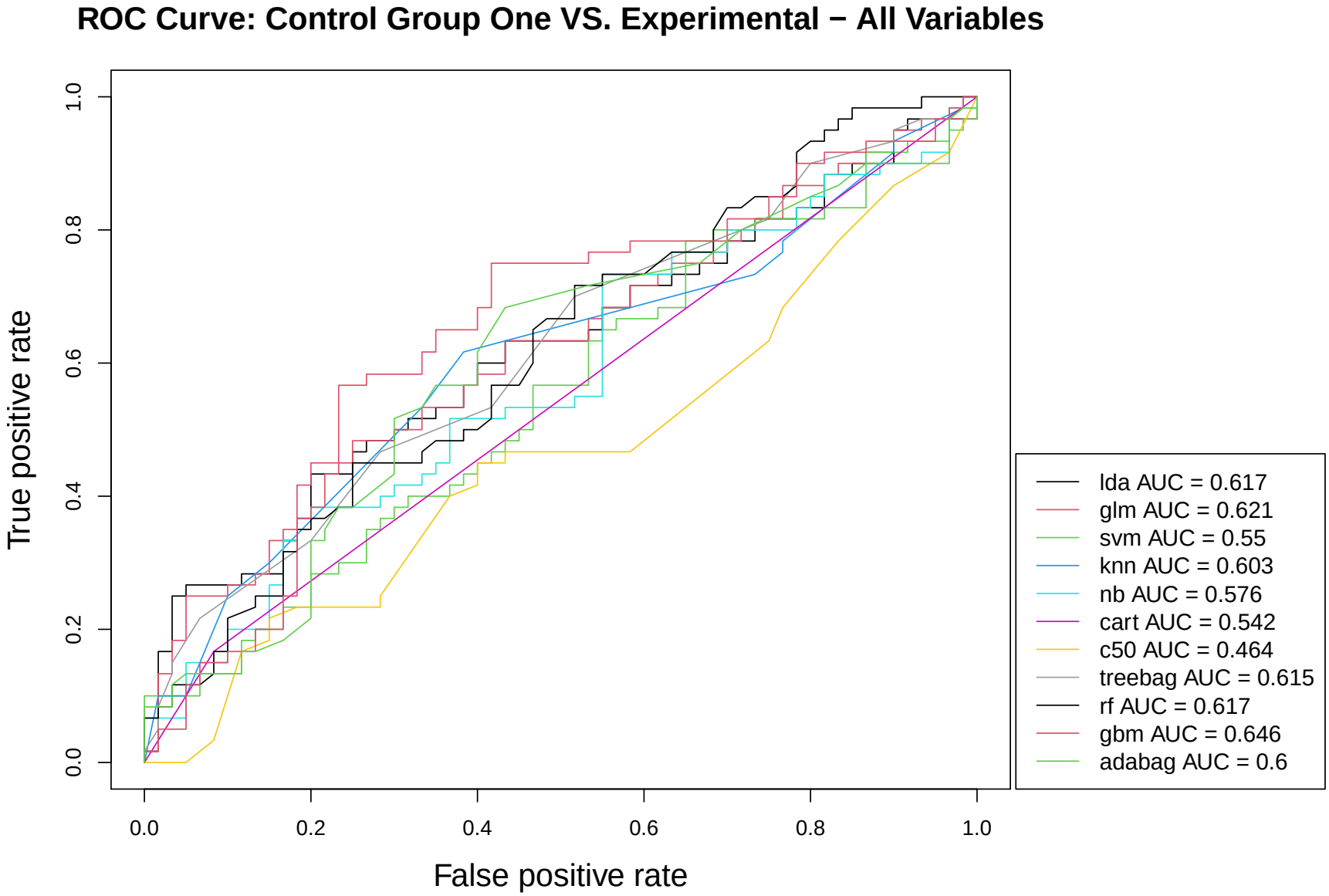
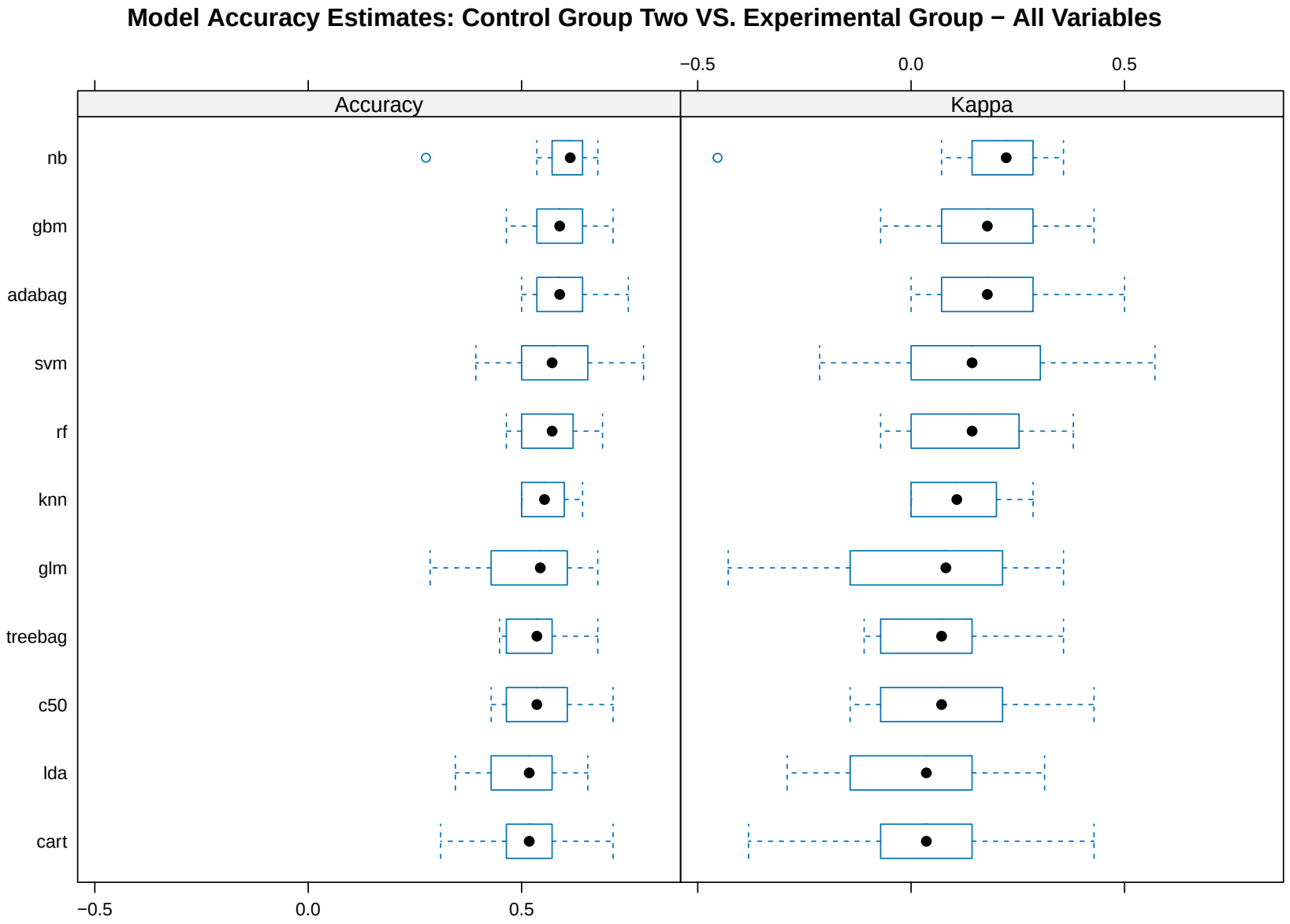
Exploratory Data Analysis

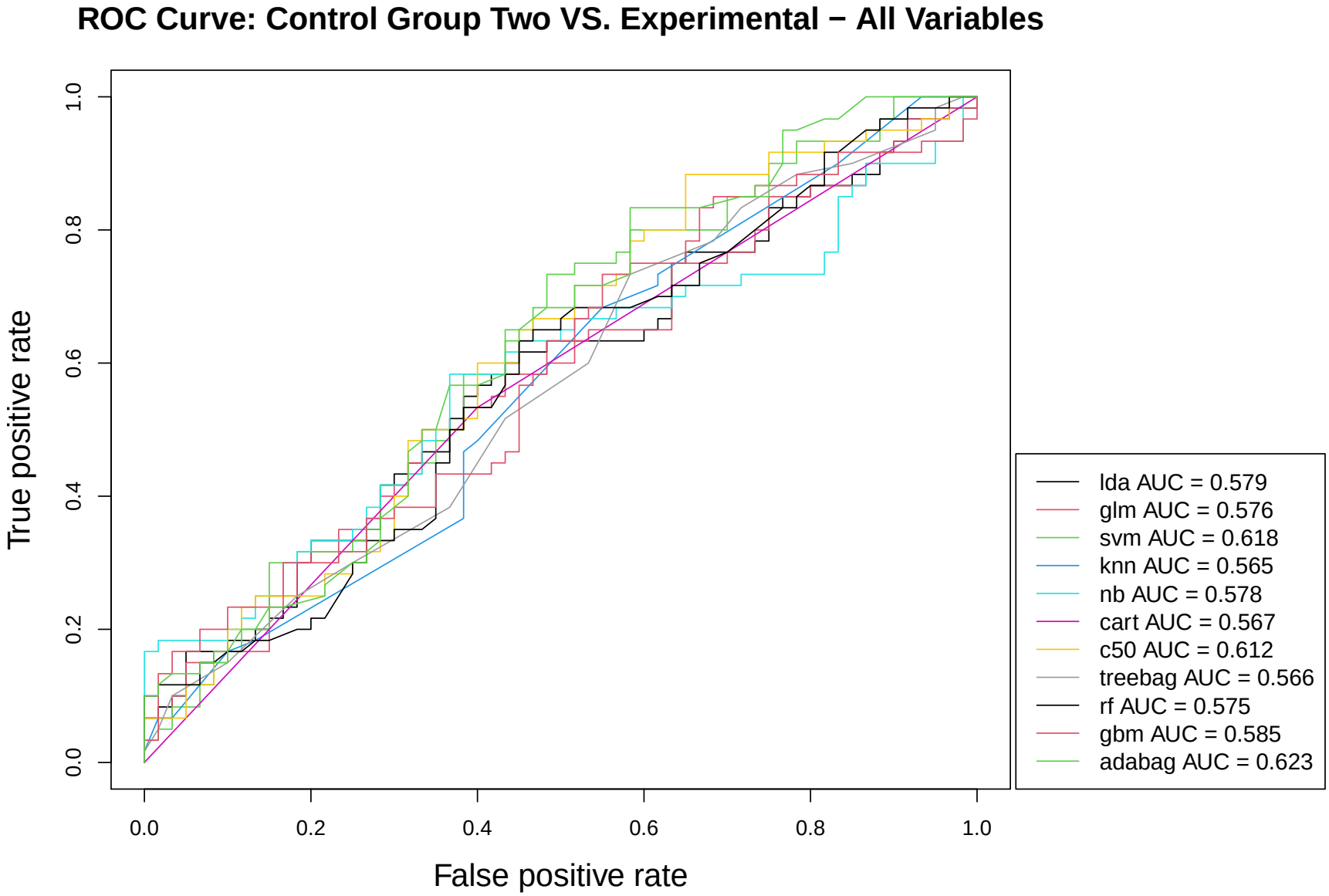
Model Development and Output: Control Group One VS. Experimental - ALL VARIABLES



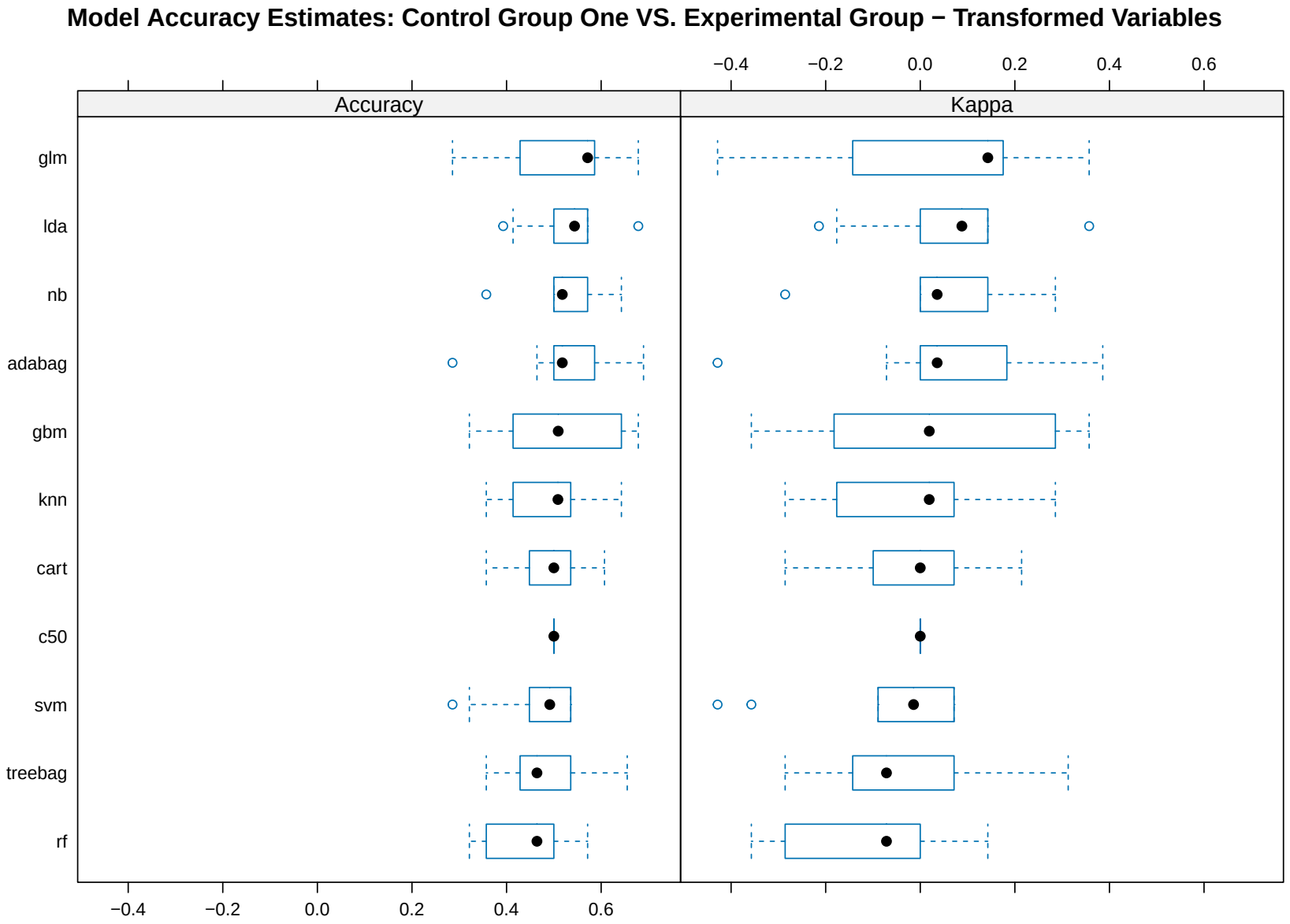

ROC Curve: Control Group One VS. Experimental − All Variables
True positive rate
False positive rate
0.0
0.2
0.4
0.6
0.8
1.0
lda AUC = 0.617
glm AUC = 0.621
svm AUC = 0.55
knn AUC = 0.603
nb AUC = 0.576
cart AUC = 0.542
c50 AUC = 0.464
treebag AUC = 0.615
rf AUC = 0.617
gbm AUC = 0.646
adabag AUC = 0.6

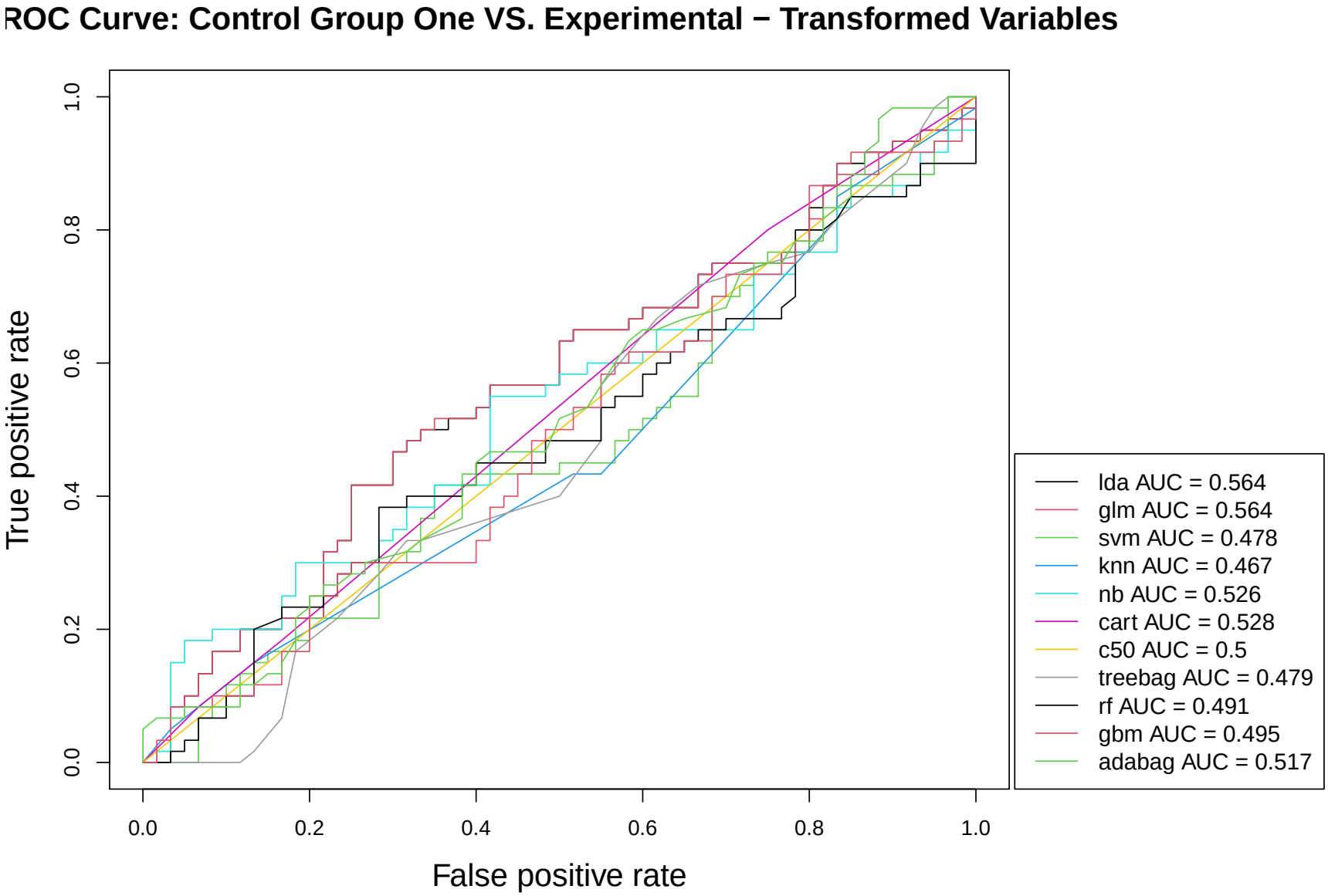
Model Development and Output: Control Group Two VS. Experimental - ALL VARIABLES



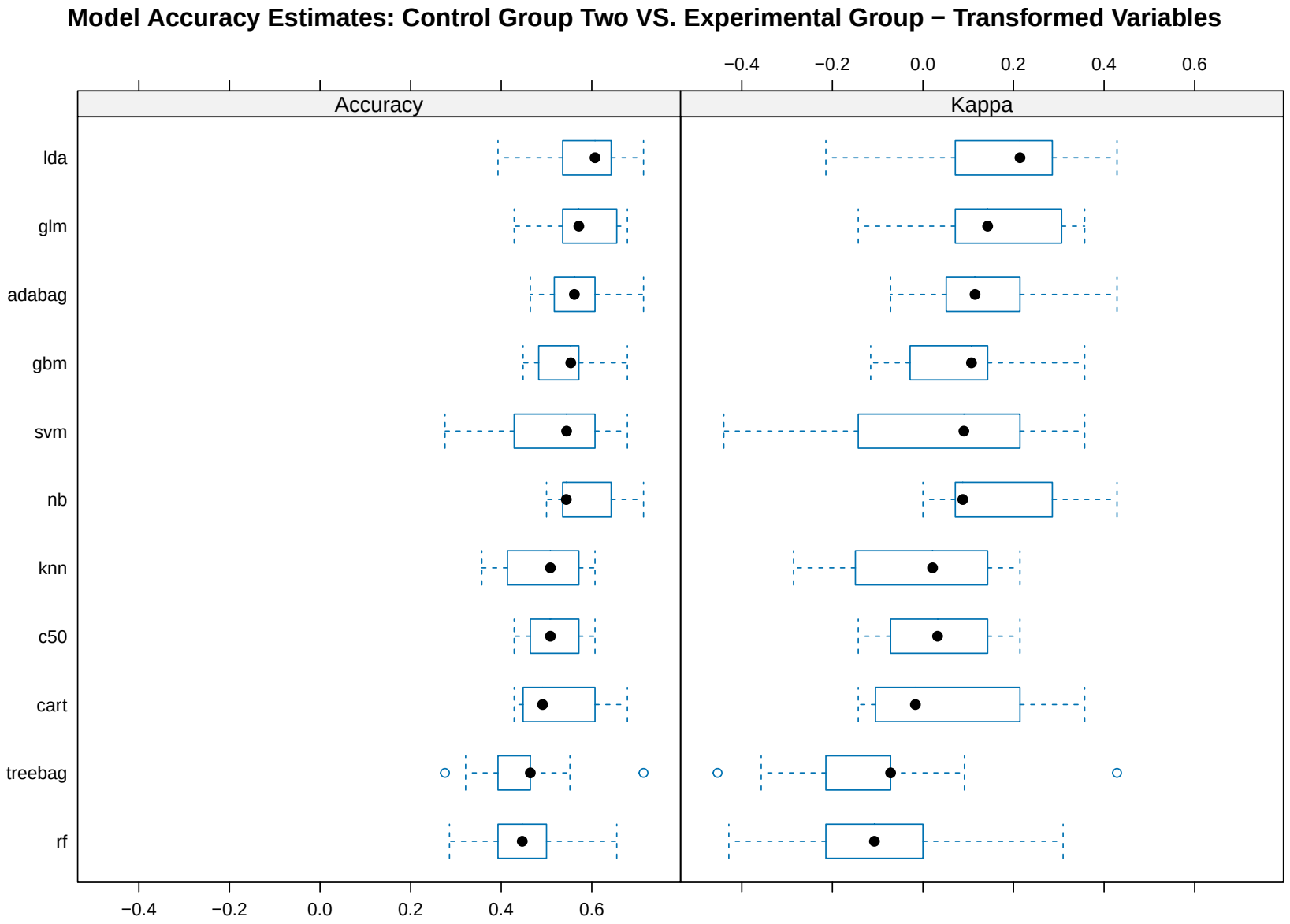

ROC Curve: Control Group Two VS. Experimental − All Variables
True positive rate
False positive rate
0.0
0.2
0.4
0.6
0.8
1.0
lda AUC = 0.579
glm AUC = 0.576
svm AUC = 0.618
knn AUC = 0.565
nb AUC = 0.578
cart AUC = 0.567
c50 AUC = 0.612
treebag AUC = 0.566
rf AUC = 0.575
gbm AUC = 0.585
adabag AUC = 0.623

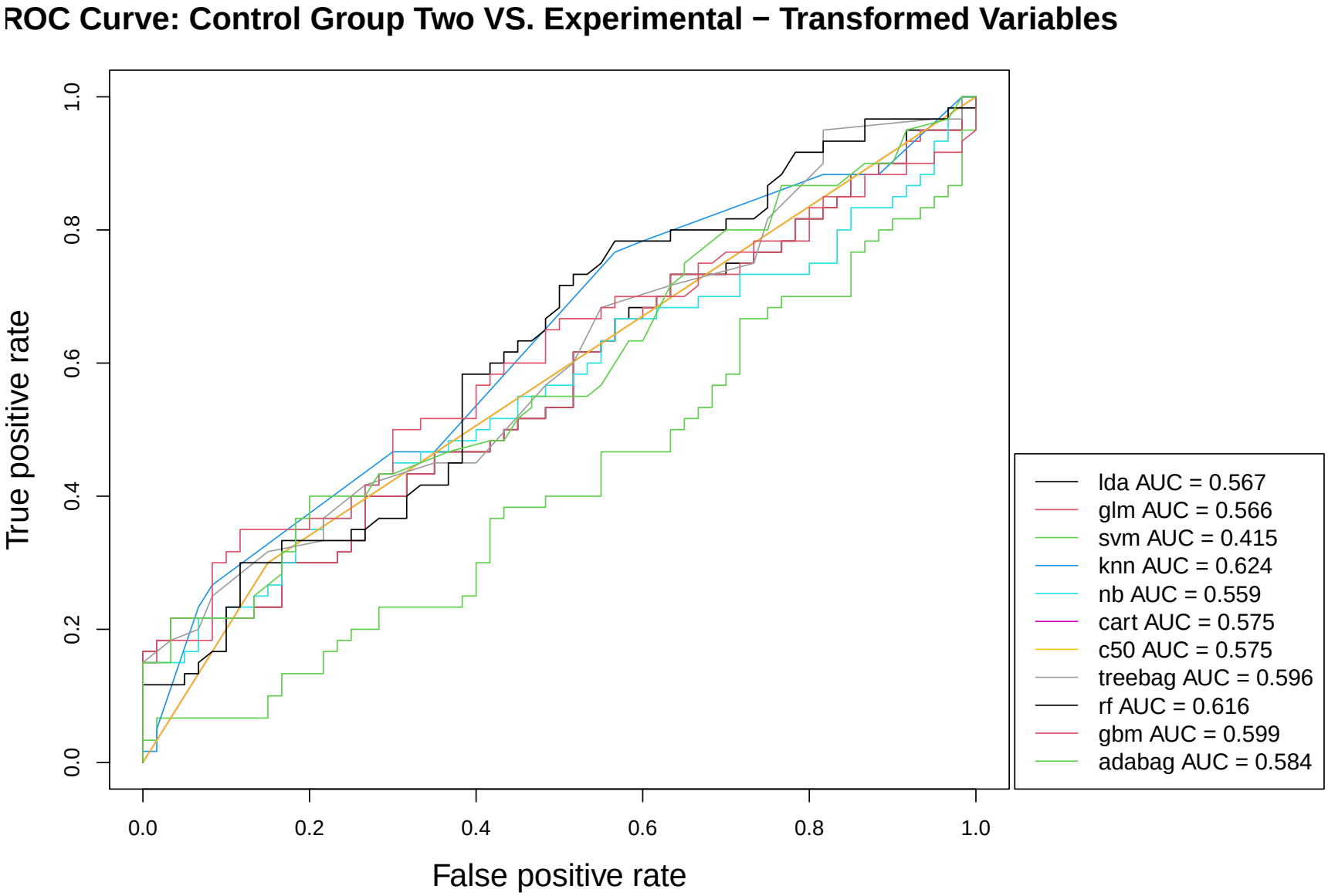
Model Development and Output: Control Group One VS. Experimental - TRANSFORMED VARIABLES



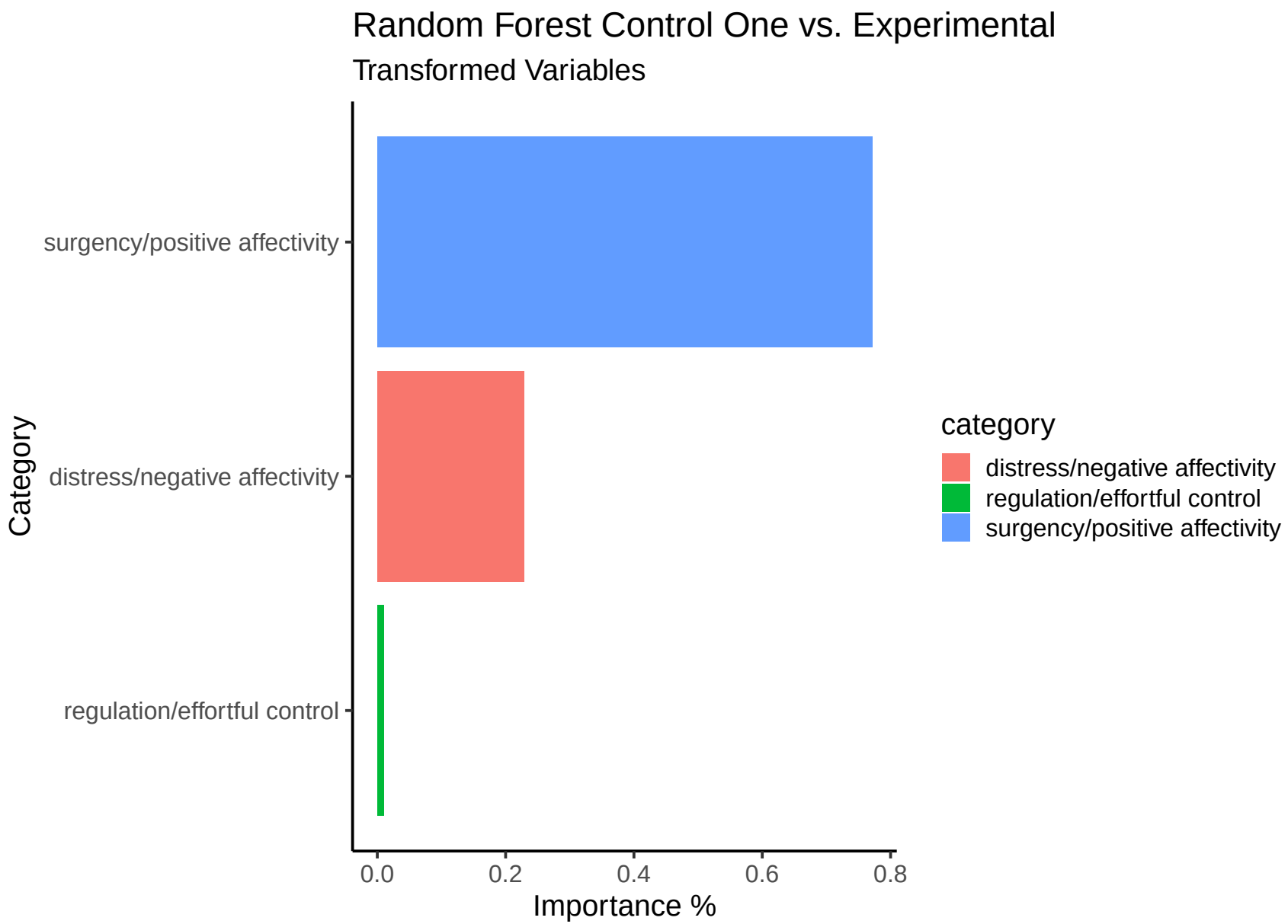

ROC Curve: Control Group One VS. Experimental − Transformed Variables
True positive rate
False positive rate
0.0
0.2
0.4
0.6
0.8
1.0
lda AUC = 0.564
glm AUC = 0.564
svm AUC = 0.478
knn AUC = 0.467
nb AUC = 0.526
cart AUC = 0.528
c50 AUC = 0.5
treebag AUC = 0.479
rf AUC = 0.491
gbm AUC = 0.495
adabag AUC = 0.517

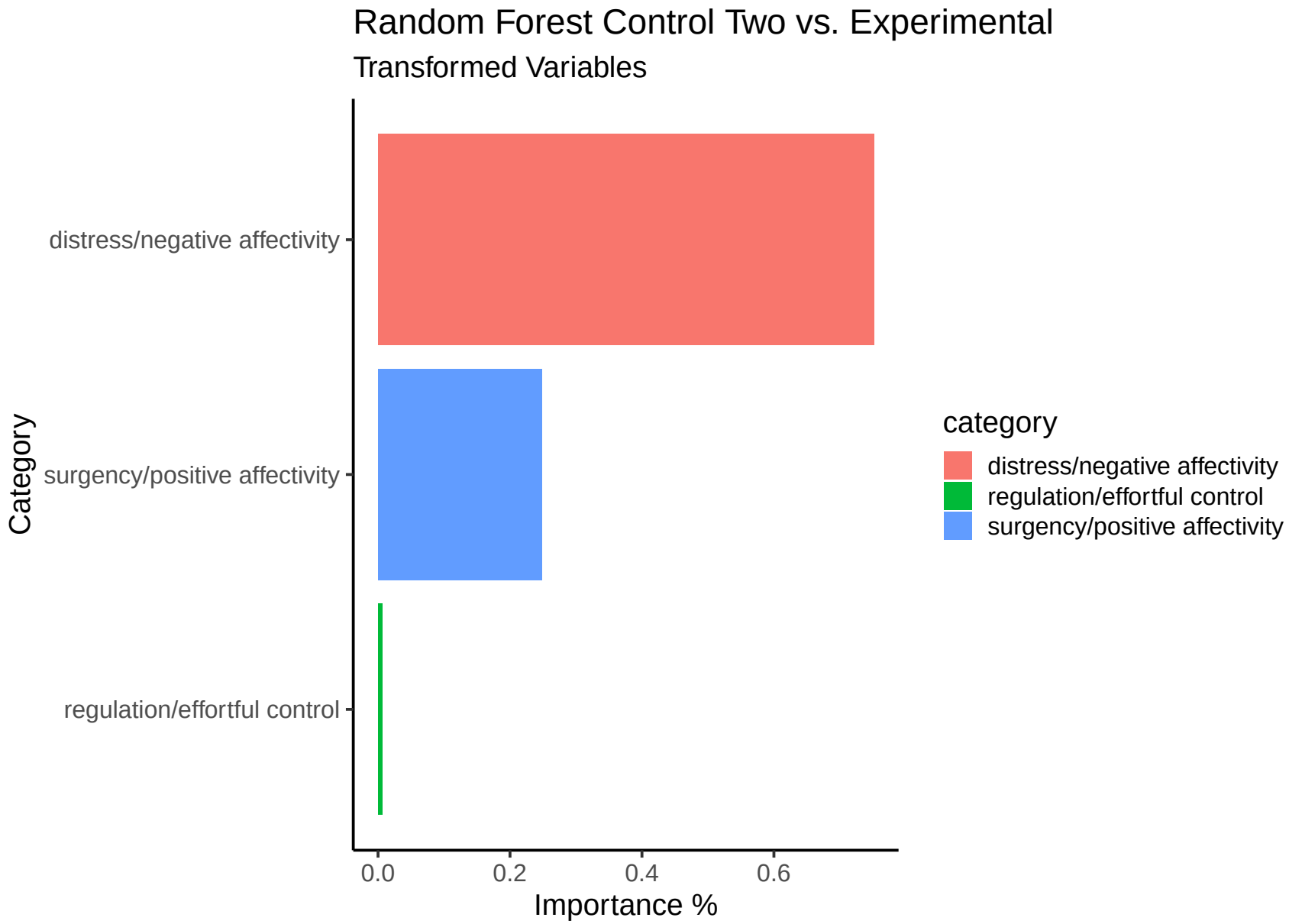
Model Development and Output: Control Group Two VS. Experimental - TRANSFORMED VARIABLES



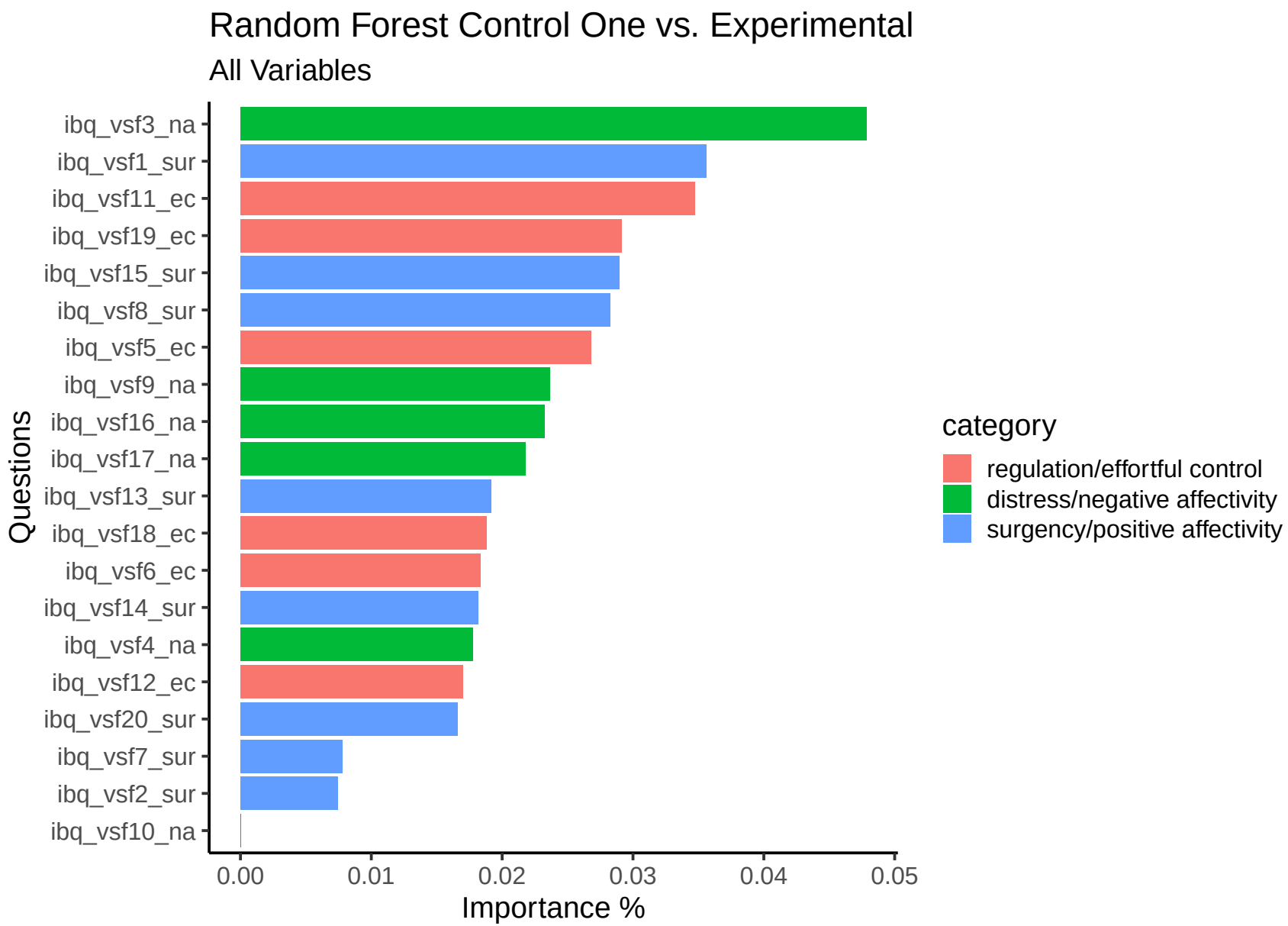

ROC Curve: Control Group Two VS. Experimental − Transformed Variables
True positive rate
False positive rate
0.0
0.2
0.4
0.6
0.8
1.0
lda AUC = 0.567
glm AUC = 0.566
svm AUC = 0.415
knn AUC = 0.624
nb AUC = 0.559
cart AUC = 0.575
c50 AUC = 0.575
treebag AUC = 0.596
rf AUC = 0.616
gbm AUC = 0.599
adabag AUC = 0.584

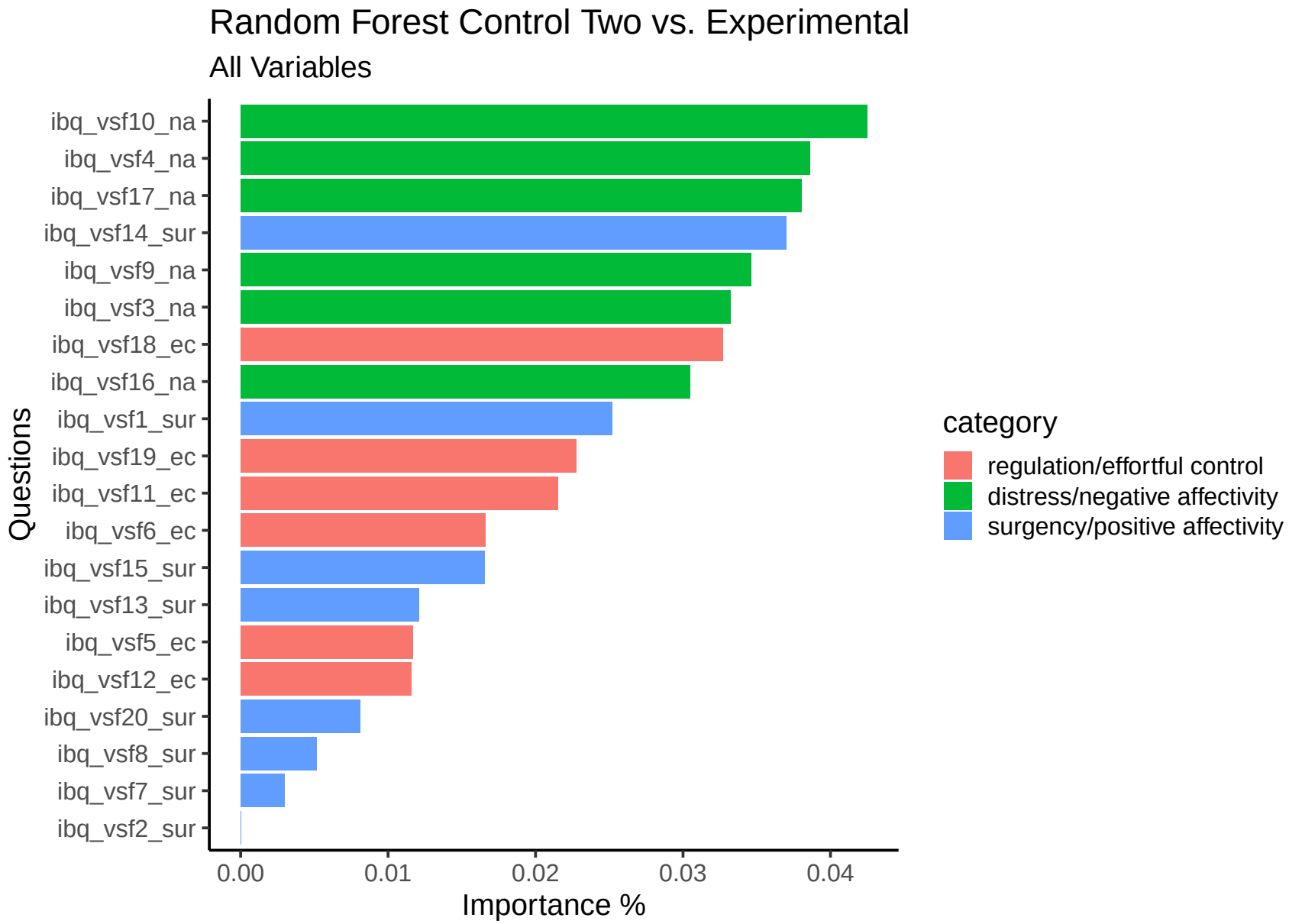
Feature Importance - Random Forest Model Results: Transformed Variables




Random Forest Control Two vs. Experimental
Transformed Variables
distress/negative affectivity
surgency/positive affectivity
regulation/effortful control
Category
0.0
0.2
0.4
0.6
Importance %
category
distress/negative affectivity
regulation/effortful control
surgency/positive affectivity

Feature Importance - Random Forest Model Results: All Variables




Random Forest Control Two vs. Experimental
All Variables
ibq_vsf10_na
ibq_vsf4_na
ibq_vsf17_na
ibq_vsf14_sur
ibq_vsf9_na
ibq_vsf3_na
ibq_vsf18_ec
ibq_vsf16_na
ibq_vsf1_sur
ibq_vsf19_ec
ibq_vsf11_ec
ibq_vsf6_ec
ibq_vsf15_sur
ibq_vsf13_sur
ibq_vsf5_ec
ibq_vsf12_ec
ibq_vsf20_sur
ibq_vsf8_sur
ibq_vsf7_sur
ibq_vsf2_sur
Questions
0.00
0.01
0.02
0.03
0.04
Importance %
category
regulation/effortful control
distress/negative affectivity
surgency/positive affectivity

models	Exp. VS. CG1 classification: All Variabes			Exp. VS. CG2 classification: All Variables		
	accuracy	kappa	AUC	accuracy	kappa	AUC
lda	0.543	-0.014	0.621	0.540	0.009	0.576
glm	0.535	-0.021	0.550	0.550	0.047	0.618
svm	0.529	0.104	0.603	0.577	0.149	0.565
knn	0.542	0.162	0.576	0.535	0.113	0.578
nb	0.505	0.084	0.542	0.579	0.156	0.567
cart	0.557	0.127	0.464	0.587	0.036	0.612
c5.0	0.545	0.048	0.615	0.529	0.100	0.566
bagging	0.545	0.032	0.617	0.534	0.063	0.575
rf	0.567	0.044	0.646	0.538	0.149	0.585
gbm	0.461	0.070	0.600	0.570	0.178	0.623
adabag	0.543	0.084	0.621	0.540	0.184	0.576

models	Exp. VS. CG1 classification: Transformed Variables			Exp. VS. CG2 classification: Transformed Variables		
	accuracy	kappa	AUC	accuracy	kappa	AUC
lda	0.518	0.064	0.564	0.509	0.162	0.566
glm	0.471	0.050	0.478	0.512	0.169	0.415
svm	0.487	-0.069	0.467	0.498	0.038	0.624
knn	0.518	-0.014	0.526	0.560	-0.004	0.559
nb	0.474	0.050	0.528	0.560	0.156	0.575
cart	0.529	-0.014	0.500	0.552	0.043	0.575
c5.0	0.537	0.000	0.479	0.540	0.029	0.596
bagging	0.468	-0.029	0.491	0.498	-0.093	0.616
rf	0.490	-0.105	0.495	0.542	-0.102	0.599
gbm	0.512	0.021	0.517	0.513	0.093	0.584
adabag	0.518	0.057	0.564	0.509	0.135	0.566