performaceGraphing.R

roohac

Wed Feb 21 16:03:48 2018

library(readxl)

## Warning: package 'readxl' was built under R version 3.3.3

PVT <- read\_excel("//root/public/roohac/nurses\_study/completed-nurses/full\_data\_sets/processedtime2/Nurses\_Study\_Summary\_Tables\_2018\_02\_21\_15\_23\_37\_Complete.xlsx",   
 sheet = "PVT")  
  
GNG <- read\_excel("//root/public/roohac/nurses\_study/completed-nurses/full\_data\_sets/processedtime2/Nurses\_Study\_Summary\_Tables\_2018\_02\_21\_15\_23\_37\_Complete.xlsx",   
 sheet = "GNG")  
  
OB <- read\_excel("//root/public/roohac/nurses\_study/completed-nurses/full\_data\_sets/processedtime2/Nurses\_Study\_Summary\_Tables\_2018\_02\_21\_15\_23\_37\_Complete.xlsx",   
 sheet = "OB")  
  
   
 library(nlme)  
 library(lsmeans)

## Warning: package 'lsmeans' was built under R version 3.3.3

## Loading required package: estimability

library(ggplot2)

## Warning: package 'ggplot2' was built under R version 3.3.3

library(Rmisc)

## Loading required package: lattice

## Loading required package: plyr

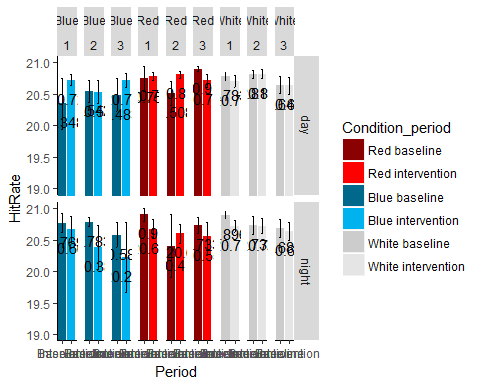
library(MuMIn)

## Warning: package 'MuMIn' was built under R version 3.3.3

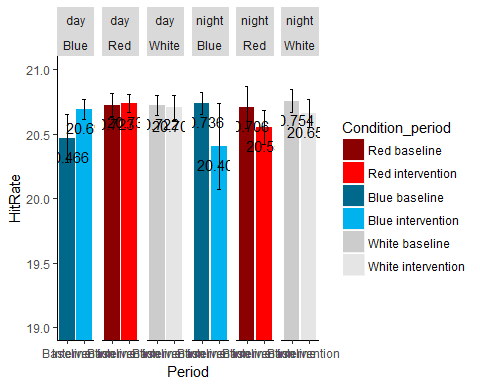
library(ggsignif)

## Warning: package 'ggsignif' was built under R version 3.3.3

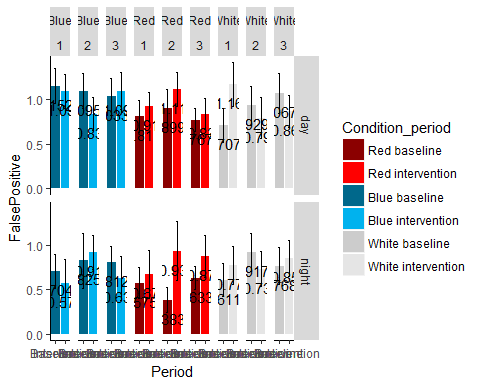
ctrl <- lmeControl(opt='optim');  
 options(warn=-1)  
   
  
 ###GNG  
   
 GNG$Condition\_period <- paste(GNG$Condition, GNG$Period, sep = "\_")  
   
 GNG$SubjectID <- as.factor(GNG$SubjectID )  
 GNG$Shift <- as.factor(GNG$Shift )  
 GNG$Condition <- as.factor(GNG$Condition )  
 GNG$Period <- as.factor(GNG$Period )  
 GNG$Condition\_period <- as.factor(GNG$Condition\_period )  
 GNG$TimeBin <- as.factor(GNG$TimeBin )  
   
 GNG$avgResponseTimeCorrect <- as.numeric(GNG$avgResponseTimeCorrect )  
 GNG$HitRate <- as.numeric(GNG$HitRate )  
 GNG$FalsePositive <- as.numeric(GNG$FalsePositive )  
 GNG$Condition <- ifelse(GNG$Condition == "r", "Red",   
 ifelse(GNG$Condition == "b", "Blue", "White" ))  
 GNG$Period <- ifelse(GNG$Period == "b","Baseline", "Intervention")  
 GNG$Condition\_period <- ifelse(GNG$Condition\_period == "b\_b", "Blue baseline",   
 ifelse(GNG$Condition\_period == "b\_i", "Blue intervention",   
 ifelse(GNG$Condition\_period == "r\_b", "Red baseline",   
 ifelse(GNG$Condition\_period == "r\_i", "Red intervention",   
 ifelse(GNG$Condition\_period == "w\_b", "White baseline", "White intervention" )))))  
 GNG$Condition\_period <- factor(GNG$Condition\_period, levels = c("Red baseline", "Red intervention", "Blue baseline", "Blue intervention", "White baseline", "White intervention" ))  
   
   
 #GNG2 <- subset(GNG, ValidPairedBin == "TRUE" & ValidTest == "TRUE" & !is.na(TimeBin))  
 #GNG2 <- subset(GNG,ValidTest == "TRUE" & !is.na(TimeBin))  
 GNG2 <- subset(GNG,!is.na(TimeBin) & !is.na(avgResponseTimeCorrect) & !is.na(avgResponseTime) & HasMaxTrials == "TRUE")  
   
   
 ###GNG hit  
   
 gng\_hit\_subs1 <- summarySE(GNG2, measurevar="HitRate", groupvars=c("SubjectID", "Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 gng\_hit\_subs2 <- summarySE(GNG2, measurevar="HitRate", groupvars=c("SubjectID", "Condition\_period", "Shift", "Period", "Condition"))  
   
   
 gng\_hit1 <- summarySE(gng\_hit\_subs1, measurevar="HitRate", groupvars=c("Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 gng\_hit2 <- summarySE(gng\_hit\_subs2, measurevar="HitRate", groupvars=c("Condition\_period", "Shift", "Condition", "Period"))  
   
   
 ggplot(gng\_hit1, aes(x=Period, y=HitRate, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=HitRate-se, ymax=HitRate+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(Shift ~Condition\*TimeBin) + #facet\_grid(.~Condition\*Period) +  
 coord\_cartesian(ylim=c(19,21))+  
 geom\_text(aes(label = round(HitRate, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



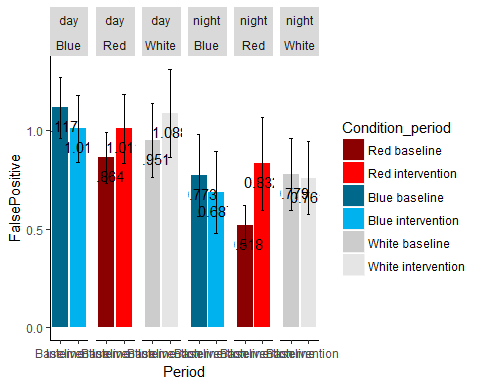
ggplot(gng\_hit2, aes(x=Period, y=HitRate, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=HitRate-se, ymax=HitRate+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(.~Shift\* Condition) +  
 coord\_cartesian(ylim=c(19,21))+  
 geom\_text(aes(label = round(HitRate, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



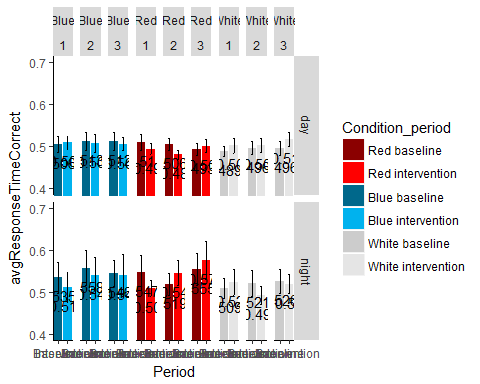
##GNG false postive  
   
   
 gng\_fp\_subs1 <- summarySE(GNG2, measurevar="FalsePositive", groupvars=c("SubjectID", "Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 gng\_fp\_subs2 <- summarySE(GNG2, measurevar="FalsePositive", groupvars=c("SubjectID", "Condition\_period", "Shift", "Period", "Condition"))  
  
   
 gng\_fp1 <- summarySE(gng\_fp\_subs1, measurevar="FalsePositive", groupvars=c("Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 gng\_fp2 <- summarySE(gng\_fp\_subs2, measurevar="FalsePositive", groupvars=c("Condition\_period", "Shift", "Condition", "Period"))  
   
 #df1 <- graph\_table("FalsePositve", GNG2, 1)  
   
   
 ggplot(gng\_fp1, aes(x=Period, y=FalsePositive, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=FalsePositive-se, ymax=FalsePositive+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(Shift ~Condition\*TimeBin) + #facet\_grid(.~Condition\*Period) +  
 #coord\_cartesian(ylim=c(20,21))+  
 geom\_text(aes(label = round(FalsePositive, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



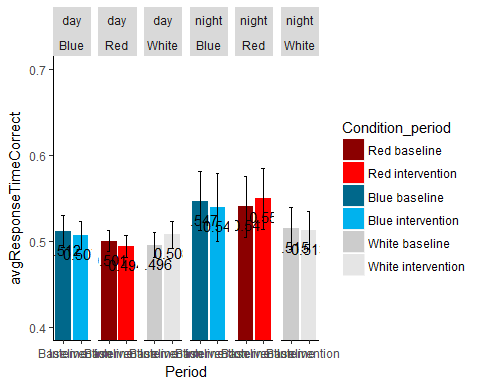
ggplot(gng\_fp2, aes(x=Period, y=FalsePositive, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=FalsePositive-se, ymax=FalsePositive+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(.~Shift\* Condition) +  
 #coord\_cartesian(ylim=c(20,21))+  
 geom\_text(aes(label = round(FalsePositive, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



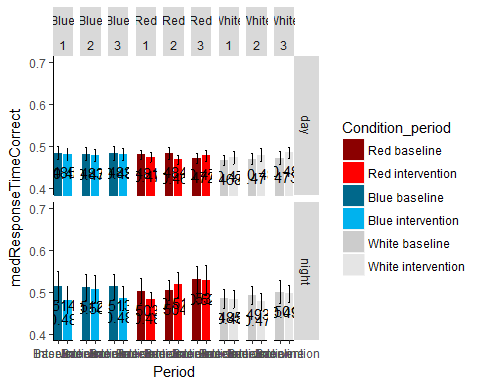
##GNG mean responsetime  
   
   
 gng\_rt\_subs1 <- summarySE(GNG2, measurevar="avgResponseTimeCorrect", groupvars=c("SubjectID", "Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 gng\_rt\_subs2 <- summarySE(GNG2, measurevar="avgResponseTimeCorrect", groupvars=c("SubjectID", "Condition\_period", "Shift", "Period", "Condition"))  
   
   
 gng\_rt1 <- summarySE(gng\_rt\_subs1, measurevar="avgResponseTimeCorrect", groupvars=c("Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 gng\_rt2 <- summarySE(gng\_rt\_subs2, measurevar="avgResponseTimeCorrect", groupvars=c("Condition\_period", "Shift", "Condition", "Period"))  
   
   
 ggplot(gng\_rt1, aes(x=Period, y=avgResponseTimeCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=avgResponseTimeCorrect-se, ymax=avgResponseTimeCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(Shift ~Condition\*TimeBin) + #facet\_grid(.~Condition\*Period) +  
 coord\_cartesian(ylim=c(.4,.7))+  
 geom\_text(aes(label = round(avgResponseTimeCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



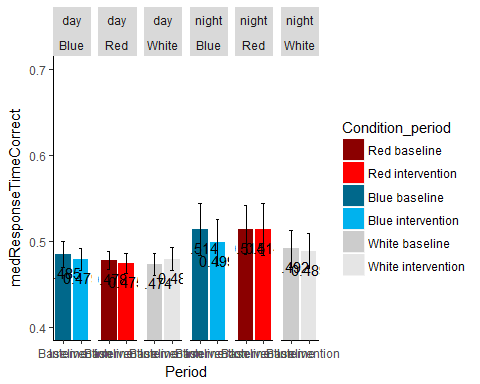
ggplot(gng\_rt2, aes(x=Period, y=avgResponseTimeCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=avgResponseTimeCorrect-se, ymax=avgResponseTimeCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(.~Shift\* Condition) +  
 coord\_cartesian(ylim=c(.4,.7))+  
 geom\_text(aes(label = round(avgResponseTimeCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



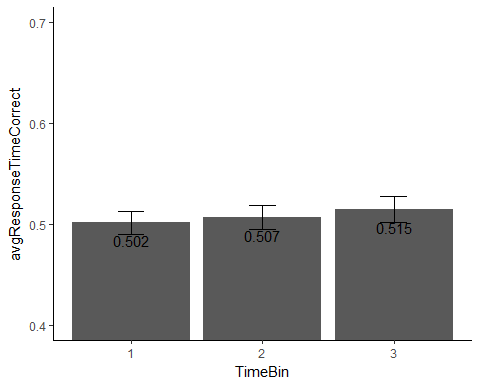
##GNG median responsetime  
   
   
 gng\_rt\_subs1 <- summarySE(GNG2, measurevar="medResponseTimeCorrect", groupvars=c("SubjectID", "Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 gng\_rt\_subs2 <- summarySE(GNG2, measurevar="medResponseTimeCorrect", groupvars=c("SubjectID", "Condition\_period", "Shift", "Period", "Condition"))  
   
   
 gng\_rt1 <- summarySE(gng\_rt\_subs1, measurevar="medResponseTimeCorrect", groupvars=c("Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 gng\_rt2 <- summarySE(gng\_rt\_subs2, measurevar="medResponseTimeCorrect", groupvars=c("Condition\_period", "Shift", "Condition", "Period"))  
   
   
 ggplot(gng\_rt1, aes(x=Period, y=medResponseTimeCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=medResponseTimeCorrect-se, ymax=medResponseTimeCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(Shift ~Condition\*TimeBin) + #facet\_grid(.~Condition\*Period) +  
 coord\_cartesian(ylim=c(.4,.7))+  
 geom\_text(aes(label = round(medResponseTimeCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



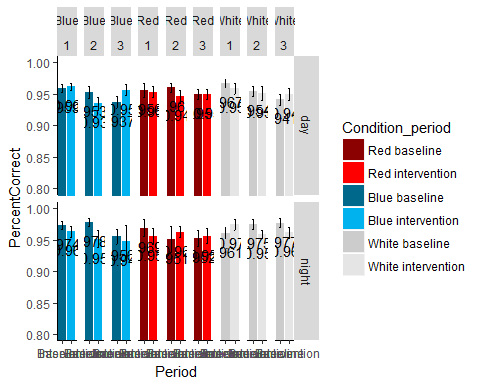
ggplot(gng\_rt2, aes(x=Period, y=medResponseTimeCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=medResponseTimeCorrect-se, ymax=medResponseTimeCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(.~Shift\* Condition) +  
 coord\_cartesian(ylim=c(.4,.7))+  
 geom\_text(aes(label = round(medResponseTimeCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



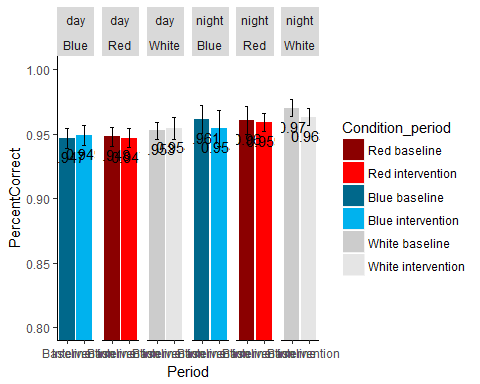
###Significance  
   
 gng\_rt\_subs3 <- summarySE(GNG2, measurevar="avgResponseTimeCorrect", groupvars=c("SubjectID", "TimeBin"))  
  
   
 gng\_rt3 <- summarySE(gng\_rt\_subs3, measurevar="avgResponseTimeCorrect", groupvars=c("TimeBin"))  
   
 ggplot(gng\_rt3, aes(x=TimeBin, y=avgResponseTimeCorrect)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=avgResponseTimeCorrect-se, ymax=avgResponseTimeCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) +   
 coord\_cartesian(ylim=c(.4,.7))+  
 geom\_text(aes(label = round(avgResponseTimeCorrect, digits = 3), vjust=2))+  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



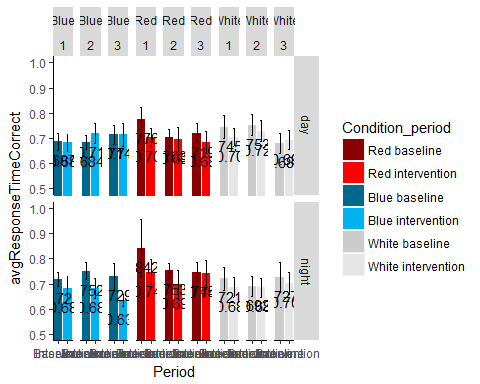
##OB  
   
 OB$Condition\_period <- paste(OB$Condition, OB$Period, sep = "\_")  
   
   
 OB$SubjectID <- as.factor(OB$SubjectID )  
 OB$Shift <- as.factor(OB$Shift )  
 OB$Condition <- as.factor(OB$Condition )  
 OB$Period <- as.factor(OB$Period )  
 OB$Condition\_period <- as.factor(OB$Condition\_period )  
   
 OB$TimeBin <- as.factor(OB$TimeBin )  
   
 OB$avgResponseTimeCorrect <- as.numeric(OB$avgResponseTimeCorrect )  
 OB$CorrectMatch <- as.numeric(OB$CorrectMatch )  
 OB$CorrectNoMatch <- as.numeric(OB$CorrectNoMatch )  
   
 OB$Condition <- ifelse(OB$Condition == "r", "Red",   
 ifelse(OB$Condition == "b", "Blue", "White" ))  
 OB$Period <- ifelse(OB$Period == "b","Baseline", "Intervention")  
 OB$Condition\_period <- ifelse(OB$Condition\_period == "b\_b", "Blue baseline",   
 ifelse(OB$Condition\_period == "b\_i", "Blue intervention",   
 ifelse(OB$Condition\_period == "r\_b", "Red baseline",   
 ifelse(OB$Condition\_period == "r\_i", "Red intervention",   
 ifelse(OB$Condition\_period == "w\_b", "White baseline", "White intervention" )))))  
 OB$Condition\_period <- factor(OB$Condition\_period, levels = c("Red baseline", "Red intervention", "Blue baseline", "Blue intervention", "White baseline", "White intervention" ))  
   
   
   
 #OB2 <- subset(OB, ValidPairedBin == "TRUE" & isValid == "TRUE" & !is.na(TimeBin))  
 #OB2 <- subset(OB,isValid == "TRUE" & !is.na(TimeBin))  
 OB2 <- subset(OB,!is.na(TimeBin) & !is.na(avgResponseTimeCorrect) & !is.na(avgResponseTime) & HasMaxTrials == "TRUE" )  
   
 OB\_half <-subset(OB2, HalfAnswered == "TRUE" )  
 OB\_normal <-subset(OB2, HalfAnswered == "FALSE" )  
   
 ##OB  
   
 OB\_percentCorrect\_subs1 <- summarySE(OB\_normal, measurevar="PercentCorrect", groupvars=c("SubjectID", "Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 OB\_percentCorrect\_subs2 <- summarySE(OB\_normal, measurevar="PercentCorrect", groupvars=c("SubjectID", "Condition\_period", "Shift", "Period", "Condition"))  
   
   
 OB\_percentCorrect1 <- summarySE(OB\_percentCorrect\_subs1, measurevar="PercentCorrect", groupvars=c("Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 OB\_percentCorrect2 <- summarySE(OB\_percentCorrect\_subs2, measurevar="PercentCorrect", groupvars=c("Condition\_period", "Shift", "Condition", "Period"))  
   
   
 ggplot(OB\_percentCorrect1, aes(x=Period, y=PercentCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=PercentCorrect-se, ymax=PercentCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(Shift ~Condition\*TimeBin) + #facet\_grid(.~Condition\*Period) +  
 coord\_cartesian(ylim=c(.8,1))+  
 geom\_text(aes(label = round(PercentCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



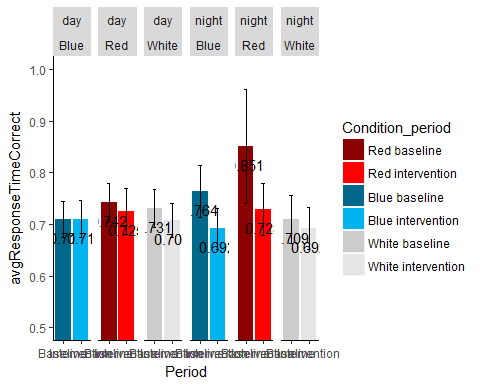
ggplot(OB\_percentCorrect2, aes(x=Period, y=PercentCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=PercentCorrect-se, ymax=PercentCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(.~Shift\* Condition) +  
 coord\_cartesian(ylim=c(.8,1))+  
 geom\_text(aes(label = round(PercentCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



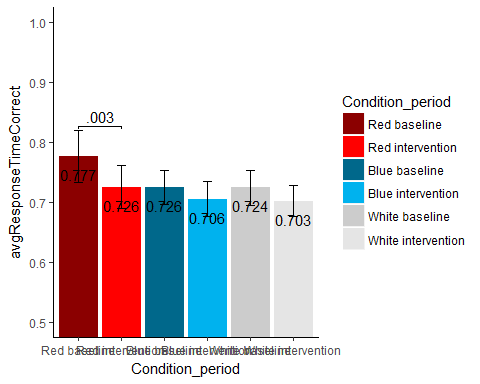
OB\_avgResponseTimeCorrect\_subs1 <- summarySE(OB\_normal, measurevar="avgResponseTimeCorrect", groupvars=c("SubjectID", "Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 OB\_avgResponseTimeCorrect\_subs2 <- summarySE(OB\_normal, measurevar="avgResponseTimeCorrect", groupvars=c("SubjectID", "Condition\_period", "Shift", "Period", "Condition"))  
 OB\_avgResponseTimeCorrect\_subs3 <- summarySE(OB\_normal, measurevar="avgResponseTimeCorrect", groupvars=c("SubjectID", "Condition\_period", "Period", "Condition"))  
   
 OB\_avgResponseTimeCorrect1 <- summarySE(OB\_avgResponseTimeCorrect\_subs1, measurevar="avgResponseTimeCorrect", groupvars=c("Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 OB\_avgResponseTimeCorrect2 <- summarySE(OB\_avgResponseTimeCorrect\_subs2, measurevar="avgResponseTimeCorrect", groupvars=c("Condition\_period", "Shift", "Condition", "Period"))  
 OB\_avgResponseTimeCorrect3 <- summarySE(OB\_avgResponseTimeCorrect\_subs3, measurevar="avgResponseTimeCorrect", groupvars=c("Condition\_period", "Condition", "Period"))  
   
   
 ggplot(OB\_avgResponseTimeCorrect1, aes(x=Period, y=avgResponseTimeCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=avgResponseTimeCorrect-se, ymax=avgResponseTimeCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(Shift ~Condition\*TimeBin) + #facet\_grid(.~Condition\*Period) +  
 coord\_cartesian(ylim=c(.5,1))+  
 geom\_text(aes(label = round(avgResponseTimeCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



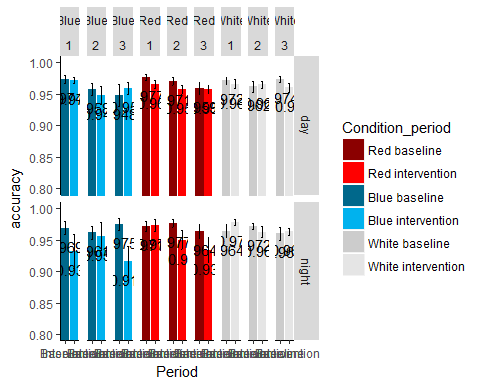
ggplot(OB\_avgResponseTimeCorrect2, aes(x=Period, y=avgResponseTimeCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=avgResponseTimeCorrect-se, ymax=avgResponseTimeCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(.~Shift\* Condition) +  
 coord\_cartesian(ylim=c(.5,1))+  
 geom\_text(aes(label = round(avgResponseTimeCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



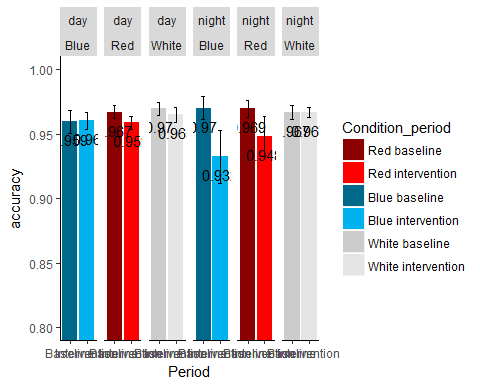
ggplot(OB\_avgResponseTimeCorrect3, aes(x=Condition\_period, y=avgResponseTimeCorrect, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=avgResponseTimeCorrect-se, ymax=avgResponseTimeCorrect+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + # facet\_grid(.~ Condition) +  
 coord\_cartesian(ylim=c(.5,1))+  
 geom\_text(aes(label = round(avgResponseTimeCorrect, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))+  
 geom\_signif(comparisons = list(c("Red baseline", "Red intervention")), annotations=".003")



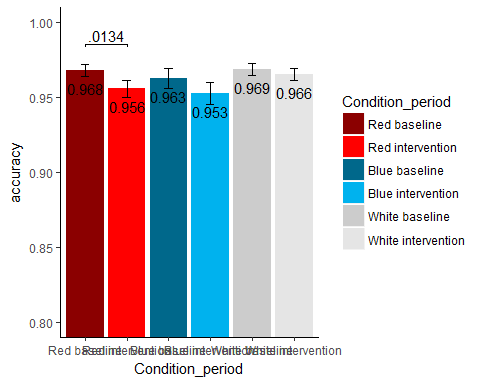
#PVT  
   
 PVT$Condition\_period <- paste(PVT$Condition, PVT$Period, sep = "\_")  
   
   
 PVT$SubjectID <- as.factor(PVT$SubjectID )  
 PVT$Shift <- as.factor(PVT$Shift )  
 PVT$Condition <- as.factor(PVT$Condition )  
 PVT$Period <- as.factor(PVT$Period )  
 PVT$Condition\_period <- as.factor(PVT$Condition\_period )  
   
 PVT$TimeBin <- as.factor(PVT$TimeBin )  
   
 PVT$avgResponseTime <- as.numeric(PVT$avgResponseTime )  
 PVT$accuracy <- PVT$nCorrect/PVT$nTrials  
   
 PVT$Condition <- ifelse(PVT$Condition == "r", "Red",   
 ifelse(PVT$Condition == "b", "Blue", "White" ))  
 PVT$Period <- ifelse(PVT$Period == "b","Baseline", "Intervention")  
 PVT$Condition\_period <- ifelse(PVT$Condition\_period == "b\_b", "Blue baseline",   
 ifelse(PVT$Condition\_period == "b\_i", "Blue intervention",   
 ifelse(PVT$Condition\_period == "r\_b", "Red baseline",   
 ifelse(PVT$Condition\_period == "r\_i", "Red intervention",   
 ifelse(PVT$Condition\_period == "w\_b", "White baseline", "White intervention" )))))  
 PVT$Condition\_period <- factor(PVT$Condition\_period, levels = c("Red baseline", "Red intervention", "Blue baseline", "Blue intervention", "White baseline", "White intervention" ))  
   
   
   
   
 #PVT2 <- subset(PVT, ValidPairedBin == "TRUE" & ValidTest == "TRUE" & !is.na(TimeBin))  
 #PVT2 <- subset(PVT,ValidTest == "TRUE" & !is.na(TimeBin))  
 PVT2 <- subset(PVT, !is.na(TimeBin) & !is.na(avgResponseTime) & HasMaxTrials == "TRUE")  
   
 PVT\_percentCorrect\_subs1 <- summarySE(PVT2, measurevar="accuracy", groupvars=c("SubjectID", "Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 PVT\_percentCorrect\_subs2 <- summarySE(PVT2, measurevar="accuracy", groupvars=c("SubjectID", "Condition\_period", "Shift", "Period", "Condition"))  
 PVT\_percentCorrect\_subs3 <- summarySE(PVT2, measurevar="accuracy", groupvars=c("SubjectID", "Condition\_period", "Period", "Condition"))  
   
 PVT\_percentCorrect1 <- summarySE(PVT\_percentCorrect\_subs1, measurevar="accuracy", groupvars=c("Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 PVT\_percentCorrect2 <- summarySE(PVT\_percentCorrect\_subs2, measurevar="accuracy", groupvars=c("Condition\_period", "Shift", "Condition", "Period"))  
 PVT\_percentCorrect3 <- summarySE(PVT\_percentCorrect\_subs2, measurevar="accuracy", groupvars=c("Condition\_period", "Condition", "Period"))  
   
   
 ggplot(PVT\_percentCorrect1, aes(x=Period, y=accuracy, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=accuracy-se, ymax=accuracy+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(Shift ~Condition\*TimeBin) + #facet\_grid(.~Condition\*Period) +  
 coord\_cartesian(ylim=c(.8,1))+  
 geom\_text(aes(label = round(accuracy, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



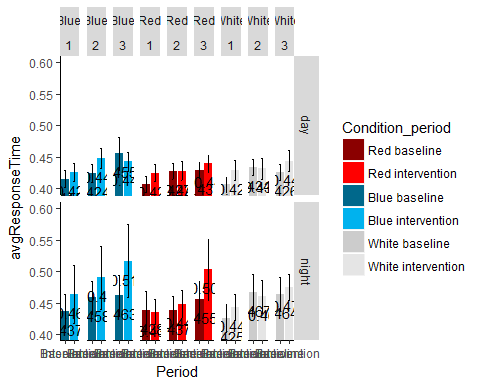
ggplot(PVT\_percentCorrect2, aes(x=Period, y=accuracy, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=accuracy-se, ymax=accuracy+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(.~Shift\* Condition) +  
 coord\_cartesian(ylim=c(.8,1))+  
 geom\_text(aes(label = round(accuracy, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



ggplot(PVT\_percentCorrect3, aes(x=Condition\_period, y=accuracy, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=accuracy-se, ymax=accuracy+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) +  
 coord\_cartesian(ylim=c(.8,1))+  
 geom\_text(aes(label = round(accuracy, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))+  
 geom\_signif(comparisons = list(c("Red baseline", "Red intervention")), annotations=".0134", y\_position = .985)



PVT\_avgResponseTime\_subs1 <- summarySE(PVT2, measurevar="avgResponseTime", groupvars=c("SubjectID", "Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 PVT\_avgResponseTime\_subs2 <- summarySE(PVT2, measurevar="avgResponseTime", groupvars=c("SubjectID", "Condition\_period", "Shift", "Period", "Condition"))  
   
 PVT\_avgResponseTime1 <- summarySE(PVT\_avgResponseTime\_subs1, measurevar="avgResponseTime", groupvars=c("Condition\_period", "TimeBin", "Shift", "Period", "Condition"))  
 PVT\_avgResponseTime2 <- summarySE(PVT\_avgResponseTime\_subs2, measurevar="avgResponseTime", groupvars=c("Condition\_period", "Shift", "Condition", "Period"))  
   
   
 ggplot(PVT\_avgResponseTime1, aes(x=Period, y=avgResponseTime, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=avgResponseTime-se, ymax=avgResponseTime+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(Shift ~Condition\*TimeBin) + #facet\_grid(.~Condition\*Period) +  
 coord\_cartesian(ylim=c(.4,.6))+  
 geom\_text(aes(label = round(avgResponseTime, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))



ggplot(PVT\_avgResponseTime2, aes(x=Period, y=avgResponseTime, fill = Condition\_period)) +   
 geom\_bar(position=position\_dodge(), stat="identity") +  
 geom\_errorbar(aes(ymin=avgResponseTime-se, ymax=avgResponseTime+se),  
 width=.2, # Width of the error bars  
 position=position\_dodge(.9)) + facet\_grid(.~Shift\* Condition) +  
 coord\_cartesian(ylim=c(.4,.6))+  
 geom\_text(aes(label = round(avgResponseTime, digits = 3), vjust=2))+  
 scale\_fill\_manual(values=c( "red4", "red1", "deepskyblue4", "deepskyblue2", "gray80", "gray90")) +  
 theme(panel.grid.major = element\_blank(), panel.grid.minor = element\_blank(), panel.background = element\_blank(), axis.line = element\_line(colour = "black"))

