

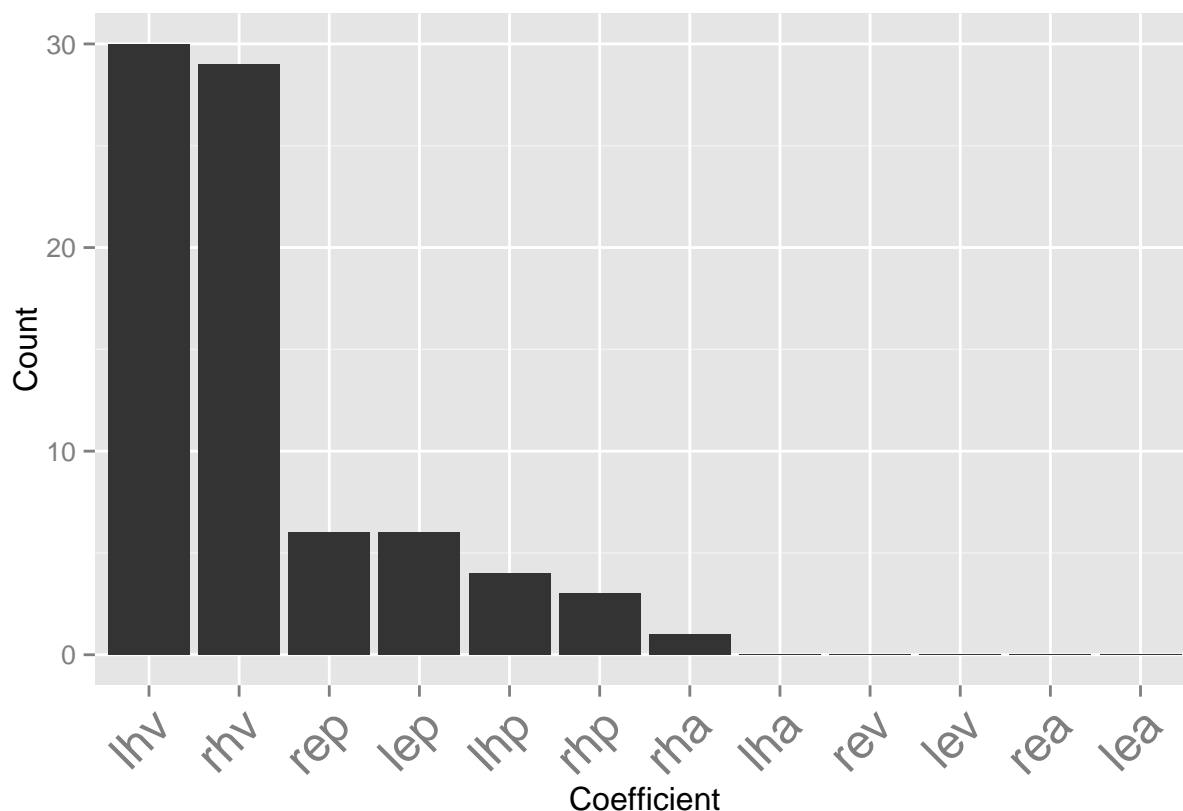
NRGFIGs

```
library(knitr)
library(ggplot2)
library(dplyr)
library(tidyr)
library(xtable)
filename<-"~/MATLAB/NeurophysNRG/bestFitLRResort.csv"
d <- read.csv(filename, na.strings="NaN")
r<-read.csv('peakregressions.csv')
gs<-read.csv('~/MATLAB/NeurophysNRG/fitGSPlm.csv')
r<-r[,2:12]
```

```
ptab<-subset(d,d$rsquared>0)
tab<-xtable(ptab[,1:4],caption='This table shows the results of a step-wise fitting procedure that with
print(tab,comment=FALSE)
```

```
s<-d %>%
  select(rhv:lea) %>%
  mutate_each(funs(!is.na(.))) %>%
  summarise_each(funs(sum)) %>%
  gather('c','n',1:12) %>%
  mutate(c=reorder(c,desc(n)))

p<-ggplot(aes(y=n),data=s)+theme(axis.text.x=element_text(size=18,angle=45, hjust=1))
p+geom_bar(aes(x=s$c),stat='identity')+xlab('Coefficient')+ylab('Count')
```



```
staticBestFitLR <- read.csv("~/MATLAB/NeurophysNRG/Resort/staticBestFitLR.csv", na.strings="NaN")

staticBestFitLR %>%
  select(1:6) %>%
  rename(Rightward.Eye=rep,Leftward.Eye=lep,Rightward.Head=rhp) %>%
  gather('coef', 'b', 4:6) %>%
  group_by(Neuron) %>%
  summarise(Coef=max(b),Position.Type=coef[b==Coef]) %>%
  arrange(desc(Coef)) -> t
caption.static<-'Coefficient of Static Acitivity. This table shows the fit value for the position parameter'
static.table<-xtable(t)
print(static.table,comment=FALSE)
```

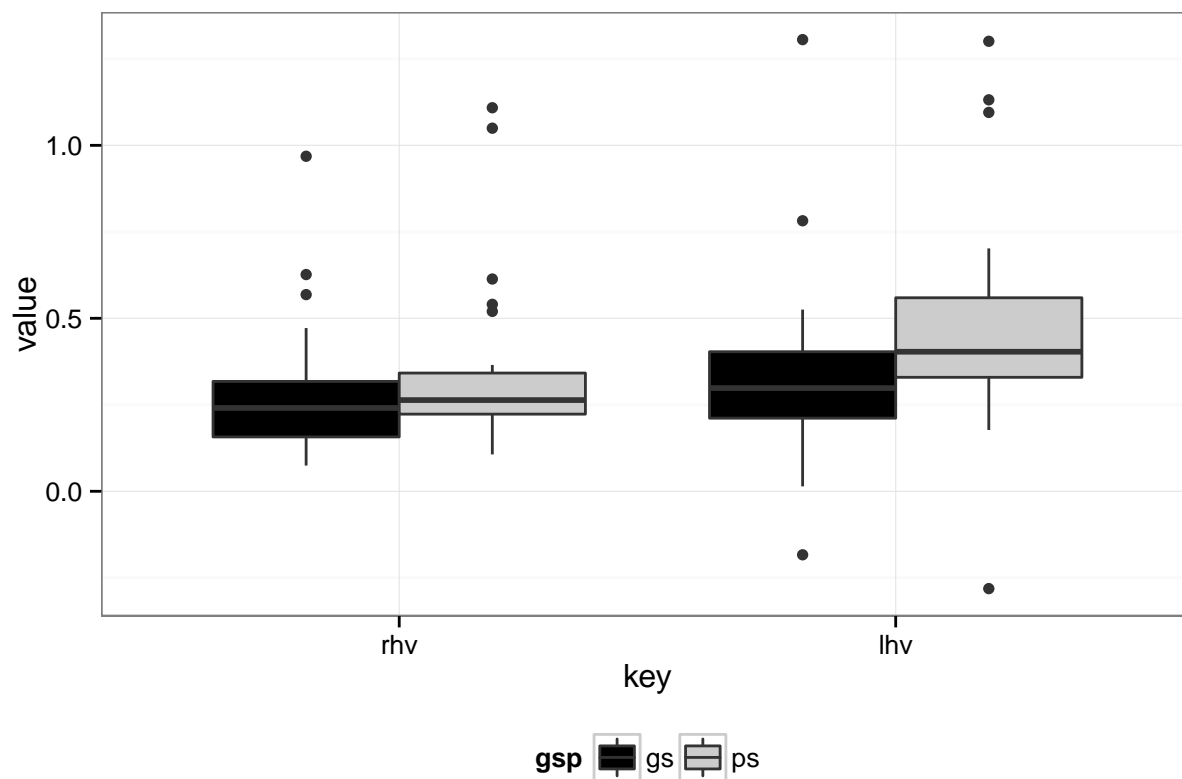
```
g<-subset(gs,rsquared>0) #gs loaded in first chunk
tall<-g %>% gather(key,value,c(6,7,8,9,10,12))

#tall$key<-factor(tall$key,levels=c('rhu','lhu','rep','lep','rhp','rha'))
#qplot(value,facets=key~.,data=tall,fill=tall$gsp,binwidth=0.1)+scale_fill_discrete(name="Trial\nType")

tall<-g %>% gather(key,value,c(6,7))
#qplot(value,facets=key~.,data=tall,fill=tall$gsp,binwidth=0.1)+scale_fill_discrete(name="Trial\nType")

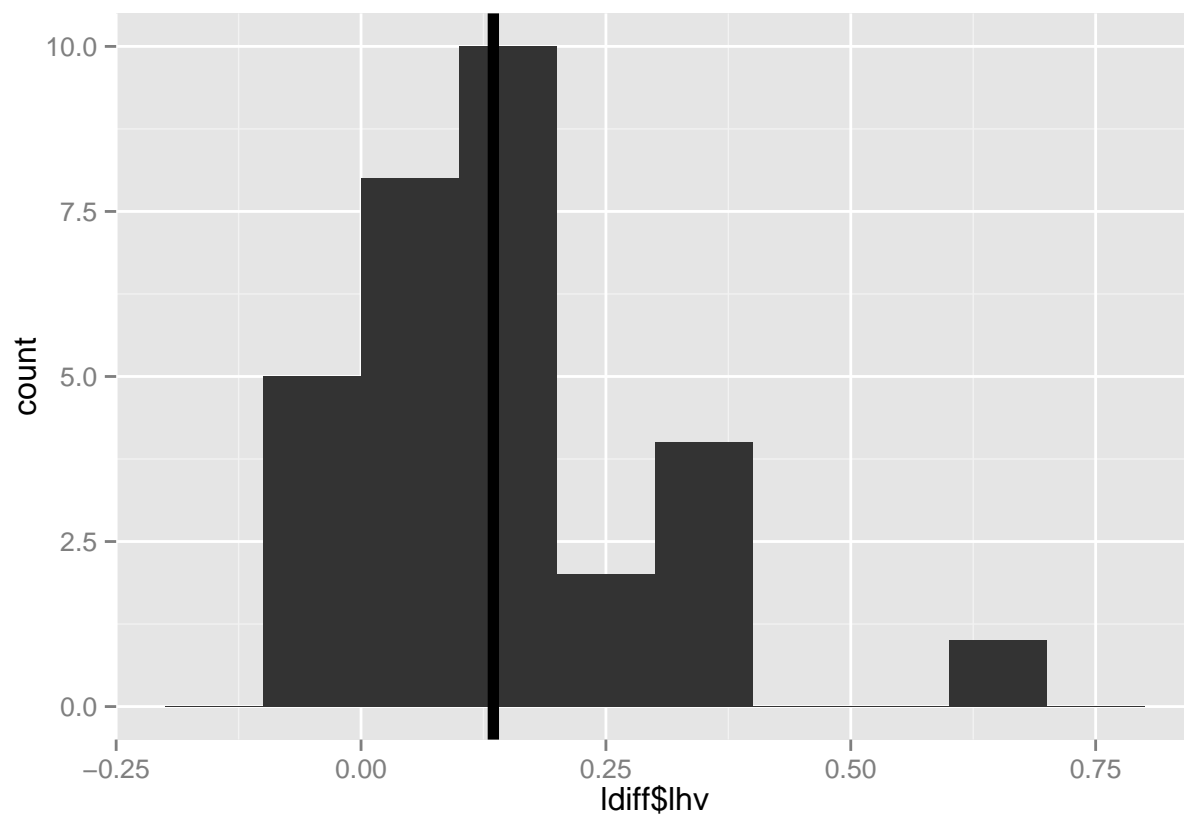
qplot(key,value,data=tall,geom='boxplot',fill=gsp)+
  scale_fill_grey(start=0)+
  theme_bw()+
```

```
theme(legend.position = "bottom")
```

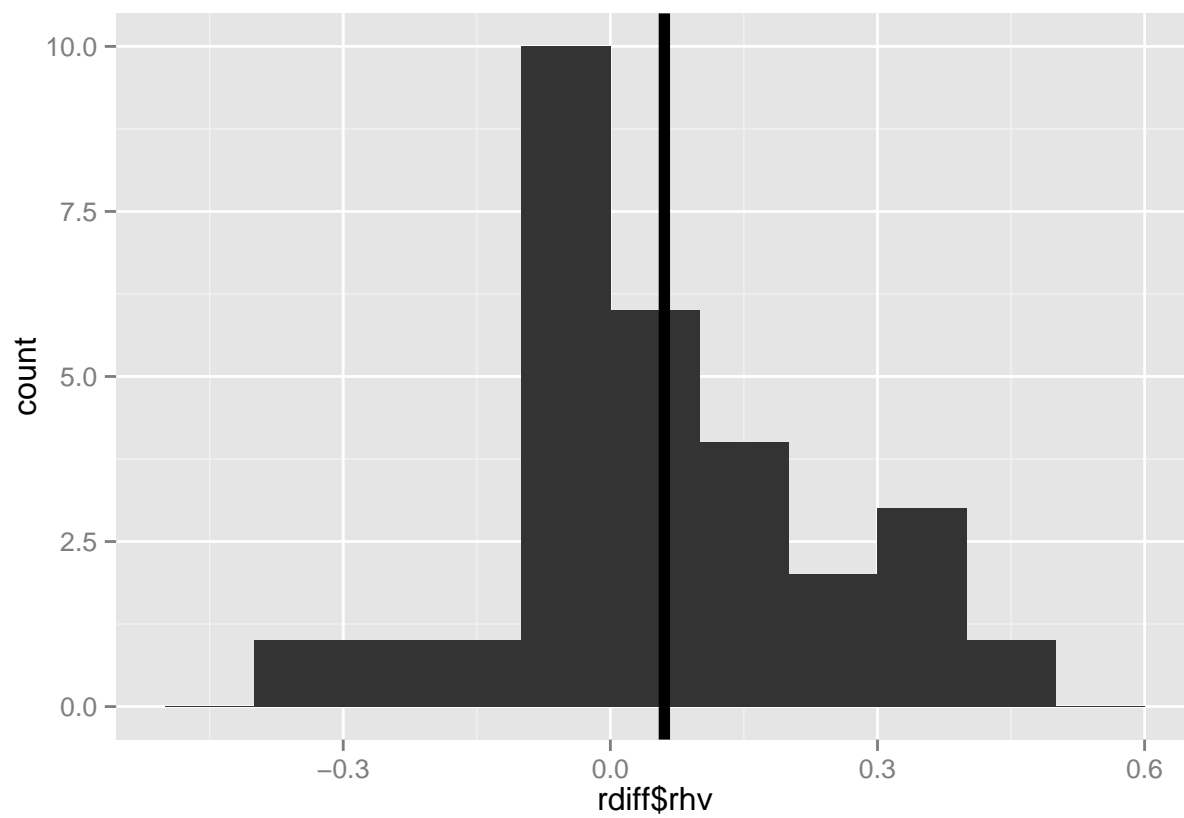


```
g %>%
  select(1,5,6) %>%
  spread(gsp,rhv) %>%
  mutate(rhv=ps-gs)-> rdifff
g %>%
  select(1,5,7) %>%
  spread(gsp,lhv) %>%
  mutate(lhv=ps-gs)-> ldifff

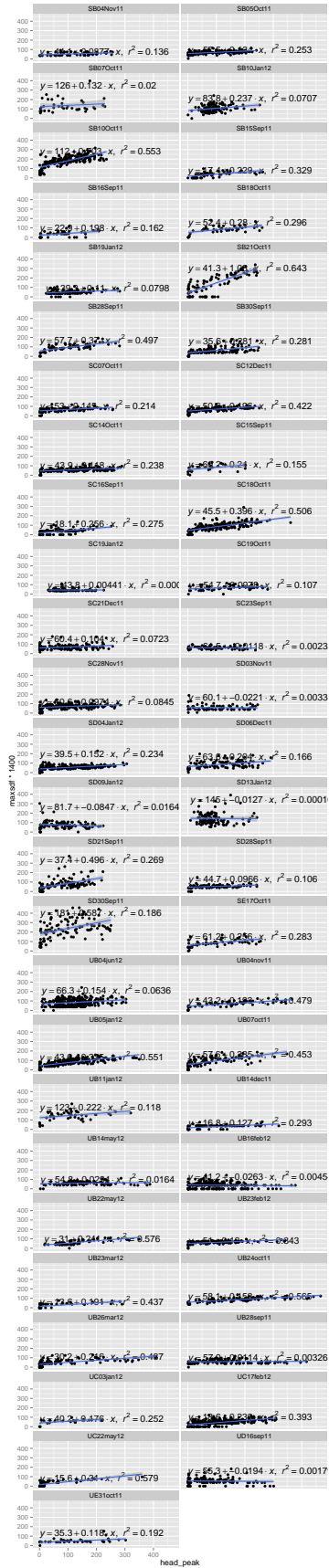
rd<-t.test(rdifff$rhv)
ld<-t.test(ldifff$lhv)
qplot(ldifff$lhv,binwidth=0.1)+geom_vline(x=ld$estimate,size=2)
```



```
qplot(rdiff$rhv,binwidth=0.1)+geom_vline(x=rd$estimate,size=2)
```



```
p<-read.csv('~ /MATLAB/NeurophysNRG/peakAnalysis.csv',na.strings="NaN")
source('~ /MATLAB/NeurophysNRG/RCode/StatSmoothFunc.R')
qplot(head_peak,maxsdf*1400,data=subset(p,head_peak>0))+
  facet_wrap(~Neuron,ncol=2)+
  stat_smooth_func(method='lm',geom='text',parse=TRUE,hjust=0)+stat_smooth(method='lm')
```



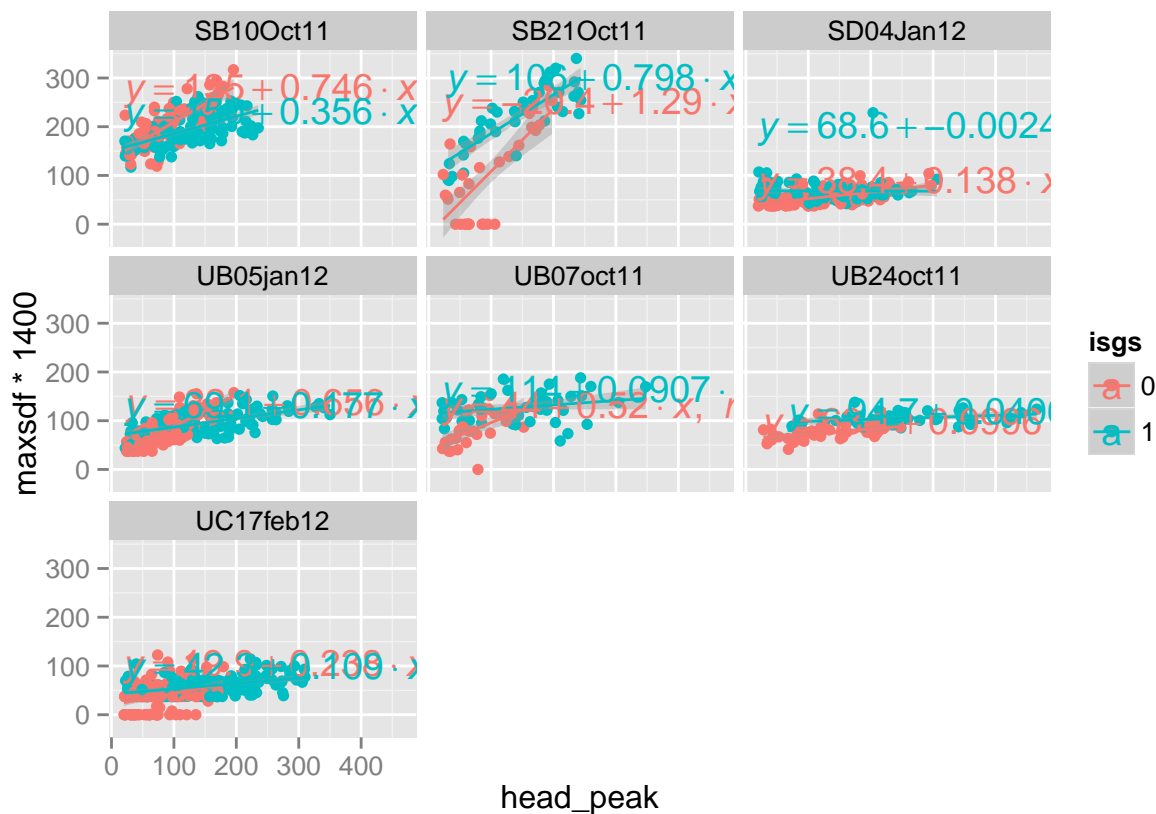
```

p$isgs<-as.factor(p$isgs)
p %>%
  group_by(Neuron) %>%
  do(p.right=summary(lm(maxsdf ~ head_peak,data=filter(.,head_peak>20)))$coefficients[8],
    p.left=summary(lm(maxsdf ~ head_peak,data=filter(.,head_peak< -20)))$coefficients[8],
    p.left.slope=
      summary(lm(maxsdf ~ head_peak*isgs,data=filter(.,head_peak< -20)))$coefficients[16],
    p.left.int=
      summary(lm(maxsdf ~ head_peak*isgs,data=filter(.,head_peak< -20)))$coefficients[15],
    p.right.slope=
      summary(lm(maxsdf ~ head_peak*isgs,data=filter(.,head_peak>20)))$coefficients[16],
    p.right.int=
      summary(lm(maxsdf ~ head_peak*isgs,data=filter(.,head_peak>20)))$coefficients[15]) ->
  mm

pp<-merge(mm,p,by="Neuron")

qplot(head_peak,maxsdf*1400,col=isgs,data=filter(pp,head_peak> 20,p.right<0.001,p.right.slope<0.001 | p

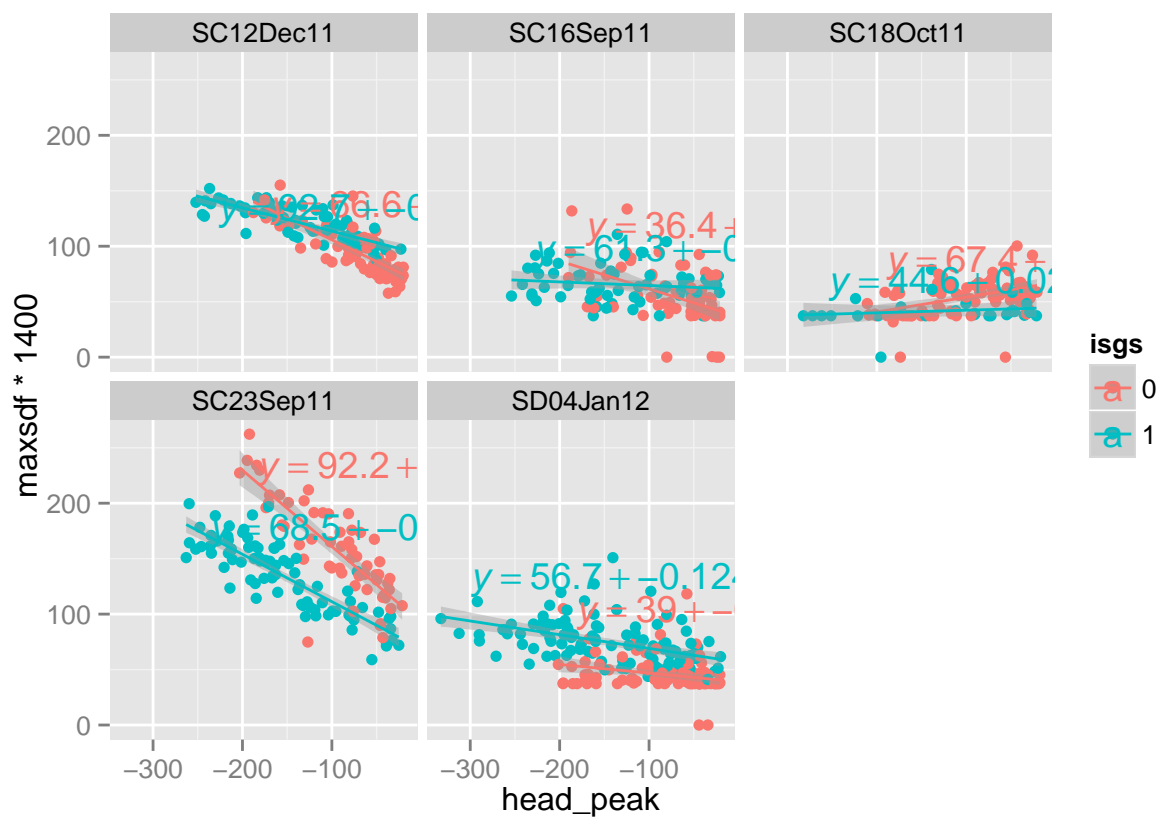
```



```

qplot(head_peak,maxsdf*1400,col=isgs,data=filter(pp,head_peak< -20,p.left<0.001,p.left.slope<0.001 | p

```



	Neuron	shift	rsquared	f
1	SB21Oct11	120	0.77	fr ~ 1 + rhv + rep
2	UB21dec11	60	0.70	fr ~ 1 + lep
3	UB22may12	70	0.64	fr ~ 1 + rhv + lhv
4	SE17Oct11	150	0.58	fr ~ 1 + rhv
5	SB10Oct11	170	0.58	fr ~ 1 + rhp + rhv
6	UC22may12	80	0.57	fr ~ 1 + rhv + lhv
7	SC23Sep11	130	0.47	fr ~ 1 + lhv
8	UBA4jun12	90	0.46	fr ~ 1 + rhv + lhv
9	SD09Jan12	130	0.41	fr ~ 1 + lhv
10	UB23mar12	80	0.40	fr ~ 1 + lhv + rep
11	SC12Dec11	70	0.40	fr ~ 1 + lhv
12	UB16feb12	90	0.40	fr ~ 1 + lhv
13	UB05jan12	60	0.39	fr ~ 1 + lhp + lhv + rha
14	SB15Sep11	110	0.37	fr ~ 1 + rhv
15	UB28sep11	20	0.35	fr ~ 1 + rhp + rhv + rep
16	SD03Nov11	160	0.34	fr ~ 1 + lhv
17	SC18Oct11	40	0.33	fr ~ 1 + rhv + lep
18	SB16Sep11	70	0.32	fr ~ 1 + lhv
19	UD16sep11	130	0.32	fr ~ 1 + lhv
20	UB04nov11	70	0.31	fr ~ 1 + rhv + lhv
21	UBB4jun12	130	0.30	fr ~ 1 + rhv + lhv
22	SB18Oct11	70	0.30	fr ~ 1 + rhv
23	UB26mar12	80	0.30	fr ~ 1 + lhv
24	UE31oct11	40	0.29	fr ~ 1 + rhv + lhv
25	SC21Dec11	130	0.29	fr ~ 1 + lhv
26	SC07Oct11	80	0.28	fr ~ 1 + lhp + lhv
27	SD13Jan12	190	0.27	fr ~ 1 + lhv
28	UC17feb12	100	0.26	fr ~ 1 + lhv + rep
29	SC16Sep11	60	0.26	fr ~ 1 + lhv + lep
30	UB24oct11	50	0.24	fr ~ 1 + rhv
31	UC03jan12	110	0.23	fr ~ 1 + lhv + rep
32	UB14may12	100	0.23	fr ~ 1 + rhv + lhv
33	SC19Oct11	70	0.22	fr ~ 1 + rhv
34	SD30Sep11	200	0.22	fr ~ 1 + rhp + rhv
35	SC28Nov11	110	0.21	fr ~ 1 + lhv + lep
36	SC14Oct11	180	0.20	fr ~ 1 + rhv
37	SD04Jan12	60	0.20	fr ~ 1 + rhv
38	SC19Jan12	190	0.20	fr ~ 1 + lhv
39	SB28Sep11	50	0.19	fr ~ 1 + rhv + lep
40	SD21Sep11	60	0.18	fr ~ 1 + rhv + lhv
41	SB05Oct11	80	0.17	fr ~ 1 + rhv + lhv
42	SB10Jan12	90	0.17	fr ~ 1 + lhv + lep
43	SB30Sep11	130	0.16	fr ~ 1 + rhv
44	SB19Jan12	120	0.16	fr ~ 1 + rhv
45	SD06Dec11	50	0.15	fr ~ 1 + rhv + lhv
46	SB04Nov11	90	0.15	fr ~ 1 + rhv + lhv
47	UB07oct11	80	0.14	fr ~ 1 + lhp + rhv
48	UB23feb12	50	0.13	fr ~ 1 + rhv
49	SD28Sep11	130	0.09	fr ~ 1 + rep
50	UB11jan12	40	0.06	fr ~ 1 + lhp
51	SB07Oct11	200	0.05	fr ~ 1 + rhv

Table 1: This table shows the results of a step-wise fitting procedure that with a threshold for inclusion of an increase of 0.5 in the R2

	Neuron	Coef	Position.Type
1	UB21dec11	7.97	Leftward.Eye
2	SB28Sep11	2.49	Rightward.Head
3	SB21Oct11	2.07	Rightward.Eye
4	SC18Oct11	1.11	Rightward.Head
5	SB10Oct11	0.97	Rightward.Eye
6	SC28Nov11	0.95	Rightward.Eye
7	UB05jan12	0.87	Rightward.Head
8	SC16Sep11	0.74	Rightward.Eye
9	UB28sep11	0.69	Rightward.Head
10	SC07Oct11	0.48	Rightward.Head
11	UC17feb12	0.47	Rightward.Head
12	UC03jan12	0.44	Rightward.Eye
13	UB23mar12	0.40	Rightward.Head