library(survival)

install.packages("ggplot2", dependencies=TRUE)

 ggsurv <- function(s, CI = 'def', plot.cens = T, surv.col = 'gg.def',

 cens.col = 'red', lty.est = 1, lty.ci = 2,

 cens.shape = 3, back.white = F, xlab = 'Time',

 ylab = 'Survival', main = ''){

 library(ggplot2)

 strata <- ifelse(is.null(s$strata) ==T, 1, length(s$strata))

 stopifnot(length(surv.col) == 1 | length(surv.col) == strata)

 stopifnot(length(lty.est) == 1 | length(lty.est) == strata)

 ggsurv.s <- function(s, CI = 'def', plot.cens = T, surv.col = 'gg.def',

 cens.col = 'red', lty.est = 1, lty.ci = 2,

 cens.shape = 3, back.white = F, xlab = 'Time',

 ylab = 'Survival', main = ''){

 dat <- data.frame(time = c(0, s$time),

 surv = c(1, s$surv),

 up = c(1, s$upper),

 low = c(1, s$lower),

 cens = c(0, s$n.censor))

 dat.cens <- subset(dat, cens != 0)

 col <- ifelse(surv.col == 'gg.def', 'black', surv.col)

 pl <- ggplot(dat, aes(x = time, y = surv)) +

 xlab(xlab) + ylab(ylab) + ggtitle(main) +

 geom\_step(col = col, lty = lty.est)

 pl <- if(CI == T | CI == 'def') {

 pl + geom\_step(aes(y = up), color = col, lty = lty.ci) +

 geom\_step(aes(y = low), color = col, lty = lty.ci)

 } else (pl)

 pl <- if(plot.cens == T & length(dat.cens) > 0){

 pl + geom\_point(data = dat.cens, aes(y = surv), shape = cens.shape,

 col = cens.col)

 } else if (plot.cens == T & length(dat.cens) == 0){

 stop ('There are no censored observations')

 } else(pl)

 pl <- if(back.white == T) {pl + theme\_bw()

 } else (pl)

 pl

 }

 ggsurv.m <- function(s, CI = 'def', plot.cens = T, surv.col = 'gg.def',

 cens.col = 'red', lty.est = 1, lty.ci = 2,

 cens.shape = 3, back.white = F, xlab = 'Time',

 ylab = 'Survival', main = '') {

 n <- s$strata

 groups <- factor(unlist(strsplit(names

 (s$strata), '='))[seq(2, 2\*strata, by = 2)])

 gr.name <- unlist(strsplit(names(s$strata), '='))[1]

 gr.df <- vector('list', strata)

 ind <- vector('list', strata)

 n.ind <- c(0,n); n.ind <- cumsum(n.ind)

 for(i in 1:strata) ind[[i]] <- (n.ind[i]+1):n.ind[i+1]

 for(i in 1:strata){

 gr.df[[i]] <- data.frame(

 time = c(0, s$time[ ind[[i]] ]),

 surv = c(1, s$surv[ ind[[i]] ]),

 up = c(1, s$upper[ ind[[i]] ]),

 low = c(1, s$lower[ ind[[i]] ]),

 cens = c(0, s$n.censor[ ind[[i]] ]),

 group = rep(groups[i], n[i] + 1))

 }

 dat <- do.call(rbind, gr.df)

 dat.cens <- subset(dat, cens != 0)

 pl <- ggplot(dat, aes(x = time, y = surv, group = group)) +

 xlab(xlab) + ylab(ylab) + ggtitle(main) +

 geom\_step(aes(col = group, lty = group))

 col <- if(length(surv.col == 1)){

 scale\_colour\_manual(name = gr.name, values = rep(surv.col, strata))

 } else{

 scale\_colour\_manual(name = gr.name, values = surv.col)

 }

 pl <- if(surv.col[1] != 'gg.def'){

 pl + col

 } else {pl + scale\_colour\_discrete(name = gr.name)}

 line <- if(length(lty.est) == 1){

 scale\_linetype\_manual(name = gr.name, values = rep(lty.est, strata))

 } else {scale\_linetype\_manual(name = gr.name, values = lty.est)}

 pl <- pl + line

 pl <- if(CI == T) {

 if(length(surv.col) > 1 && length(lty.est) > 1){

 stop('Either surv.col or lty.est should be of length 1 in order

 to plot 95% CI with multiple strata')

 }else if((length(surv.col) > 1 | surv.col == 'gg.def')[1]){

 pl + geom\_step(aes(y = up, color = group), lty = lty.ci) +

 geom\_step(aes(y = low, color = group), lty = lty.ci)

 } else{pl + geom\_step(aes(y = up, lty = group), col = surv.col) +

 geom\_step(aes(y = low,lty = group), col = surv.col)}

 } else {pl}

 pl <- if(plot.cens == T & length(dat.cens) > 0){

 pl + geom\_point(data = dat.cens, aes(y = surv), shape = cens.shape,

 col = cens.col)

 } else if (plot.cens == T & length(dat.cens) == 0){

 stop ('There are no censored observations')

 } else(pl)

 pl <- if(back.white == T) {pl + theme\_bw()

 } else (pl)

 pl

 }

 pl <- if(strata == 1) {ggsurv.s(s, CI , plot.cens, surv.col ,

 cens.col, lty.est, lty.ci,

 cens.shape, back.white, xlab,

 ylab, main)

 } else {ggsurv.m(s, CI, plot.cens, surv.col ,

 cens.col, lty.est, lty.ci,

 cens.shape, back.white, xlab,

 ylab, main)}

 pl

}

test3 <- read.csv("filename.csv",head=TRUE, sep=",")

#test3=subset(test3, trt!="A") #if necessary,delete "#"

#test3=subset(test3, trt!="B")#if necessary,delete "#"

#test3=subset(test3, trt!="C")#if necessary,delete "#"

#test3=subset(test3, trt!="D")#if necessary,delete "#"

#test3=subset(test3, trt!="E")#if necessary,delete "#"

#test3=subset(test3, cage==1) #keeping only some data, here only for colony 1. #if necessary,delete "#"

test2=NULL

newline=NULL

for (i in 1:nrow(test3))

 {

 for (j in 1:test3[i,3]) test2=rbind(test2, test3[i,c(1,2,4,5)])

 }

bee.surv2 <- survfit(Surv(age,censor) ~ trt, data = test2)

(pl2 <- ggsurv(bee.surv2))

survdiff(Surv(age,censor)~trt, data=test2, rho=0)