Untitled

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library(ggplot2)  
library(MASS)  
library(tidyverse)

## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --

## v tibble 3.0.5 v dplyr 1.0.3  
## v tidyr 1.1.2 v stringr 1.4.0  
## v readr 1.4.0 v forcats 0.5.1  
## v purrr 0.3.4

## -- Conflicts ------------------------------------------ tidyverse\_conflicts() --  
## x dplyr::filter() masks stats::filter()  
## x dplyr::lag() masks stats::lag()  
## x dplyr::select() masks MASS::select()

library(dplyr)  
library(sqldf)

## Loading required package: gsubfn

## Loading required package: proto

## Loading required package: RSQLite

library(data.table)

##   
## Attaching package: 'data.table'

## The following objects are masked from 'package:dplyr':  
##   
## between, first, last

## The following object is masked from 'package:purrr':  
##   
## transpose

library(ggtext)  
library(gridExtra)

##   
## Attaching package: 'gridExtra'

## The following object is masked from 'package:dplyr':  
##   
## combine

library(gtable)  
library(cowplot)  
library(grid)  
library(egg)  
library(e1071)  
  
dataFromCSV<-read.csv(file.choose(),stringsAsFactors = FALSE)  
  
fd<-dataFromCSV %>%  
 group\_by(Yp, NSAp, Zp>0) %>%  
 summarise(  
 cnt = n()  
 ) %>%  
 filter(  
 Yp>1979  
 )

## `summarise()` has grouped output by 'Yp', 'NSAp'. You can override using the `.groups` argument.

yrcnt = NULL  
years = 1980:2018  
  
for (i in 1:length(years)){  
 hht <- filter(fd, Yp==i+1979)  
 yrcnt[i] <- ( sum(hht[4]))  
}  
  
############################################  
# FIGURE 2A - 3rd Graph SA & CIP Categories  
############################################  
  
# Specify years and categories to analyze  
years <- 1980:2018  
cats <- 1:4  
  
SA\_CIP1 <- dataFromCSV %>%  
 group\_by(Yp, NSAp, NCIPp, Zp>0) %>%  
 summarise(  
 cnt = n()  
 ) %>%  
 filter((NCIPp == 1 |  
 NSAp == 1) & Yp>1979)

## `summarise()` has grouped output by 'Yp', 'NSAp', 'NCIPp'. You can override using the `.groups` argument.

SA\_CIP2 <- dataFromCSV %>%  
 group\_by(Yp, NSAp, NCIPp, Zp>0) %>%  
 summarise(  
 cnt = n()  
 ) %>%  
 filter(NCIPp == 2 &  
 NSAp == 2 &  
 Yp>1979)

## `summarise()` has grouped output by 'Yp', 'NSAp', 'NCIPp'. You can override using the `.groups` argument.

SA\_CIP3 <- dataFromCSV %>%  
 group\_by(Yp, NSAp, NCIPp, Zp>0) %>%  
 summarise(  
 cnt = n()  
 ) %>%  
 filter(NCIPp == 3 &  
 NSAp == 3 &  
 Yp>1979)

## `summarise()` has grouped output by 'Yp', 'NSAp', 'NCIPp'. You can override using the `.groups` argument.

SA\_CIP4 <- dataFromCSV %>%  
 group\_by(Yp, NSAp, NCIPp, Zp>0) %>%  
 summarise(  
 cnt = n()  
 ) %>%  
 filter(NCIPp == 4 &  
 NSAp == 4 &  
 Yp>1979)

## `summarise()` has grouped output by 'Yp', 'NSAp', 'NCIPp'. You can override using the `.groups` argument.

SA\_CIP <- SA\_CIP1 %>% full\_join(SA\_CIP2, by = NULL) %>% full\_join(SA\_CIP3, by = NULL) %>% full\_join(SA\_CIP4, by = NULL)

## Joining, by = c("Yp", "NSAp", "NCIPp", "Zp > 0", "cnt")

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# Create matrix to store SA\_CIP papers in specified categories by years  
yrSA\_CIPcatNEG1 <- tibble(Yp = 0, NSAp=0, NCIPp=0, `Zp > 0`=FALSE, cnt= 0)  
yrSA\_CIPcatPOS1 <- tibble(Yp = 0, NSAp=0, NCIPp=0, `Zp > 0`=TRUE, cnt= 0)  
yrSA\_CIPcatNEG2 <- tibble(Yp = 0, NSAp=0, NCIPp=0, `Zp > 0`=FALSE, cnt= 0)  
yrSA\_CIPcatPOS2 <- tibble(Yp = 0, NSAp=0, NCIPp=0, `Zp > 0`=TRUE, cnt= 0)  
yrSA\_CIPcatNEG3 <- tibble(Yp = 0, NSAp=0, NCIPp=0, `Zp > 0`=FALSE, cnt= 0)  
yrSA\_CIPcatPOS3 <- tibble(Yp = 0, NSAp=0, NCIPp=0, `Zp > 0`=TRUE, cnt= 0)  
yrSA\_CIPcatNEG4 <- tibble(Yp = 0, NSAp=0, NCIPp=0, `Zp > 0`=FALSE, cnt= 0)  
yrSA\_CIPcatPOS4 <- tibble(Yp = 0, NSAp=0, NCIPp=0, `Zp > 0`=TRUE, cnt= 0)  
  
# Create vectors to store total CIP papers with below average citations in specified categories by years  
yrSA\_CIPtotNEG <- matrix(data=NA, nrow = 1, ncol = length(years))  
  
  
# Create vectors to store total CIP papers with above average citations in specified categories by years  
yrSA\_CIPtotPOS <- matrix(data=NA, nrow = 1, ncol = length(years))  
  
  
# tmp1 <- tibble(Yp = as.integer(Yp = zer[1:8]), NCIPp=as.integer(0), 'Zp > 0'=FALSE, cnt= as.integer(0))  
for (i in 1:length(years) ){  
   
 # Filter SA\_CIP of all categories  
 tmp1 <- filter(SA\_CIP, Yp == (i+1979) )  
   
 yrSA\_CIPcatNEG1 <- yrSA\_CIPcatNEG1 %>% full\_join(filter(tmp1, (NCIPp == 1 | NSAp == 1) & `Zp > 0` == FALSE))  
 yrSA\_CIPcatPOS1 <- yrSA\_CIPcatPOS1 %>% full\_join(filter(tmp1, (NCIPp == 1 | NSAp == 1) & `Zp > 0` == TRUE))  
   
 yrSA\_CIPcatNEG2 <- yrSA\_CIPcatNEG2 %>% full\_join(filter(tmp1, (NCIPp == 2 | NSAp == 2) & `Zp > 0` == FALSE))  
 yrSA\_CIPcatPOS2 <- yrSA\_CIPcatPOS2 %>% full\_join(filter(tmp1, (NCIPp == 2 | NSAp == 2) & `Zp > 0` == TRUE))  
   
 yrSA\_CIPcatNEG3 <- yrSA\_CIPcatNEG3 %>% full\_join(filter(tmp1, (NCIPp == 3 | NSAp == 3) & `Zp > 0` == FALSE))  
 yrSA\_CIPcatPOS3 <- yrSA\_CIPcatPOS3 %>% full\_join(filter(tmp1, (NCIPp == 3 | NSAp == 3) & `Zp > 0` == TRUE))  
   
 yrSA\_CIPcatNEG4 <- yrSA\_CIPcatNEG4 %>% full\_join(filter(tmp1, (NCIPp == 4 | NSAp == 4) & `Zp > 0` == FALSE))  
 yrSA\_CIPcatPOS4 <- yrSA\_CIPcatPOS4 %>% full\_join(filter(tmp1, (NCIPp == 4 | NSAp == 4) & `Zp > 0` == TRUE))  
   
 # }   
   
   
 yrSA\_CIPtotNEG[1,i] <- sum(filter(tmp1, `Zp > 0` == FALSE)[[5]])  
 yrSA\_CIPtotPOS[1,i] <- sum(filter(tmp1, `Zp > 0` == TRUE)[[5]])  
   
}

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## Joining, by = c("Yp", "NSAp", "NCIPp", "Zp > 0", "cnt")

#colnames(yrSA\_CIPcat) <- c(1980:2018)  
#rownames(yrSA\_CIPcat) <- c("SA\_CIP1 Zp-", "SA\_CIP1 Zp+", "SA\_CIP2 Zp-", "SA\_CIP2 Zp+", "SA\_CIP3 Zp-", "SA\_CIP3 Zp+", "SA\_CIP4 Zp-", "SA\_CIP4 Zp+")  
colnames(yrSA\_CIPtotNEG) <- paste(1980:2018, "Neg Cite.")  
colnames(yrSA\_CIPtotPOS) <- paste(1980:2018, "Pos Cite.")  
  
SA\_CIPpercTotNEG <- matrix(data=NA, nrow = length(cats), ncol = length(years))  
SA\_CIPpercTotPOS <- matrix(data=NA, nrow = length(cats), ncol = length(years))  
  
for (i in 1:length(years)){  
   
 SA\_CIPpercTotNEG[1,i] <- sum(filter(yrSA\_CIPcatNEG1, Yp == i + 1979)[[5]]) / yrSA\_CIPtotNEG[1,i]  
 SA\_CIPpercTotPOS[1,i] <- sum(filter(yrSA\_CIPcatPOS1, Yp == i + 1979)[[5]]) / yrSA\_CIPtotPOS[1,i]  
   
 SA\_CIPpercTotNEG[2,i] <- sum(filter(yrSA\_CIPcatNEG2, Yp == i + 1979)[[5]]) / yrSA\_CIPtotNEG[1,i]  
 SA\_CIPpercTotPOS[2,i] <- sum(filter(yrSA\_CIPcatPOS2, Yp == i + 1979)[[5]]) / yrSA\_CIPtotPOS[1,i]  
   
 SA\_CIPpercTotNEG[3,i] <- sum(filter(yrSA\_CIPcatNEG3, Yp == i + 1979)[[5]]) / yrSA\_CIPtotNEG[1,i]  
 SA\_CIPpercTotPOS[3,i] <- sum(filter(yrSA\_CIPcatPOS3, Yp == i + 1979)[[5]]) / yrSA\_CIPtotPOS[1,i]  
   
 SA\_CIPpercTotNEG[4,i] <- sum(filter(yrSA\_CIPcatNEG4, Yp == i + 1979)[[5]]) / yrSA\_CIPtotNEG[1,i]  
 SA\_CIPpercTotPOS[4,i] <- sum(filter(yrSA\_CIPcatPOS4, Yp == i + 1979)[[5]]) / yrSA\_CIPtotPOS[1,i]  
}  
  
colnames(SA\_CIPpercTotNEG) <- c(1980:2018)  
colnames(SA\_CIPpercTotPOS) <- c(1980:2018)  
  
rownames(SA\_CIPpercTotNEG) <- c("SA\_CIP1 Zp- %", "SA\_CIP2 Zp- %", "SA\_CIP3 Zp- %", "SA\_CIP4 Zp- %")  
rownames(SA\_CIPpercTotPOS) <- c("SA\_CIP1 Zp+ %", "SA\_CIP2 Zp+ %", "SA\_CIP3 Zp+ %", "SA\_CIP4 Zp+ %")  
  
years <- 1980:2018  
  
#Plotting for SACIP  
  
scp1 = data.frame(years=years, Fraction = (SA\_CIPpercTotPOS[1,]))  
scp2 = data.frame(years=years, Fraction = (SA\_CIPpercTotPOS[2,]))  
scp3 = data.frame(years=years, Fraction = SA\_CIPpercTotPOS[3,])  
scp4 = data.frame(years=years, Fraction = (SA\_CIPpercTotPOS[4,]))  
  
  
scn1 = data.frame(years=years, Fraction = (SA\_CIPpercTotNEG[1,]))  
scn2 = data.frame(years=years, Fraction = (SA\_CIPpercTotNEG[2,]))  
scn3 = data.frame(years=years, Fraction = SA\_CIPpercTotNEG[3,])  
scn4 = data.frame(years=years, Fraction = (SA\_CIPpercTotNEG[4,]))  
   
sce1<-ggplot()+geom\_line(data=scp1, mapping = aes(x=years,y=Fraction), size=0.5, color="grey30") + geom\_line(data=scp2, mapping = aes(x=years,y=Fraction), size=0.5, color="grey69") +  
 geom\_line(data=scp3, mapping = aes(x=years,y=Fraction), size=1, color="royalblue") + geom\_line(data=scp4, mapping = aes(x=years,y=Fraction), size=0.5, color="blue") +  
 geom\_line(data=scn1, mapping = aes(x=years,y=Fraction), linetype = "dashed", size=0.5, color="grey30") + geom\_line(data=scn2, mapping = aes(x=years,y=Fraction), linetype = "dashed", size=0.5, color="grey69") +  
 geom\_line(data=scn3, mapping = aes(x=years,y=Fraction), linetype = "dashed", size=0.5, color="royalblue") + geom\_line(data=scn4, mapping = aes(x=years,y=Fraction), linetype = "dashed", size=0.5, color="blue")  
  
sce2<-sce1+theme\_bw() + theme(panel.border = element\_rect(colour = "black", fill=NA, size=1), panel.grid.major = element\_blank(),  
 panel.grid.minor = element\_blank(), axis.line = element\_line(colour = "black"),  
 axis.text.x = element\_text(size=10))   
sce3<-sce2+scale\_x\_continuous(limits=c(1980, 2020), breaks=seq(1980, 2020, 5))+scale\_y\_continuous(limits=c(0.0, 1.0), breaks=seq(0.0, 1.0, 0.2))  
  
  
sce4<-sce3+labs(title = "", x = "", y = "")  
  
  
sce5<-sce4 +annotation\_custom(  
 ggplotGrob(sce4+annotation\_logticks() +  
 scale\_y\_log10(limits = c(NA,0.1))+scale\_x\_continuous(limits=c(1980, 2020), breaks=seq(1980, 2020, 10))),  
 xmin = 1983, xmax = 2007, ymin = 0.23, ymax = 0.8)

## Scale for 'y' is already present. Adding another scale for 'y', which will  
## replace the existing scale.

## Scale for 'x' is already present. Adding another scale for 'x', which will  
## replace the existing scale.

## Warning: Removed 39 row(s) containing missing values (geom\_path).  
  
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## Warning: Removed 39 row(s) containing missing values (geom\_path).

sce5+theme(legend.title = element\_text(size=12, color = "salmon", face="bold"),  
 legend.justification=c(0,1),   
 legend.position=c(0.05, 0.95),  
 legend.background = element\_blank(),  
 legend.key = element\_blank()) +   
 labs(subtitle="Cross-SA&CIP")

A picture containing graphical user interface

Description automatically generated