Creating the Reltrad Variable in the General Social Survey Using R

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Haven't you always wanted an easy to access R script to create the famous *reltrad* religious categorizaton in the General Social Survey? Well, today is your lucky day.

The measure of religious affiliation described in (Steensland et al. 2000), otherwise known as *reltrad*, remains the most popular way to categorize people religiously in the United States. Early development of the measure was done by Corwin Smidt, Bud Kellstedt and James Guth during their annual seminars on measuring religion offered at Calvin College. The *reltrad* crowd continues to think their measure is pretty good (Woodberry et al. 2012). A *reltrad* for African Americans has been developed - this is required reading for those who use *reltrad* in their research (Shelton and Cobb 2017).

Up until now, the code to create the *reltrad* variable from the General Social Survey has only been available in PDF. Stata code for *reltrad* is available from Lifeway Research. Lifeway also published R code.

Here, I am providing an additional R translation of the code that is more reproducible and up on Github for the community to use easily. I apply this to the 1972-2016 GSS combined data file. Note that I do incorporate the corrections suggested by (Stetzer and Burge 2016).

This code takes a GSS datafile and then recodes religious affiliation into the *reltrad* scheme created by Steensland et al. It breaks the US population into Conservative Protestant, Mainline Protestant, Black Protestant, Jewish, Other, and Non-Affiliated.

I've written this code in vanilla R, but resorted to the *car* package for easier recoding. The code is pretty well commented, but tweet at me or email me if you have questions. It's also bad code that I wrote a long while ago. I'd do this differently with dplyr.

First, here's how to get the NORC data down:

```
#Not run
#Get the GSS data, import into a temp file and unzip
#read in the GSS data
#Convert to R data format
#Save
library(dplyr)
temp <- tempfile()
download.file("http://gss.norc.org/documents/stata/GSS_stata.zip",temp)
unzip(temp, files="GSS7216_R4.DTA",exdir = "OrigData")
unlink(temp);rm(temp)
gss = haven::read_dta("OrigData/GSS7216_R4.DTA")
save(gss, file = file)
#Load the data
load(file)
#
#Get the variables we want, this is a huge dataset.
gss =  gss %>% select(relig, other, race, denom, year, attend, id, wtss)
save(gss, file=file)
```

Now, here is the full code to create *reltrad* in R. The original R source code for the *reltrad* recoding can be accessed from GitHub here.Feel free to fork this code and add your own file path.

```r
library(car)
#library(tidyverse)
library(descr) #Get the rocking CrossTable Function! Weighted! crosstab
#This is where the R dataset will live:
urldata = url("https://github.com/thebigbird/academic/raw/master/static/files/gss7216.data")
#
load(urldata)
#recode into 5 major categories of religious affiliation
# 1) Protestant [Ask DENOM] 1371    47.8
# 2) Catholic
# 3) Jewish
# 4) None
# 5) Other (specify)
# 6) Buddhism
# 7) Hinduism
# 8) Other Eastern religion
# 9) Muslim/Islam
# 10) Orthodox Christian
# 11) Christian
# 12) Native American
# 13) Inter-/non-denominational
# 98) Don't know
# 99) No answer
gss$xaffil = car::recode(gss$relig, "1=1;2=4;3=5;4=9;5:10=6;11=1;12=6;13=1")
gss$xaffil = as.factor(gss$xaffil)
levels(gss$xaffil) = c("prot", "cath", "jew", "other", "nonaf")

# The following code breaks down religious groups by evangelicals, black
# Protestants, mainline, liberal and conservative nontraditional,
# and Protestant nondenomination/no denomination.

#####Black Protestants
#Create a racial indicator
gss$black = ifelse(gss$race == "black", 1, 0)
gss$white = ifelse(gss$race == "white", 1, 0)
#Take the "other" Protestant denominations and pull out the
#historical Black denominations, e.g. COGIC
gss$xbp = gss$other
gss$xbp = ifelse(gss$xbp %in% c(7, 14, 15, 21, 37, 38, 56, 78, 79, 85, 86, 87, 88, 98, 103, 104, 128, 13
#National baptists and AME, AMEZ
gss$xbp = ifelse(gss$denom %in% c(12, 13, 20, 21), 1, gss$xbp)
#Blacks in certain denoms get recoded as Black Protestant
#Other baptist, amer. baptist, south. bap, other Methodists
gss$xbp[gss$black == 1] = ifelse(gss$denom[gss$black == 1] %in%
                                 c(10, 11, 18, 23, 13, 14), 1, gss$xbp[gss$black == 1])
#Black missionary baptists
gss$xbp[gss$black == 1] = ifelse(gss$other[gss$black == 1] %in%
                                 c(93), 1, gss$xbp[gss$black == 1])

#Evangelical Protestants#
#Recode the evangelicals in the other variable
gss$xev=gss$other
evother=c(2, 3, 5, 6, 9, 10, 12, 13, 16, 18, 20, 22, 24, 26, 27, 28, 31, 32, 34, 35, 36, 39, 41, 42, 43
```

```
          84, 90, 91, 92, 94, 97, 100, 101, 102, 106, 107, 108, 109, 110, 111, 112, 115, 116, 117, 118,
gss$xev=ifelse(gss$xev %in% evother,1,0)
#Cons Lutherans, cons presbyterians
gss$xev=ifelse(gss$denom %in% c(32,33,34,42), 1, gss$xev)
#White baptists, white other methodists
gss$xev[gss$black==0]=ifelse(gss$denom[gss$black==0] %in%
                               c(10,18,15,23,14),1,gss$xev[gss$black==0])
#Missionary baptist
gss$xev[gss$black==0]=ifelse(as.numeric(gss$other[gss$black==0]) %in%
                               c(93),1,gss$xev[gss$black==0])

#Lifeway correction to reltrad
gss$xtn = gss$relig
gss$denom2 = gss$denom
#70 = No denomination or non-denominations
gss$denom2 = recode(gss$denom2, "70=1; else=0")
gss$xtn = recode(gss$xtn, "11=1; else=0")
gss$xtn[gss$denom2 == 1] = 2
gss$xtn = recode(gss$xtn, "1=1; 2=0")
#Only weekly or +weekly attenders
gss$xtn[gss$attend < 4|gss$attend==3|gss$attend==0|is.na(gss$attend)] <- 0
gss$xev[gss$xtn ==1] <- 1

gss$inter <- gss$relig
#Interdenominationals
gss$inter <- recode(gss$inter, "13=1; else=0")
gss$inter[gss$attend < 4|gss$attend==3|gss$attend==0|is.na(gss$attend)] <- 0
gss$xev[gss$inter ==1] <- 1

# Mainline Protestants
#The other category
gss$xml = NA
gss$xml = gss$other
mpother=c(1,8,19,23,25,40, 44, 46, 48, 49, 50, 54, 70, 71, 72, 73, 81, 89, 96, 99, 105, 119, 148)
gss$xml=ifelse(gss$xml %in% mpother,1,0)
#The denom category
gss$xml = ifelse(gss$denom %in%
                   c(30, 50, 35, 31, 38, 40, 48, 43, 22, 41),1,gss$xml)
#Mainline baptist denom and methodists - if the R is white, they get coded mainline
gss$xml[gss$black==0] = ifelse(gss$denom[gss$denom[gss$black==0]] %in%
                                 c(11, 28),1,gss$xml[gss$black==0])

#Catholics
gss$xcath = gss$other
#Polish National Church and Catholic
gss$xcath = ifelse(gss$denom %in% c(123, 28),1,0)
#People who say that they are other get coded zero
gss$xcath=ifelse(gss$xaffil=="cath", 1, gss$xcath)

#Jews
gss$xjew=0
gss$xjew=ifelse(gss$xaffil=="jew",1,0)
```

```
#Adherents of other religions.
gss$xother = gss$other
gss$xother = ifelse(gss$xother %in%
                      c(11, 17, 29, 30, 33, 58, 59, 60, 61, 62, 64, 74, 75, 80, 82,
                        95, 113, 114, 130, 136, 141, 145),1,0)
#Adds others from main religious recoding
gss$xother=ifelse(gss$xaffil=="other" & gss$xev==0,1,0)

#Unaffiliateds/Nonaffiliateds
gss$xnonaff=0
gss$xnonaff[gss$xaffil=="nonaf"]=1

#The recodes non-denoms based on their attendance
#Non active Don't Know Protestants coded to nonaffil
gss$xprotdk = ifelse(gss$denom == 70,1,0)
gss$xprotdk[gss$xprotdk == 1 & gss$attend >= 4] = 0
#Active Don't Know Protestants coded to evangelicals
gss$xnonaff[gss$xprotdk]=1
gss$xev[gss$xprotdk == 1 & gss$attend >= 4] = 1

#All these folks get coded evangelical
gss$reltrad = factor(NA, levels=c("Conservative Protestant",
                                  "Mainline Protestant",
                                  "Black Protestant",
                                  "Roman Catholic",
                                  "Other",
                                  "None"))
gss$reltrad[gss$xev==1]="Conservative Protestant"
gss$reltrad[gss$xml==1]="Mainline Protestant"
gss$reltrad[gss$xbp==1]="Black Protestant"
gss$reltrad[gss$xcath==1]="Roman Catholic"
gss$reltrad[gss$xother==1]="Other"
gss$reltrad[gss$xnonaff==1]="None"
save(gss,file="gss7216_reltrad.data")
gss$year = as.factor(gss$year)
#End of my poorly written R code! Sorry - I'll clean it up some day!
```

The following table looks at how the religious composition of the US has changed over time. This uses the very useful wrapper *crosstab( )* for the *CrossTable( )* function in the package descr. It allows you to make weighted crosstabs easily and prettily. In subsequent posts, I will have some fun with ggplot to visual these data.

```
## @knitr ReltradTable
print(
  crosstab(gss$year,gss$reltrad,
           weight = gss$wtss, prop.c = T, prop.r = T, prop.t = F,
           total.c = F, plot = F))
```

```
##    Cell Contents
## |-------------------------|
## |                   Count |
## |             Row Percent |
## |          Column Percent |
## |-------------------------|
##
```

```
## ============================================================================
##              gss$reltrad
## gss$year     Cnsrvtv P   Mnln Prts   Blck Prts   Rmn Cthlc   Other    None
## ----------------------------------------------------------------------------
## 1972              325         427          11         645      27      84
##                 21.4%       28.1%        0.7%       42.5%    1.8%    5.5%
##                  2.5%        2.6%        1.1%        3.6%    1.6%    1.2%
## ----------------------------------------------------------------------------
## 1973              317         368          17         586      30      96
##                 22.4%       26.0%        1.2%       41.4%    2.1%    6.8%
##                  2.5%        2.3%        1.7%        3.3%    1.8%    1.3%
## ----------------------------------------------------------------------------
## 1974              322         392           7         566       8     101
##                 23.1%       28.1%        0.5%       40.5%    0.6%    7.2%
##                  2.5%        2.4%        0.7%        3.2%    0.5%    1.4%
## ----------------------------------------------------------------------------
## 1975              309         427          14         538      14     113
##                 21.8%       30.2%        1.0%       38.0%    1.0%    8.0%
##                  2.4%        2.6%        1.4%        3.0%    0.8%    1.6%
## ----------------------------------------------------------------------------
## 1976              303         415          11         552      15     114
##                 21.5%       29.4%        0.8%       39.1%    1.1%    8.1%
##                  2.3%        2.6%        1.1%        3.1%    0.9%    1.6%
## ----------------------------------------------------------------------------
## 1977              324         419          10         566      18      93
##                 22.7%       29.3%        0.7%       39.6%    1.3%    6.5%
##                  2.5%        2.6%        1.0%        3.2%    1.1%    1.3%
## ----------------------------------------------------------------------------
## 1978              318         414          10         574      17     119
##                 21.9%       28.5%        0.7%       39.5%    1.2%    8.2%
##                  2.5%        2.5%        1.0%        3.2%    1.0%    1.6%
## ----------------------------------------------------------------------------
## 1980              307         398           9         532      30     105
##                 22.2%       28.8%        0.7%       38.5%    2.2%    7.6%
##                  2.4%        2.4%        0.9%        3.0%    1.8%    1.5%
## ----------------------------------------------------------------------------
## 1982              478         465          32         609      21     132
##                 27.5%       26.8%        1.8%       35.1%    1.2%    7.6%
##                  3.7%        2.9%        3.2%        3.4%    1.2%    1.8%
## ----------------------------------------------------------------------------
## 1983              303         463          10         586      26     117
##                 20.1%       30.8%        0.7%       38.9%    1.7%    7.8%
##                  2.3%        2.8%        1.0%        3.3%    1.5%    1.6%
## ----------------------------------------------------------------------------
## 1984              321         486          34         393      20     107
##                 23.6%       35.7%        2.5%       28.9%    1.5%    7.9%
##                  2.5%        3.0%        3.4%        2.2%    1.2%    1.5%
## ----------------------------------------------------------------------------
## 1985              364         479          30         433      25     109
##                 25.3%       33.3%        2.1%       30.1%    1.7%    7.6%
##                  2.8%        2.9%        3.0%        2.4%    1.5%    1.5%
## ----------------------------------------------------------------------------
## 1986              337         471          29         398      31      98
##                 24.7%       34.5%        2.1%       29.2%    2.3%    7.2%
```

```
##                  2.6%       2.9%       2.9%       2.2%    1.8%    1.4%
## ------------------------------------------------------------------------
## 1987              498        551         98        396      40     121
##                 29.2%      32.3%       5.8%      23.2%    2.3%    7.1%
##                  3.9%       3.4%       9.8%       2.2%    2.4%    1.7%
## ------------------------------------------------------------------------
## 1988              340        445         27        399      42     118
##                 24.8%      32.5%       2.0%      29.1%    3.1%    8.6%
##                  2.6%       2.7%       2.7%       2.2%    2.5%    1.6%
## ------------------------------------------------------------------------
## 1989              342        480         34        403      34     120
##                 24.2%      34.0%       2.4%      28.5%    2.4%    8.5%
##                  2.6%       3.0%       3.4%       2.3%    2.0%    1.7%
## ------------------------------------------------------------------------
## 1990              258        469         34        343      42     109
##                 20.6%      37.4%       2.7%      27.3%    3.3%    8.7%
##                  2.0%       2.9%       3.4%       1.9%    2.5%    1.5%
## ------------------------------------------------------------------------
## 1991              322        524         42        398      29     102
##                 22.7%      37.0%       3.0%      28.1%    2.0%    7.2%
##                  2.5%       3.2%       4.2%       2.2%    1.7%    1.4%
## ------------------------------------------------------------------------
## 1993              376        498         35        374      42     146
##                 25.6%      33.9%       2.4%      25.4%    2.9%    9.9%
##                  2.9%       3.1%       3.5%       2.1%    2.5%    2.0%
## ------------------------------------------------------------------------
## 1994              714        840         39        791     115     274
##                 25.7%      30.3%       1.4%      28.5%    4.1%    9.9%
##                  5.5%       5.2%       3.9%       4.4%    6.8%    3.8%
## ------------------------------------------------------------------------
## 1996              685        778         45        708     143     339
##                 25.4%      28.8%       1.7%      26.2%    5.3%   12.6%
##                  5.3%       4.8%       4.5%       4.0%    8.5%    4.7%
## ------------------------------------------------------------------------
## 1998              662        674         52        735      70     396
##                 25.6%      26.0%       2.0%      28.4%    2.7%   15.3%
##                  5.1%       4.1%       5.2%       4.1%    4.2%    5.5%
## ------------------------------------------------------------------------
## 2000              620        673         66        709      96     398
##                 24.2%      26.3%       2.6%      27.7%    3.7%   15.5%
##                  4.8%       4.1%       6.6%       4.0%    5.7%    5.5%
## ------------------------------------------------------------------------
## 2002              554        703         56        707      91     379
##                 22.2%      28.2%       2.2%      28.4%    3.7%   15.2%
##                  4.3%       4.3%       5.6%       4.0%    5.4%    5.2%
## ------------------------------------------------------------------------
## 2004              537        655         39        721     113     394
##                 21.8%      26.6%       1.6%      29.3%    4.6%   16.0%
##                  4.2%       4.0%       3.9%       4.0%    6.7%    5.5%
## ------------------------------------------------------------------------
## 2006              793       1018         82       1247     128     711
##                 19.9%      25.6%       2.1%      31.3%    3.2%   17.9%
##                  6.1%       6.3%       8.2%       7.0%    7.6%    9.8%
## ------------------------------------------------------------------------
```

```
## 2008             342         469          23         535      62      338
##                 19.3%       26.5%        1.3%       30.2%    3.5%    19.1%
##                  2.6%        2.9%        2.3%        3.0%    3.7%     4.7%
## ---------------------------------------------------------------------------
## 2010             378         414          23         538      70      365
##                 21.1%       23.2%        1.3%       30.1%    3.9%    20.4%
##                  2.9%        2.5%        2.3%        3.0%    4.2%     5.1%
## ---------------------------------------------------------------------------
## 2012             381         414          14         496      82      388
##                 21.5%       23.3%        0.8%       27.9%    4.6%    21.9%
##                  2.9%        2.5%        1.4%        2.8%    4.9%     5.4%
## ---------------------------------------------------------------------------
## 2014             352         506          33         657      97      520
##                 16.3%       23.4%        1.5%       30.3%    4.5%    24.0%
##                  2.7%        3.1%        3.3%        3.7%    5.8%     7.2%
## ---------------------------------------------------------------------------
## 2016             438         533          29         689     107      618
##                 18.1%       22.1%        1.2%       28.5%    4.4%    25.6%
##                  3.4%        3.3%        2.9%        3.9%    6.4%     8.6%
## ===========================================================================
```

References

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