Survey Analysis

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Loading Data and Update Header

```
my.data=read.csv("Online Recipe Sharing.csv", header=TRUE)
colnames(my.data)
```

```
##  [1] "Timestamp"
##  [2] "What.is.your.age."
##  [3] "Who.is.the.usual.meal.prepper.in.your.household."
##  [4] "Do.you..or.any.household.member.you.share.meals.with..have.any.dietary.restrictions."
##  [5] "How.often.do.you.eat.food.prepared.at.home."
##  [6] "When.you.are.cooking.using.a.recipe..what.format.do.you.view.the.recipe.in..Select.all.that.app
##  [7] "When.you.are.looking.for.a.recipe..what.websites.do.you.visit.the.most.."
##  [8] "Which.website.do.you.enjoy.using.for.finding.recipes."
##  [9] "Optional..Explain.what.you.like.about.these.websites."
## [10] "Which.website.do.you.NOT.enjoy.using.for.finding.recipes."
## [11] "Optional..Explain.what.you.dislike.about.these.websites."
## [12] "When.deciding.what.to.cook..how.often.do.you.search.for.a.specific.recipe.in.the.search.bar.pr
## [13] "How.often.do.you.use.the.search.bar.to.find.a.recipe.you.have.used.in.the.past."
## [14] "When.deciding.on.a.dish.to.prepare..how.often.do.you.browse.available.articles.or.recipe.colle
## [15] "When.deciding.what.to.cook..how.many.recipes.do.you.typically.click.on.before.you.find.a.suita
## [16] "Do.the.websites.you.visit.when.looking.for.inspiration.on.what.to.cook.differ.from.the.website
## [17] "When.you.are.looking.for.cooking.inspiration..what.websites.do.you.visit.the.most.."
## [18] "Which.websites.do.you.enjoy.using.when.looking.for.cooking.inspiration."
## [19] "Optional..Explain.what.you.like.about.these.websites..1"
## [20] "Which.websites.do.you.NOT.enjoy.using.when.looking.for.cooking.inspiration."
## [21] "Optional..Explain.what.you.dislike.about.these.websites..1"
## [22] "When.looking.for.recipe.recommendations.or.reviews.where.do.you.look..Select.all.that.apply"
## [23] "What.source.of.recommendations.or.reviews.is.most.likely.to.influence.your.recipe.choice..Sele
## [24] "How.often.do.you.try.a.new.recipe.based.on.a.recommendation.or.review.from.a.trusted.source."
## [25] "How.often.do.you.seek.out.a.recipe.recommendation.or.review.from.a.trusted.source."
## [26] "How.often.do.you.recommend.or.review.a.recipe.you.have.made."
## [27] "How.often.do.you.save.a.recipe.to.use.later."
## [28] "When.saving.recipes.to.use.later..what.tools.do.you.use."
## [29] "How.often.do.you.make.a.recipe.exactly.as.written..As.opposed.to.finding.a.recipe.that.exactly
## [30] "If.you.make.modifications.to.a.recipe.what.factors.influence.your.modifications..Select.all.tha
## [31] "How.often.do.you.take.note.of.a.modification.you.have.made.to.a.recipe."
## [32] "How.do.you.take.note.of.modifications.you.have.made.to.a.recipe."
## [33] "Are.you.satisfied.with.the.available.options.for.recording.recipe.notes."
## [34] "Would.you.like.to.take.digital.notes.given.better.note.taking.options."
## [35] "How.often.do.you.discuss.a.recipe.you.have.made."
```

```
## [36] "How.often.do.you.read.the.discussion.of.a.recipe."
## [37] "What.medium.do.you.primarily.use.to.discuss.recipes."
## [38] "What.do.you.like.most.about.the.discussion.platforms.you.use."
## [39] "Just.looking.at.the.layout..choose.the.option.you.like.the.most."
## [40] "Just.looking.at.the.layout..choose.the.option.you.like.the.most..1"
## [41] "Just.looking.at.the.layout..choose.the.option.you.like.the.most..2"
## [42] "Just.looking.at.the.layout..choose.the.option.you.like.the.most..3"
## [43] "Just.looking.at.the.layout..choose.the.option.you.like.the.most..4"
## [44] "Just.looking.at.the.layout..choose.the.option.you.like.the.most..5"
```

```
colnames(my.data)<-c("Timestamp", "Age", "Primary.Meal.Prepper", "Household.Dietary.Restriction",
"Home.Cooking.Frequency",
"Primary.Recipe Format",
"Primary.Recipe.Website",
"Enjoyed.Website.Searching", "Comments.Enjoyed.Website.Searching", "NOT.Enjoyed.Website.Searching", "Co
"Previous.Recipe.Search.Frequency",
"Browsing.While.Searching.Frequecny",
"Click.Rate",
"Search.Browse.Same.Websites",
"Primary.Browsing.Website.",
"Enjoyed.Website.Browsing",
"Comments.Enjoyed.Website.Browsing", "NOT.Enjoyed.Website.Browsing", "Comments.NOT.Enjoyed.Website.Brows
"Source.of.Influential.Reviews", "Frequency.Reviews.Effect.Behavior",
"Frequency.Seek.Out.Review",
"Frequency.of.Review",
"Frequency.of.Recipe.Saving",
"Method.of.Recipe.Saving",
"Modification.Frequency",
"Modification.Influence.Factors",
"Modification.Record.Frequency",
"Modification.Record.Method", "Satisfaction.with.Available.Record.Methods",
"Interest.in.Improved.Record.Method",
"Frequency.of.Recipe.Discussion", "Frequency.of.Reading.Discussion",
"Primary.Discussion.Medium", "Enjoyed.Features.of.Discussion.Mediums", "Ingredients.L.V.Above",
"Ingredients.L.Comments.Inline.V.Below", "Ingredients.Above.Comments.Below.V.Inline", "Ingredients.By.S
"Ingredients.By.Step.V.Scroll.L",
"Ingredients.Above.V.Scroll.L")
```

Word Frequency Table

```
Comments.Enjoyed.Searching<-my.data[,21]
head(Comments.Enjoyed.Searching)
```

```
## [1] "Hard to search, anyone can most (less credibility)"
## [2] ""
## [3] "Poor search functions do not often return high quality results, I prefer to start my search on a
## [4] ""
## [5] ""
## [6] ""
```

```
Comments.Enjoyed.Searching<-Comments.Enjoyed.Searching[ Comments.Enjoyed.Searching != ""]
Comments.Enjoyed.Searching
```

```
## [1] "Hard to search, anyone can most (less credibility)"
## [2] "Poor search functions do not often return high quality results, I prefer to start my search on a
## [3] "The interface is messy and none of the suggestions seem to relate to one another most of the tim
## [4] "Too slow to comb through recipes"
## [5] "A lot of the recipes are focused on presentation or showmanship in the process"
## [6] "weird recipes that look yucky, videos are too quick, 'trendy foods' that require obscure ingredi
## [7] "I don't not enjoy them, I just do not actively seek inspiration in anything other than youtube.
## [8] "Do not often find recipes I love"
```

```
Comments.Enjoyed.Searching<-removePunctuation(Comments.Enjoyed.Searching)
corp<-Corpus(VectorSource(Comments.Enjoyed.Searching))
corp <- tm_map(corp, content_transformer(tolower))
```

```
## Warning in tm_map.SimpleCorpus(corp, content_transformer(tolower)):
## transformation drops documents
```

```
corp<-tm_map(corp, content_transformer(removeWords), stopwords('english'))
```

```
## Warning in tm_map.SimpleCorpus(corp, content_transformer(removeWords),
## stopwords("english")): transformation drops documents
```

```
corp<-tm_map(corp,stemDocument)
```

```
## Warning in tm_map.SimpleCorpus(corp, stemDocument): transformation drops
## documents
```

```
corp <- tm_map(corp, stripWhitespace)
```

```
## Warning in tm_map.SimpleCorpus(corp, stripWhitespace): transformation drops
## documents
```

```
myTdm <- as.matrix(TermDocumentMatrix(corp))
FreqMat <- data.frame(ST = rownames(myTdm),
                      Freq = rowSums(myTdm),
                      row.names = NULL)
FreqMat
```

```
##             ST Freq
## 1        anyon    1
## 2          can    1
## 3      credibl    1
## 4         hard    1
## 5         less    1
## 6       search    3
## 7     function    1
## 8         good    1
```

```
## 9         high    1
## 10       often    2
## 11        poor    1
## 12      prefer    1
## 13     qualiti    1
## 14       recip    5
## 15      result    1
## 16      return    1
## 17       start    1
## 18       trust    1
## 19      websit    1
## 20       anoth    1
## 21    interfac    1
## 22       messi    1
## 23        none    1
## 24         one    1
## 25       relat    1
## 26        seem    1
## 27     suggest    1
## 28        time    1
## 29        comb    1
## 30        slow    1
## 31       focus    1
## 32         lot    1
## 33     present    1
## 34     process    1
## 35 showmanship    1
## 36        food    1
## 37     ingredi    1
## 38        look    1
## 39      obscur    1
## 40       quick    1
## 41      requir    1
## 42      trendi    1
## 43       video    1
## 44       weird    1
## 45       yucki    1
## 46       activ    1
## 47       anyth    1
## 48        dont    1
## 49       enjoy    1
## 50      inspir    1
## 51        just    1
## 52        seek    1
## 53      youtub    1
## 54        find    1
## 55        love    1
```

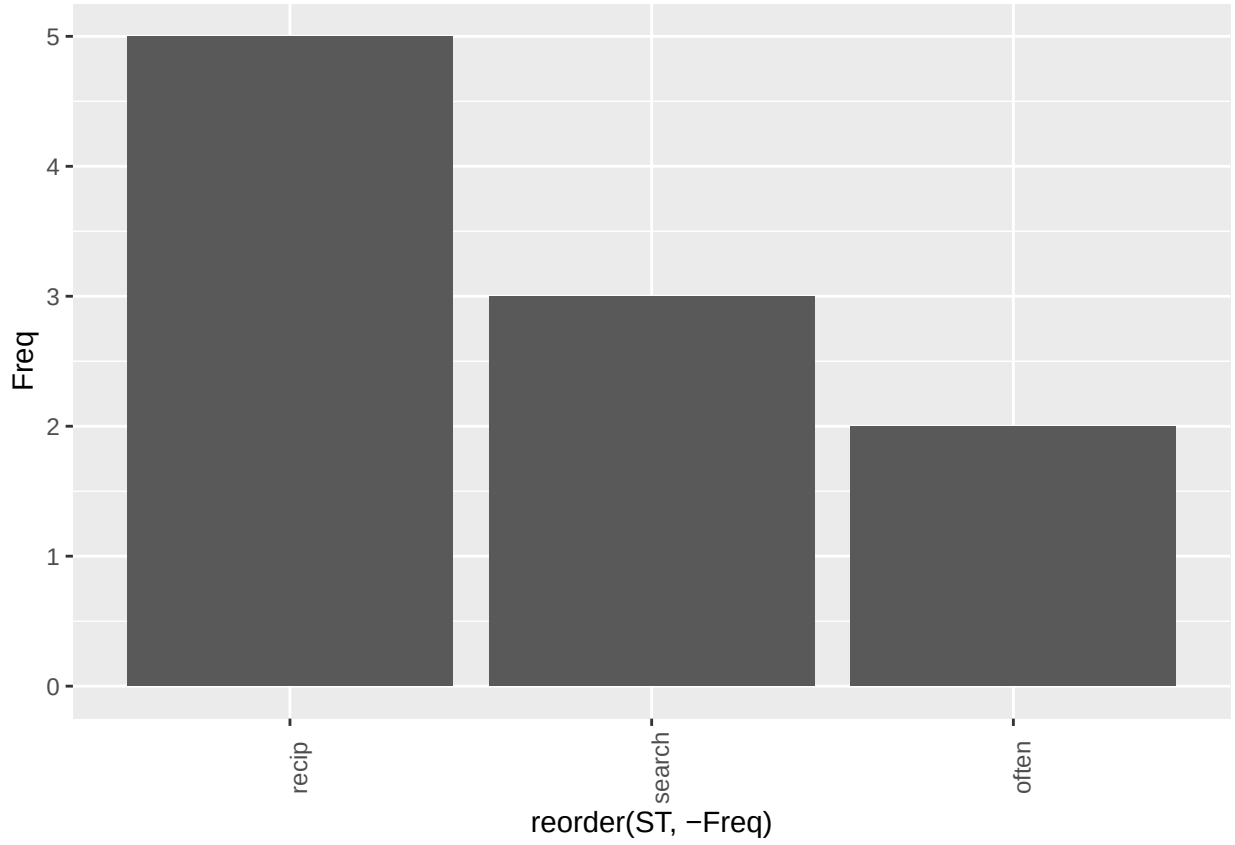
Remove Stop Words

```
# stop.words<- c("i", "me", "my", "myself", "we", "our", "ours", "ourselves", "you", "your", "yours", "
# FreqMat<-FreqMat[!(FreqMat$ST %in% stop.words),]
```

```
FreqMat<-FreqMat[!(FreqMat$Freq == 1),]
FreqMat
```

```
##        ST Freq
## 6  search    3
## 10  often    2
## 14  recip    5
```

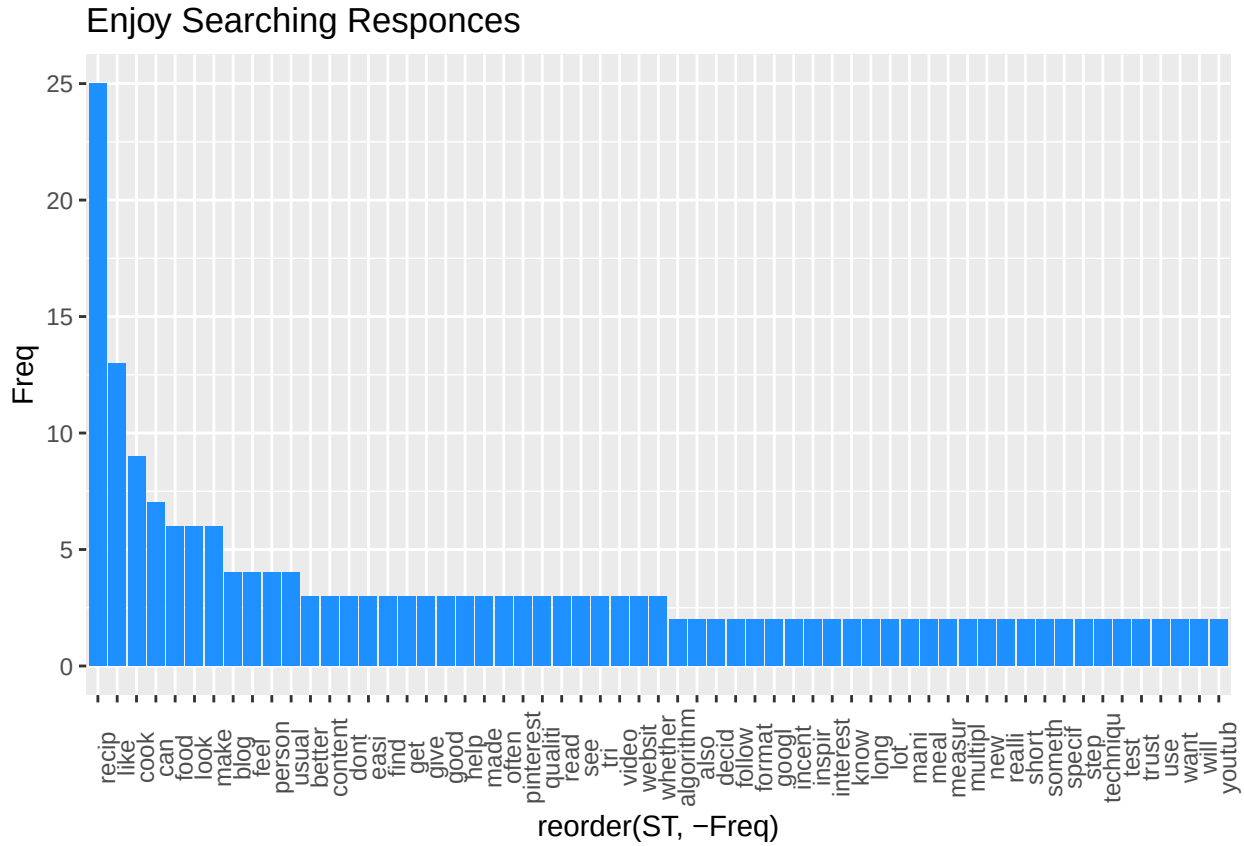
```
ggplot(data=FreqMat, aes(x=reorder( ST, -Freq), y=Freq)) +
  geom_bar(stat="identity")+
  theme(axis.text.x = element_text(angle = 90))
```



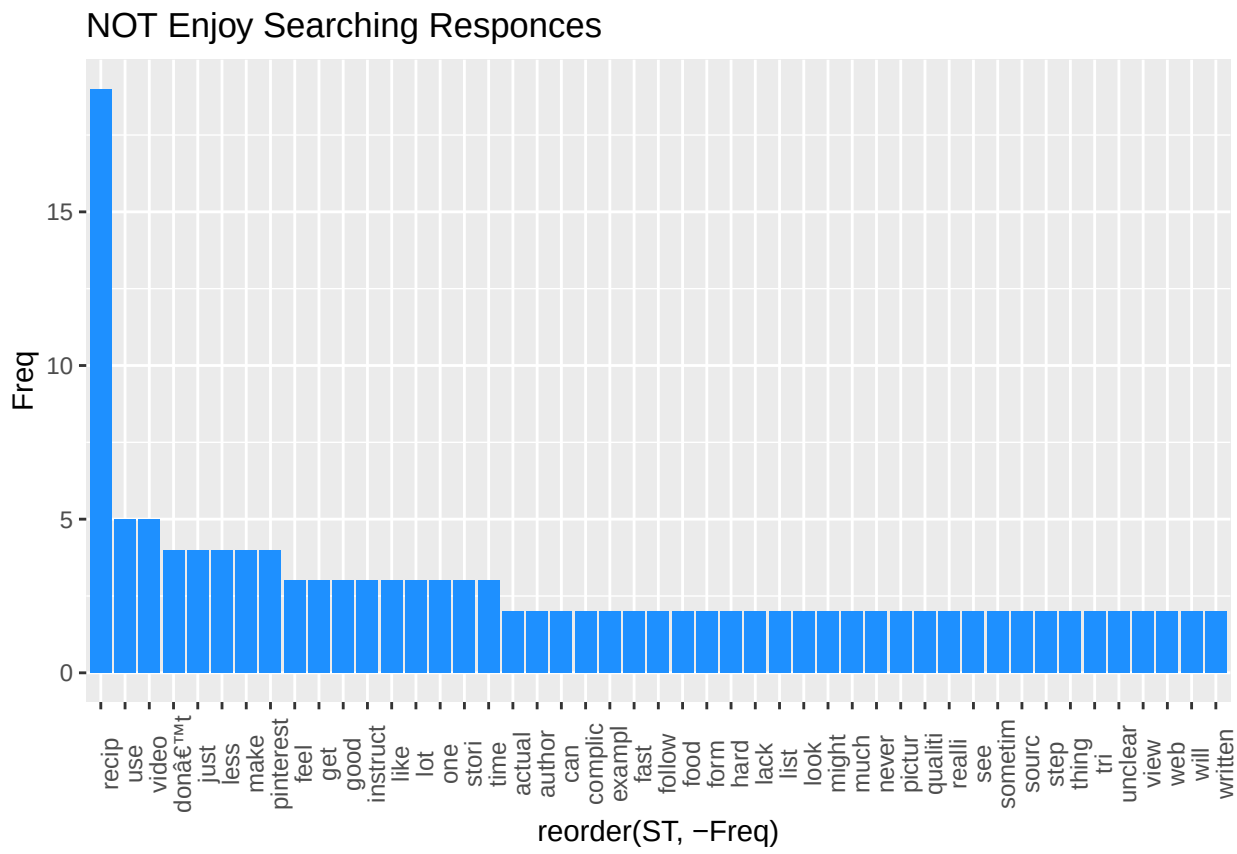
Make a Function to do the above

```
freqchart <- function(charlist){
  charlist<-charlist[charlist!=""]
  corp<-VCorpus(VectorSource(charlist))

  corp <- tm_map(corp, content_transformer(tolower))
  corp <- tm_map(corp, removePunctuation)

  corp<-tm_map(corp, content_transformer(removeWords), stopwords('english'))
```

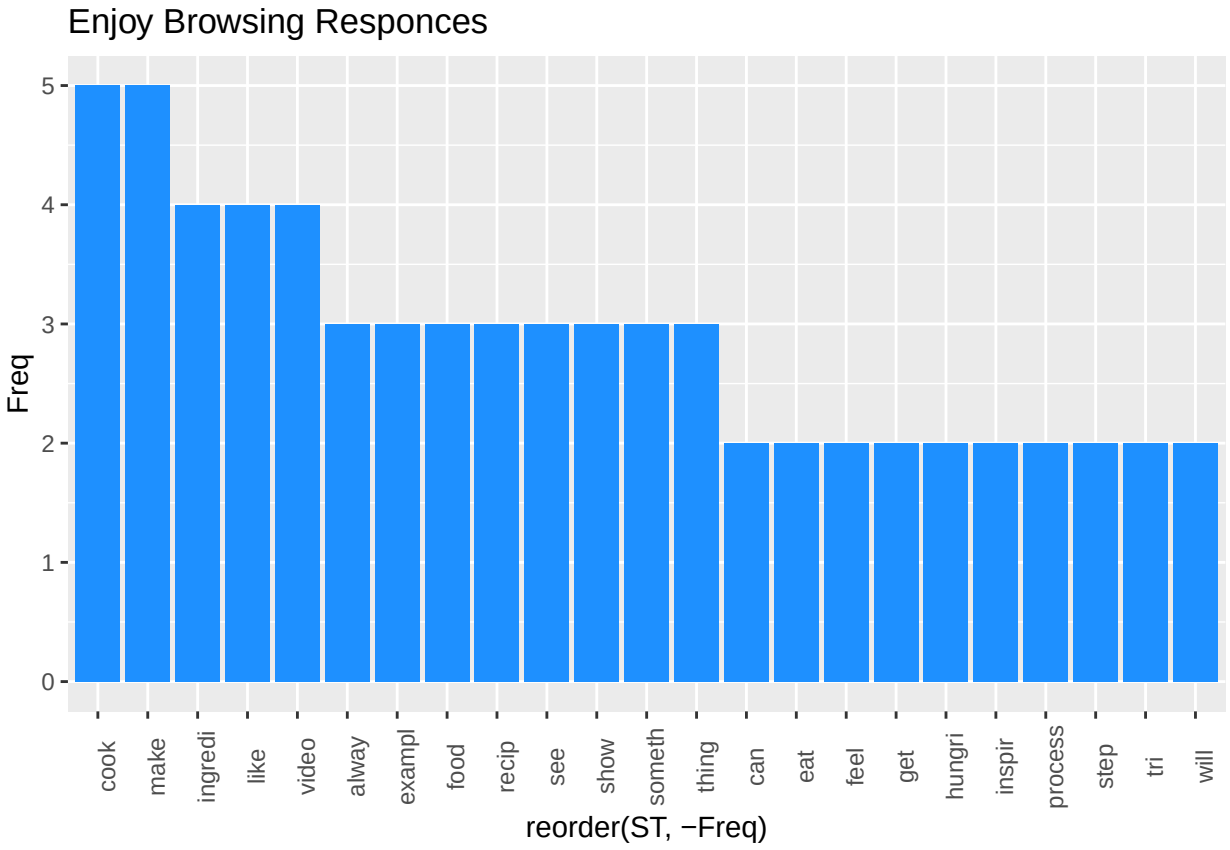
```
  corp<-tm_map(corp,stemDocument)
  corp <- tm_map(corp, stripWhitespace)


  myTdm <- as.matrix(TermDocumentMatrix(corp))
  FreqMat <- data.frame(ST = rownames(myTdm),
                        Freq = rowSums(myTdm),
                        row.names = NULL)%>%arrange(desc(Freq))
  # stop.words<- c("i", "me", "my", "myself", "we", "our", "ours", "ourselves", "you", "your", "yours",
  # FreqMat<-FreqMat[!(FreqMat$ST %in% stop.words),]
  FreqMat<-FreqMat[!(FreqMat$Freq == 1),]
  FreqMat
  p<-ggplot(data=FreqMat, aes(x=reorder( ST, -Freq), y=Freq)) +
    geom_bar(stat="identity", fill="dodger blue")+
    theme(axis.text.x = element_text(angle = 90))
}
Comments.Enjoyed.Searching.Plot<-freqchart(my.data[,9])
Comments.Enjoyed.Searching.Plot + ggtitle("Enjoy Searching Responces")
```



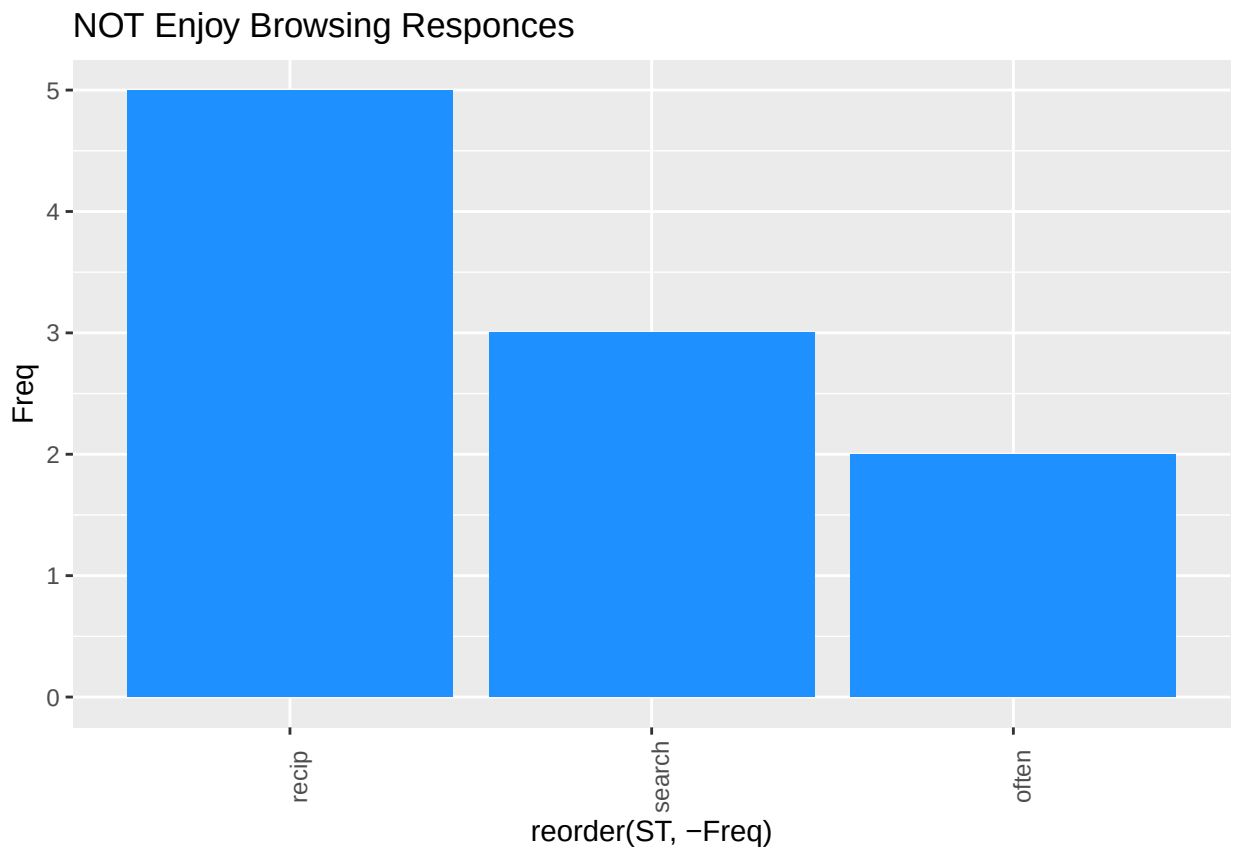

```
Comments.NOT.Enjoyed.Searching.Plot<-freqchart(my.data[,11])
Comments.NOT.Enjoyed.Searching.Plot + ggtitle("NOT Enjoy Searching Responces")
```




```
Comments.Enjoyed.Browsing.Plot<-freqchart(my.data[,19])
Comments.Enjoyed.Browsing.Plot + ggtitle("Enjoy Browsing Responces")
```




```
Comments.NOT.Enjoyed.Browsing.Plot<-freqchart(my.data[,21])
Comments.NOT.Enjoyed.Browsing.Plot + ggtitle("NOT Enjoy Browsing Responces")
```

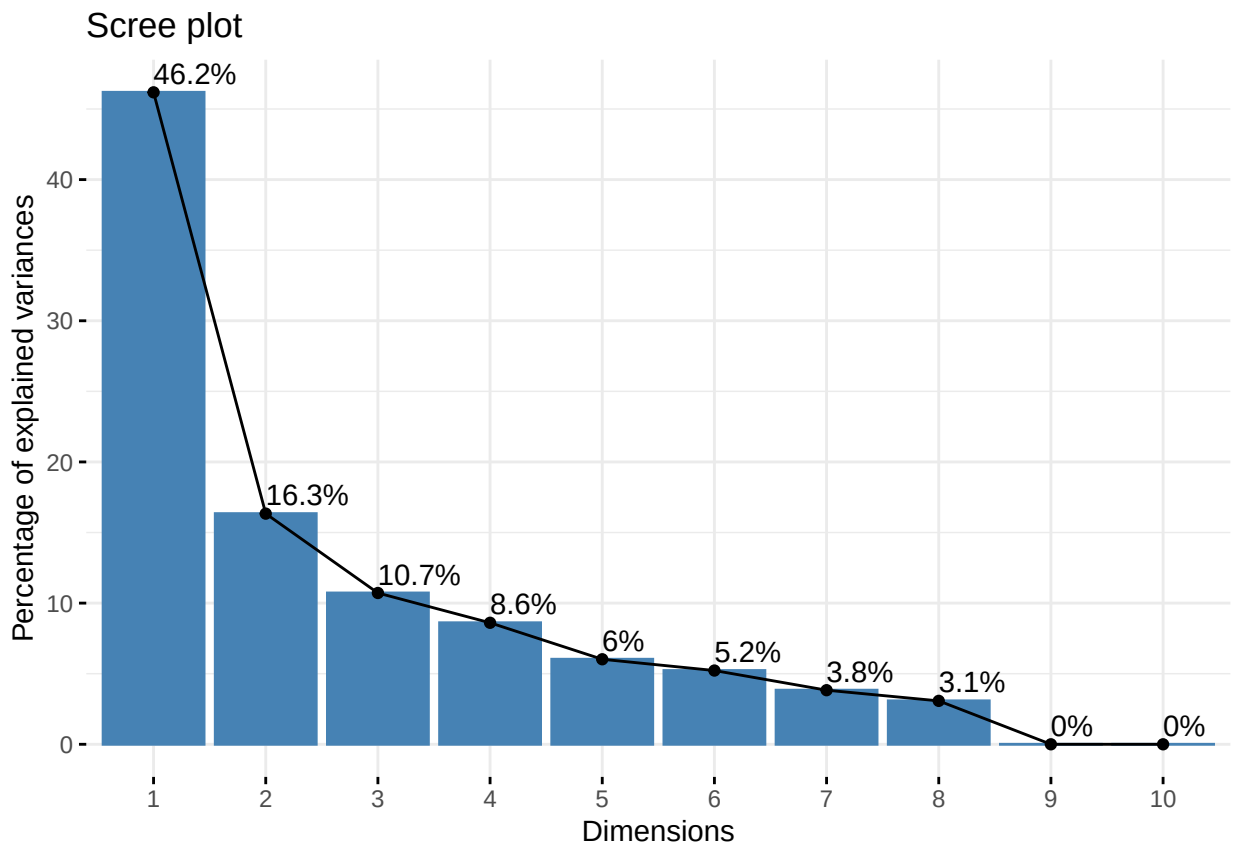



```
ab.test<-my.data[,39:44]

# ad.MCA=MCA(my.data,graph=FALSE)
# head(ab.test)
# fviz_mca_biplot(ad.MCA,repel = TRUE, # Avoid text overlapping (slow if many point)
#                 ggtheme = theme_minimal())
# fviz_screeplot(ad.MCA,addlabels=T)
# fviz_mca_var(ad.MCA, choice = "mca.cor", repel = TRUE,
#              ggtheme = theme_minimal())
# fviz_contrib(ad.MCA, choice = "var", axes = 1, top = 15)
# fviz_mca_var(ad.MCA, col.var = "cos2",
#              gradient.cols = c("#00AFBB", "#E7B800", "#FC4E07"),
#              repel = TRUE, ggtheme = theme_minimal())
```

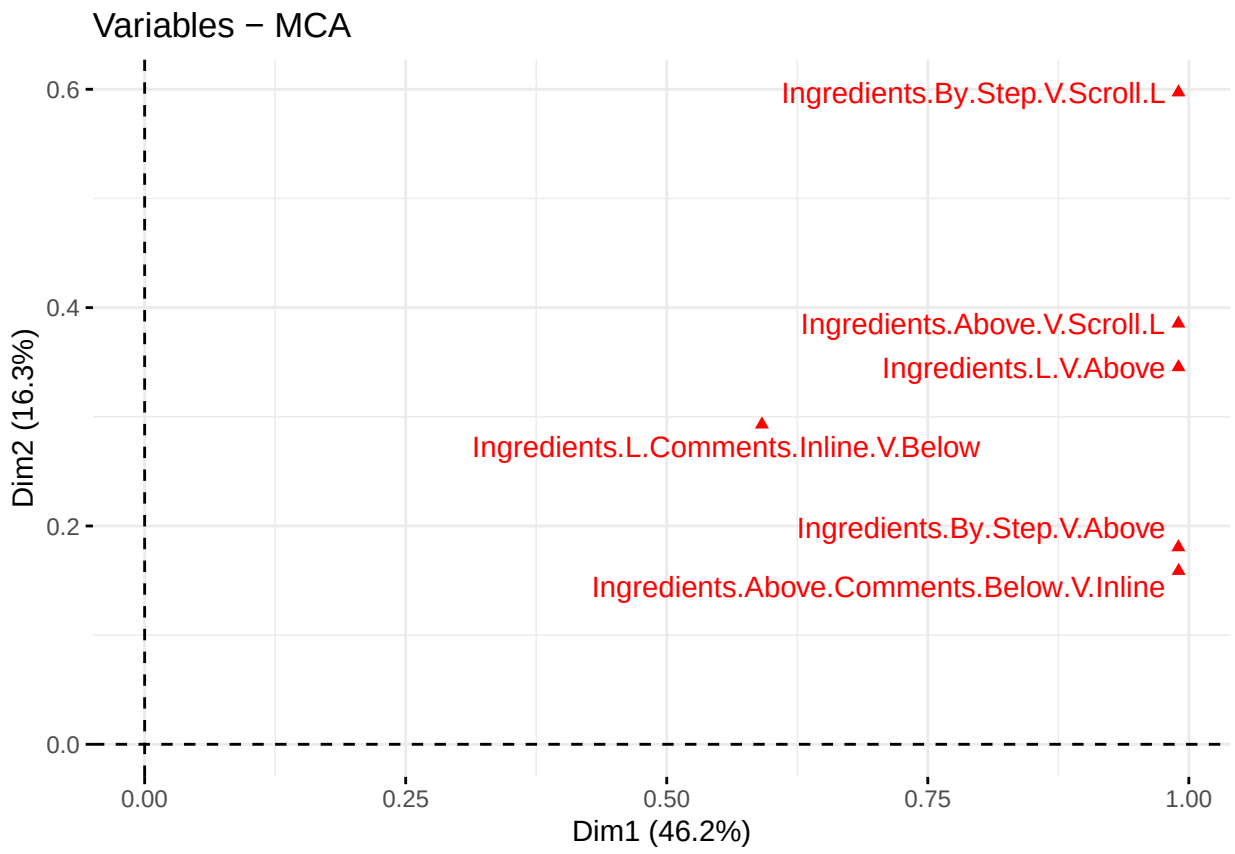
```
ab.test<-my.data[,39:44]
class(ab.test)
```

```
## [1] "data.frame"
```

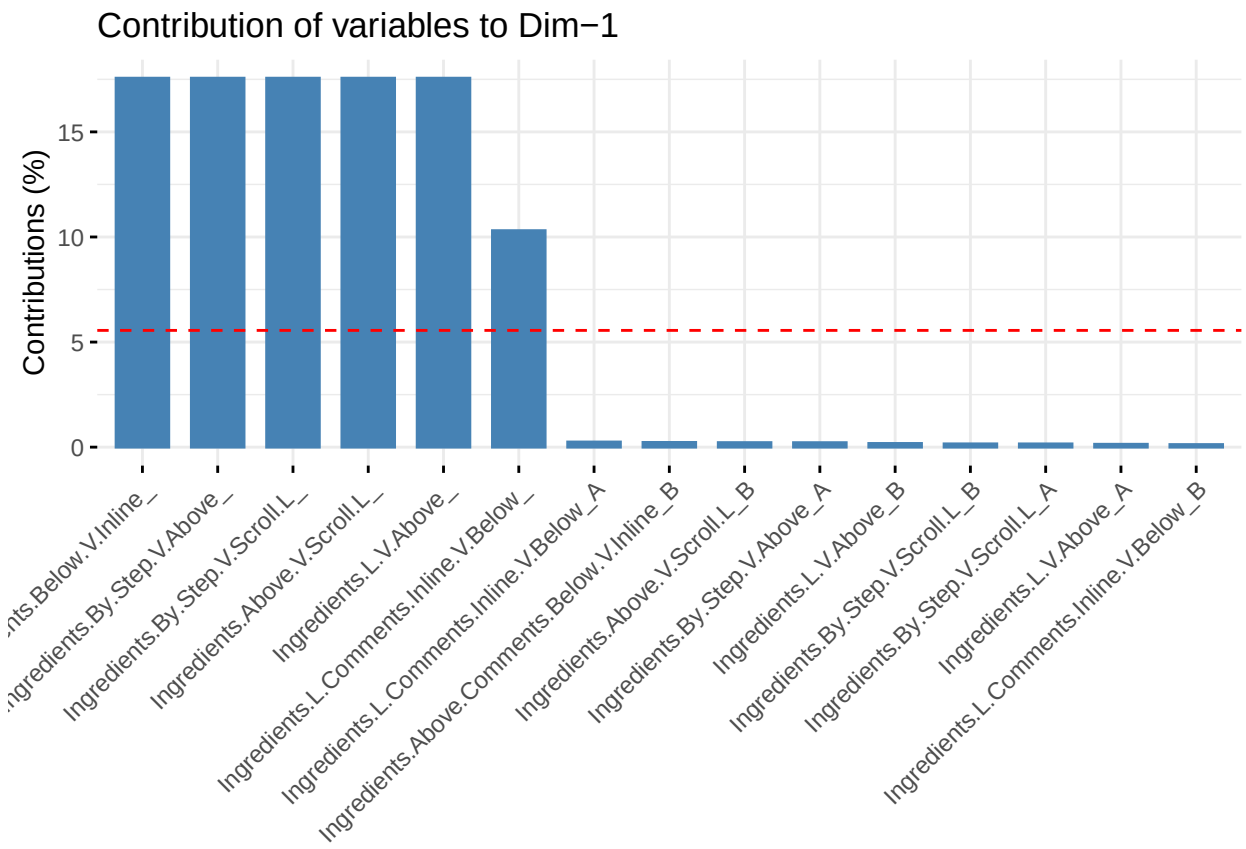
```
ad.MCA=MCA(ab.test,graph=FALSE)
fviz_screeplot(ad.MCA,addlabels=T)
```



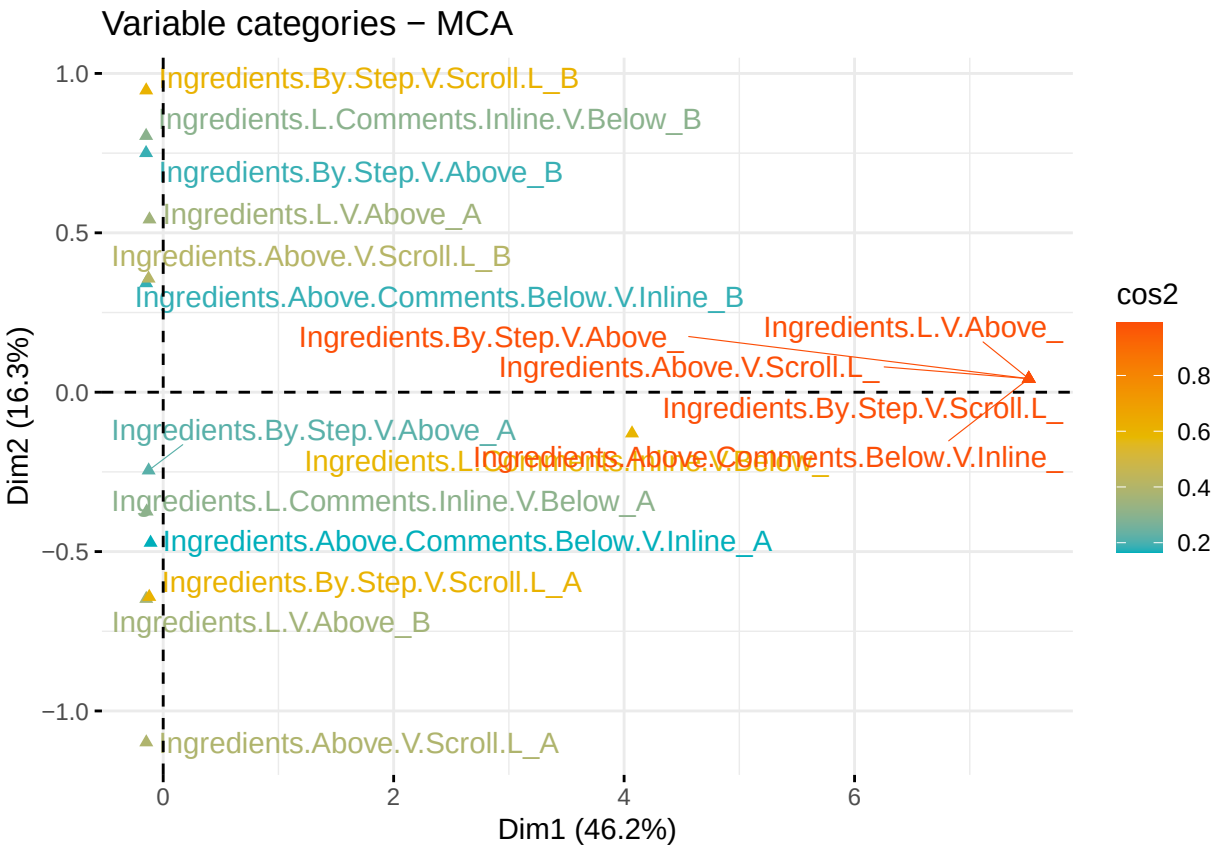

```
fviz_mca_var(ad.MCA, choice = "mca.cor", repel = TRUE,
             ggtheme = theme_minimal())
```



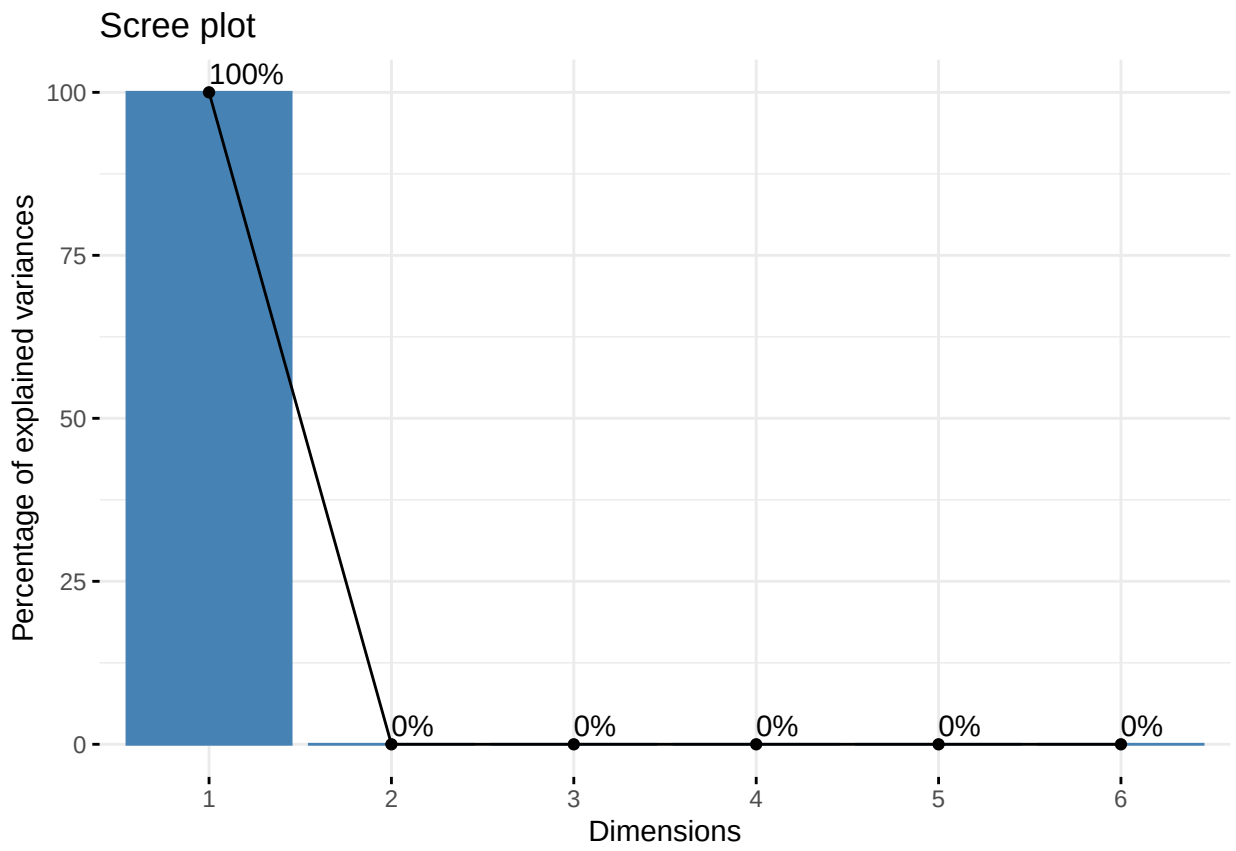

```
fviz_contrib(ad.MCA, choice = "var", axes = 1, top = 15)
```



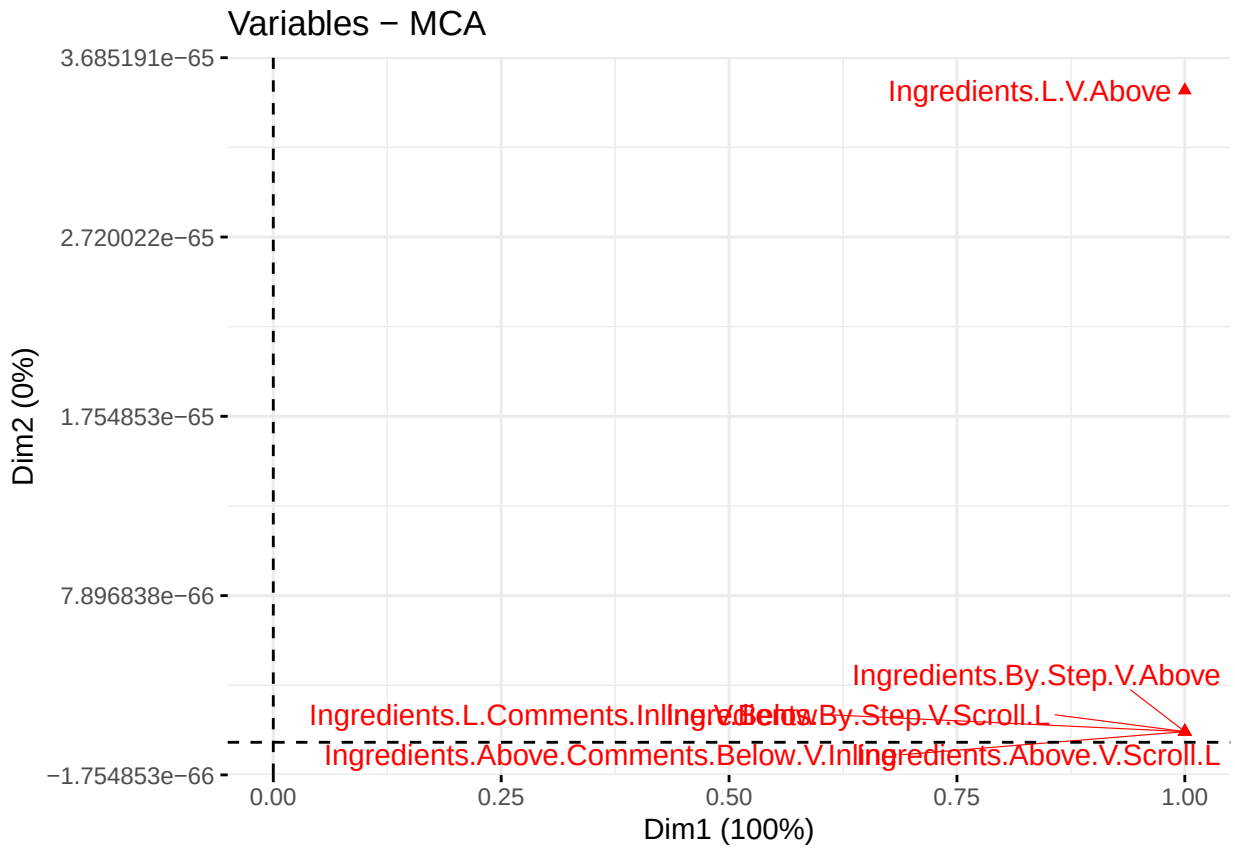

```
fviz_mca_var(ad.MCA, col.var = "cos2",
             gradient.cols = c("#00AFBB", "#E7B800", "#FC4E07"),
             repel = TRUE, ggtheme = theme_minimal())
```



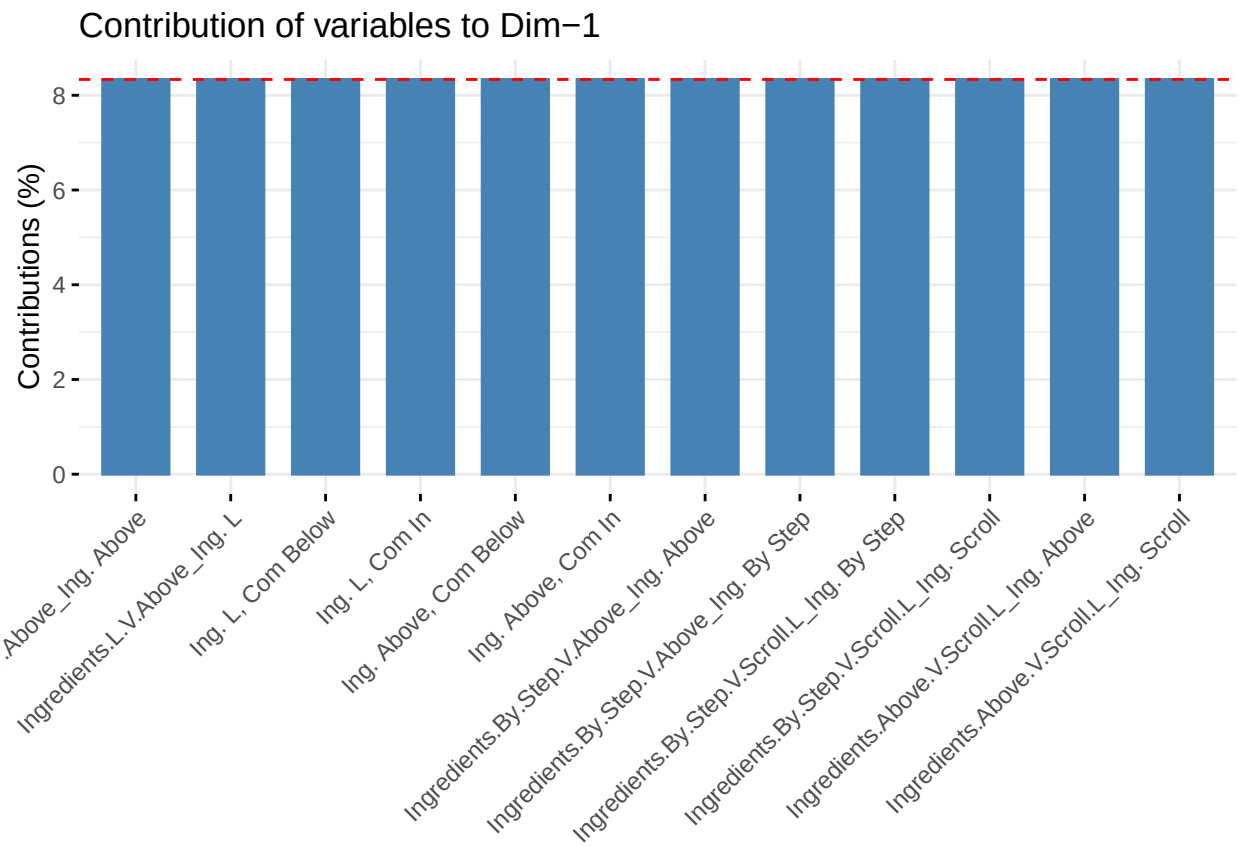

```
# col_names<-names(ab.test)
# ab.test[col_names]<-lapply(ab.test[col_names],as.factor)
ab.test$Ingredients.L.V.Above<-c(A= "Ing. L", B ="Ing. Above")
ab.test$Ingredients.L.Comments.Inline.V.Below<-c(A= "Ing. L, Com In", B ="Ing. L, Com Below")
ab.test$Ingredients.Above.Comments.Below.V.Inline<-c(A= "Ing. Above, Com Below", B ="Ing. Above, Com In
ab.test$Ingredients.By.Step.V.Above<-c(A= "Ing. By Step", B ="Ing. Above")
ab.test$Ingredients.By.Step.V.Scroll.L<-c(A= "Ing. By Step", B ="Ing. Scroll")
ab.test$Ingredients.Above.V.Scroll.L<-c(A= "Ing. Above", B ="Ing. Scroll")


ad.MCA=MCA(ab.test,graph=FALSE)
fviz_screeplot(ad.MCA,addlabels=T)
```




```
fviz_mca_var(ad.MCA, choice = "mca.cor", repel = TRUE,
             ggtheme = theme_minimal())
```

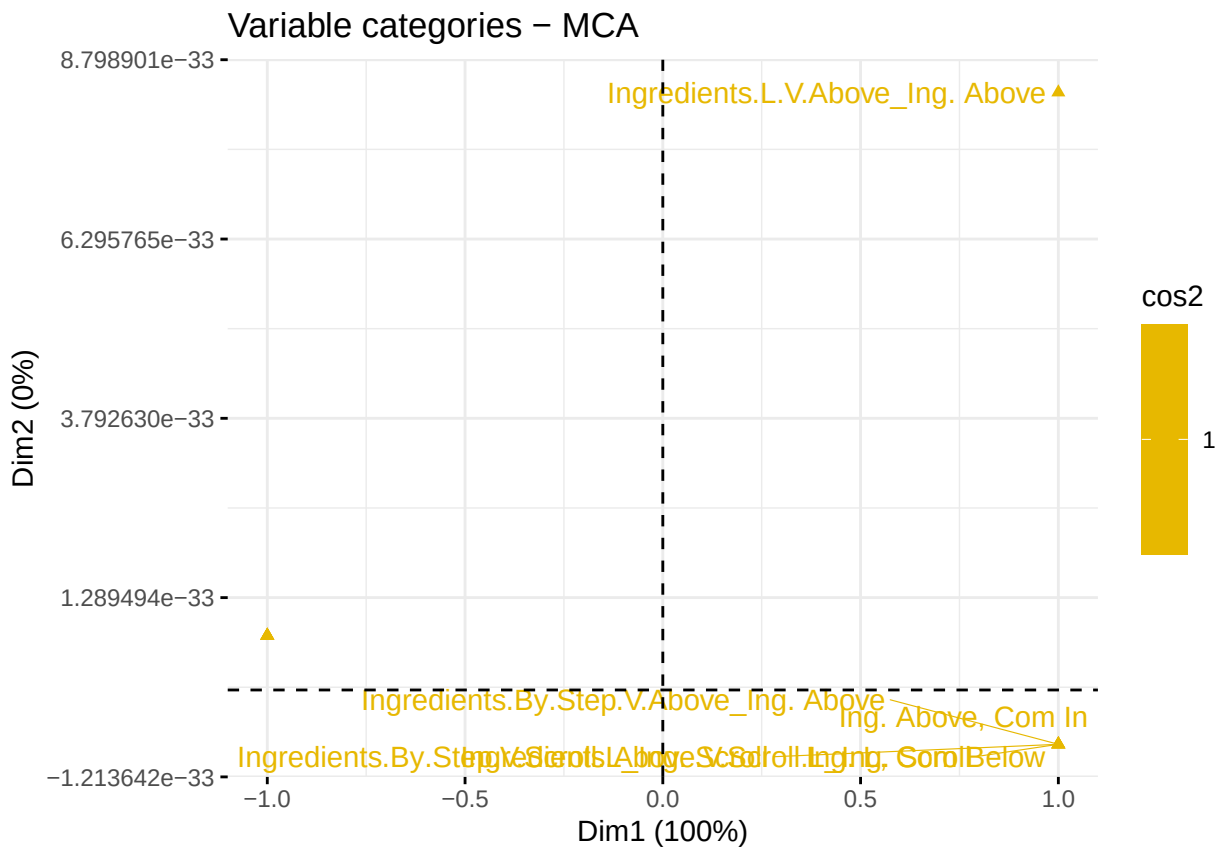



```
fviz_contrib(ad.MCA, choice = "var", axes = 1, top = 15)
```




```
fviz_mca_var(ad.MCA, col.var = "cos2",
             gradient.cols = c("#00AFBB", "#E7B800", "#FC4E07"),
             repel = TRUE, ggtheme = theme_minimal())
```

```
## Warning: ggrepel: 6 unlabeled data points (too many overlaps). Consider
## increasing max.overlaps
```




```
drop<-c(9,11,19,21)

my.data.clean<-my.data[-c(9,11,19,21)]
names(my.data.clean)
```

```
##  [1] "Timestamp"
##  [2] "Age"
##  [3] "Primary.Meal.Prepper"
##  [4] "Household.Dietary.Restriction"
##  [5] "Home.Cooking.Frequency"
##  [6] "Primary.Recipe Format"
##  [7] "Primary.Recipe.Website"
##  [8] "Enjoyed.Website.Searching"
##  [9] "NOT.Enjoyed.Website.Searching"
## [10] "Recipe.Search.Bar.Frequency"
## [11] "Previous.Recipe.Search.Frequency"
## [12] "Browsing.While.Searching.Frequecny"
## [13] "Click.Rate"
## [14] "Search.Browse.Same.Websites"
## [15] "Primary.Browsing.Website."
## [16] "Enjoyed.Website.Browsing"
## [17] "NOT.Enjoyed.Website.Browsing"
## [18] "Primary.Source.of.Reviews"
## [19] "Source.of.Influential.Reviews"
## [20] "Frequency.Reviews.Effect.Behavior"
```

```
## [21] "Frequency.Seek.Out.Review"
## [22] "Frequency.of.Review"
## [23] "Frequency.of.Recipe.Saving"
## [24] "Method.of.Recipe.Saving"
## [25] "Modification.Frequency"
## [26] "Modification.Influence.Factors"
## [27] "Modification.Record.Frequency"
## [28] "Modification.Record.Method"
## [29] "Satisfaction.with.Available.Record.Methods"
## [30] "Interest.in.Improved.Record.Method"
## [31] "Frequency.of.Recipe.Discussion"
## [32] "Frequency.of.Reading.Discussion"
## [33] "Primary.Discussion.Medium"
## [34] "Enjoyed.Features.of.Discussion.Mediums"
## [35] "Ingredients.L.V.Above"
## [36] "Ingredients.L.Comments.Inline.V.Below"
## [37] "Ingredients.Above.Comments.Below.V.Inline"
## [38] "Ingredients.By.Step.V.Above"
## [39] "Ingredients.By.Step.V.Scroll.L"
## [40] "Ingredients.Above.V.Scroll.L"
```

```r
search.data<-my.data.clean[c(1,7,8,9,11,12,13)]
cols<-names(search.data)
# search.data<-lapply(search.data[cols], as.factor)
search.data<-data.frame(search.data)
head(search.data)
```

```
##                  Timestamp
## 1 2021/02/12 10:50:26 PM EST
## 2 2021/02/12 11:38:42 PM EST
## 3  2021/02/13 7:53:46 AM EST
## 4 2021/02/13 10:33:30 AM EST
## 5 2021/02/13 11:03:34 AM EST
## 6 2021/02/13 11:16:23 AM EST
##
## 1                                                                                                   Onl
## 2
## 3 YouTube;Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten K
## 4
## 5
## 6
##
## 1                                Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs
## 2
## 3 Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten Kitchen,
## 4                                                                                    Online Cooking M
## 5
## 6                                Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs
##
## 1
## 2 Facebook;Reddit;TikTok;Pinterest;YouTube;Online Cooking Magazines (New York Times, Bon Appetit, etc
## 3
## 4
## 5
```

```
## 6
##   Previous.Recipe.Search.Frequency Browsing.While.Searching.Frequecny
## 1                                1                                   4
## 2                                5                                   1
## 3                                3                                   4
## 4                                4                                   2
## 5                                1                                   4
## 6                                3                                   3
##   Click.Rate
## 1      4 - 7
## 2      0 - 3
## 3      4 - 7
## 4      0 - 3
## 5      0 - 3
## 6      0 - 3
```

```
search.data.clean<- search.data%>% separate_rows(Primary.Recipe.Website, sep = ";")
head(search.data.clean)
```

```
## # A tibble: 6 x 7
##   Timestamp  Primary.Recipe.~ Enjoyed.Website~ NOT.Enjoyed.Web~ Previous.Recipe~
##   <chr>      <chr>            <chr>            <chr>                       <int>
## 1 2021/02/1~ Online Cooking ~ Online Cooking ~ Facebook;Reddit~                1
## 2 2021/02/1~ Blogs (Budget B~ Online Cooking ~ Facebook;Reddit~                1
## 3 2021/02/1~ Google           Online Cooking ~ Facebook;Reddit~                1
## 4 2021/02/1~ Google           Google           Facebook;Reddit~                5
## 5 2021/02/1~ YouTube          Online Cooking ~ Facebook;TikTok~                3
## 6 2021/02/1~ Online Cooking ~ Online Cooking ~ Facebook;TikTok~                3
## # ... with 2 more variables: Browsing.While.Searching.Frequecny <int>,
## #   Click.Rate <chr>
```

```
search.data.dummies<-search.data.clean%>%
  select(Primary.Recipe.Website)%>%
  dummy()%>%
  bind_cols(search.data.clean)%>%
  select(-Primary.Recipe.Website)%>%
  gather(key,value,-"Timestamp",-"Enjoyed.Website.Searching" ,  -"NOT.Enjoyed.Website.Searching",-"Previ
  # filter(value!=0)%>%
  # spread(key,value,fill=0)%>%
  # group_by("Timestamp","Enjoyed.Website.Searching" , "NOT.Enjoyed.Website.Searching","Previous.Recipe
  #  ungroup() %>%
  #   left_join(y=search.data, by=c("Timestamp","Enjoyed.Website.Searching" ,         "NOT.Enjoyed.Webs
# %>%
  # mutate_all(funs(as.integer(.) %>% as.logical()))
# %>%  ungroup()
# %>%
#   left_join(y=search.data, by=c("Enjoyed.Website.Searching" ,         "NOT.Enjoyed.Website.Searching"
   # select("Primary.Recipe.Website","Enjoyed.Website.Searching" ,         "NOT.Enjoyed.Website.Searchi
# colnames(search.data.dummies)
head(search.data.dummies)
```

```
##                    Timestamp
## 1 2021/02/12 10:50:26 PM EST
```

```
## 2 2021/02/12 10:50:26 PM EST
## 3 2021/02/12 10:50:26 PM EST
## 4 2021/02/12 11:38:42 PM EST
## 5  2021/02/13 7:53:46 AM EST
## 6  2021/02/13 7:53:46 AM EST
##
## 1                                Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs
## 2                                Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs
## 3                                Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs
## 4
## 5 Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten Kitchen,
## 6 Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten Kitchen,
##
## 1
## 2
## 3
## 4 Facebook;Reddit;TikTok;Pinterest;YouTube;Online Cooking Magazines (New York Times, Bon Appetit, et
## 5
## 6
##   Previous.Recipe.Search.Frequency Browsing.While.Searching.Frequecny
## 1                                1                                   4
## 2                                1                                   4
## 3                                1                                   4
## 4                                5                                   1
## 5                                3                                   4
## 6                                3                                   4
##   Click.Rate                                key value
## 1      4 - 7 Primary.Recipe.Website_Allrecipes.     0
## 2      4 - 7 Primary.Recipe.Website_Allrecipes.     0
## 3      4 - 7 Primary.Recipe.Website_Allrecipes.     0
## 4      0 - 3 Primary.Recipe.Website_Allrecipes.     0
## 5      4 - 7 Primary.Recipe.Website_Allrecipes.     0
## 6      4 - 7 Primary.Recipe.Website_Allrecipes.     0
```

```
my.data.selected<-my.data[c(7,8,10,17,18,20,22,23,28,37)]
head(my.data.selected)
```

```
##
## 1                                                                                                  Onl
## 2
## 3 YouTube;Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten K
## 4
## 5
## 6
##
## 1                                Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs
## 2
## 3 Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten Kitchen,
## 4                                                                                  Online Cooking M
## 5
## 6                                Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs
##
## 1
## 2 Facebook;Reddit;TikTok;Pinterest;YouTube;Online Cooking Magazines (New York Times, Bon Appetit, et
```

```
## 3
## 4
## 5
## 6
##                                                                                                    Primary.Brows
## 1  Online Cooking Magazines (New York Times, Bon Appetit, etc);Blogs (Budget Bytes, Smitten Kitchen,
## 2
## 3                                 Reddit;YouTube;Online Cooking Magazines (New York Times, Bon Appetit
## 4 YouTube;Online Cooking Magazines (New York Times, Bon Appetit, etc);Blogs (Budget Bytes, Smitten Ki
## 5
## 6
##                                                                                                      Enjoyed.We
## 1  Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten Kitchen
## 2
## 3
## 4 YouTube;Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten
## 5
## 6
##                                          NOT.Enjoyed.Website.Browsing
## 1                               Facebook;Reddit;TikTok;Pinterest;YouTube
## 2
## 3 Facebook;Community Based Cooking Websites (AllRecipes, etc.);Google
## 4                                       Facebook;Reddit;TikTok;Pinterest
## 5
## 6
##
## 1                                        Blogs (Budget Bytes, Smitten Kitchen, etc.);Online Cooking Ma
## 2
## 3                                                       Immediate family / Friends;Groups on social
## 4 Blogs (Budget Bytes, Smitten Kitchen, etc.);Online Cooking Magazines (New York Times, Bon Appetit,
## 5                                                                                   Online Cooking Ma
## 6           Immediate family / Friends;Blogs (Budget Bytes, Smitten Kitchen, etc.);Online Cooking Ma
##                                                                                                       So
## 1                        Blogs (Budget Bytes, Smitten Kitchen, etc.);Online Cooking Magazines (New Yor
## 2
## 3
## 4 Immediate family / Friends;Online Cooking Magazines (New York Times, Bon Appetit, etc.);Recipe Com
## 5
## 6                                       Immediate family / Friends;Online Cooking Magazines (New Yor
##                  Method.of.Recipe.Saving
## 1
## 2                                   None
## 3                      Browser Bookmarks
## 4 Browser Bookmarks;Digital filing system
## 5                                 Memory
## 6                         search history
##                                                                                                       Primar
## 1
## 2
## 3                                                                                     In person conve
## 4                                                                     Community Based Cooking Websites
## 5
## 6 Online Cooking Magazines (New York Times, Bon Appetit, etc);Blogs (Budget Bytes, Smitten Kitchen,
```

```
variables<-c()

 for (i in 1:ncol(my.data.selected)){
  temp<- my.data.selected[i]
  temp<-separate_rows(temp,1, sep = ";")

  # ##separate values that contain a list of examples of a category
  # temp<-unique(temp)
  # etc<-c(grep("*etc.*",temp[[1]]))
  # etc<-append(etc,c(grep("*ie*",temp[[1]])))
  # etc<-temp[[1]][etc]
  #
  # #take entries with lists and separate list
  # rest<-temp[[1]][ ! temp[[1]]%in% etc ]
  # rest
  # rest<-data.frame(rest)
  # rest<-separate_rows(rest,1, sep = ",")
  # rest<-unique(rest)
  # variables<-append(variables,etc)
  variables<-append(variables,temp[[1]])
  variables<-unique(variables)
  data.frame(variables)
 }
variables
```

```
##  [1] "Online Cooking Magazines (New York Times, Bon Appetit, etc.)"
##  [2] "Blogs (Budget Bytes, Smitten Kitchen, etc.)"
##  [3] "Google"
##  [4] "YouTube"
##  [5] "Community Based Cooking Websites (AllRecipes, etc.)"
##  [6] "Edited recipe websites (e.g. Serious Eats)"
##  [7] "Allrecipes "
##  [8] "Pinterest"
##  [9] "Cooks I follow their websites , ie againstallgrain"
## [10] "TikTok"
## [11] "King Arthur Flour"
## [12] "Facebook"
## [13] "Reddit"
## [14] "epicurious"
## [15] "betty crocker's website"
## [16] "Serious Eats, Americaâ\200\231s Test Kitchen"
## [17] "Serious Eats!"
## [18] "Instagram"
## [19] "King Arthur Flour, NYTimes, NPR"
## [20] "My family and friends directly"
## [21] "Betty Crocker's website"
## [22] ""
## [23] "Any website that buries the recipe under tons of useless text"
## [24] "Online Cooking Magazines (New York Times, Bon Appetit, etc)"
## [25] "Instagram "
## [26] "instagram"
## [27] "I do not dislike"
## [28] "None"
```

```
## [29] "Immediate family / Friends"
## [30] "Groups on social media"
## [31] "Recipe Comments/ Other user's reviews"
## [32] "Influencers (Instagram, YouTube, Tiktok, etc.)"
## [33] "Cookbooks, podcasts"
## [34] "Flavcity on facebook"
## [35] "Browser Bookmarks"
## [36] "Digital filing system"
## [37] "Memory"
## [38] "search history"
## [39] "Save function built into your website of choice"
## [40] "Physical filing system"
## [41] "I donâ\200\231t "
## [42] "brain"
## [43] "memory"
## [44] "I tell myself I won't forget how to make this recipe and then I do :("
## [45] "tiktok favorites"
## [46] "In person conversation with others"
## [47] "Verbal"
## [48] "Word of mouth"
## [49] "Discord"
## [50] "With friends"
## [51] "Friends"
## [52] "Text with friends"
## [53] "Google Docs"
## [54] "Messages with friends and family "
## [55] "talking to people"
## [56] "Actual conversation with a human in person or on the phone"
## [57] "talking"
## [58] "discussing them with friends"
## [59] "Talking to friends and family"
## [60] "Chatting with pals"
## [61] "Privately with family/friends"
## [62] "I don't really. I read comments and will directly give recs to friends"
## [63] "Various channels of communication (i.e. personal text, group chats, etc.)"
## [64] "i don't"
## [65] "I text people, or I check reviews on google"
## [66] "discuss with family and friends "
## [67] "conversations/texts"
## [68] "Messaging platforms"
## [69] "don't really do this"
```

```
cleaned.variables<-c(
  "Mags",
  "Blogs",
  "Google",
  "Youtube",
  "Community Based" ,
  "Mags",
  "Community Based" ,
  "Pinterest",
  "Blogs",
  "TikTok",
  "Mags",
```

```
"Facebook",
"Reddit",
"Mags",
"Mags",
"Mags",
"Mags",
"Instagram",
"Mags",
"Friends/Family",
"Blogs",
"NA",
"Blogs",
"Mags",
"Instagram",
"Instagram",
"None",
"None",
"Friends/Family",
"Online Groups",
"Other Users",
"Influencers",
"Influencers",
"Facebook",
"Browser Bookmarks",
"Digital Filing",
"Memory",
"Search History",
"Save Function",
"Physical Filing",
"None",
"Memory",
"Memory",
"Memory",
"Save Function",
"Verbal",
"Verbal",
"Verbal",
"Digital Chat",
"Verbal",
"Verbal",
"Digital Chat",
"Google Docs",
"Digital Chat",
"Verbal",
"Verbal",
"Verbal",
"Verbal",
"Verbal",
"Verbal",
"Verbal",
"Verbal",
"Digital Chat",
"None",
```

```
  "Digital Chat",
  "Verbal",
  "Digital Chat",
  "Digital Chat",
  "None"
)
names(cleaned.variables)<-variables
cleaned.variables
```

```
##              Online Cooking Magazines (New York Times, Bon Appetit, etc.)
##                                                                    "Mags"
##                                Blogs (Budget Bytes, Smitten Kitchen, etc.)
##                                                                   "Blogs"
##                                                                    Google
##                                                                  "Google"
##                                                                   YouTube
##                                                                 "Youtube"
##                         Community Based Cooking Websites (AllRecipes, etc.)
##                                                               "Community Based"
##                                  Edited recipe websites (e.g. Serious Eats)
##                                                                    "Mags"
##                                                                Allrecipes 
##                                                               "Community Based"
##                                                                  Pinterest
##                                                                 "Pinterest"
##                          Cooks I follow their websites , ie againstallgrain
##                                                                   "Blogs"
##                                                                    TikTok
##                                                                  "TikTok"
##                                                               King Arthur Flour
##                                                                    "Mags"
##                                                                  Facebook
##                                                                 "Facebook"
##                                                                     Reddit
##                                                                  "Reddit"
##                                                                 epicurious
##                                                                     "Mags"
##                                                    betty crocker’s website
##                                                                     "Mags"
##                                  Serious Eats, Americaâ\200\231s Test Kitchen
##                                                                     "Mags"
##                                                           Serious Eats!
##                                                                     "Mags"
##                                                                  Instagram
##                                                                "Instagram"
##                                         King Arthur Flour, NYTimes, NPR
##                                                                     "Mags"
##                                          My family and friends directly
##                                                               "Friends/Family"
##                                                 Betty Crocker’s website
##                                                                   "Blogs"
##
##                                                                      "NA"
##              Any website that buries the recipe under tons of useless text
```

```
##                                                                "Blogs"
##              Online Cooking Magazines (New York Times, Bon Appetit, etc)
##                                                                "Mags"
##                                                             Instagram
##                                                            "Instagram"
##                                                              instagram
##                                                            "Instagram"
##                                                     I do not dislike
##                                                                "None"
##                                                                  None
##                                                                "None"
##                                                 Immediate family / Friends
##                                                          "Friends/Family"
##                                               Groups on social media
##                                                         "Online Groups"
##                                    Recipe Comments/ Other user's reviews
##                                                          "Other Users"
##                          Influencers (Instagram, YouTube, Tiktok, etc.)
##                                                          "Influencers"
##                                                Cookbooks, podcasts
##                                                         "Influencers"
##                                               Flavcity on facebook
##                                                             "Facebook"
##                                                  Browser Bookmarks
##                                                "Browser Bookmarks"
##                                               Digital filing system
##                                                    "Digital Filing"
##                                                              Memory
##                                                            "Memory"
##                                                  search history
##                                                "Search History"
##                           Save function built into your website of choice
##                                                     "Save Function"
##                                               Physical filing system
##                                                    "Physical Filing"
##                                                           I donâ\200\231t
##                                                               "None"
##                                                                brain
##                                                             "Memory"
##                                                              memory
##                                                             "Memory"
##     I tell myself I won't forget how to make this recipe and then I do :(
##                                                             "Memory"
##                                                          tiktok favorites
##                                                           "Save Function"
##                                        In person conversation with others
##                                                             "Verbal"
##                                                               Verbal
##                                                             "Verbal"
##                                                        Word of mouth
##                                                             "Verbal"
##                                                              Discord
##                                                          "Digital Chat"
##                                                            With friends
```

```
##                                                                  "Verbal"
##                                                                   Friends
##                                                                  "Verbal"
##                                                          Text with friends
##                                                             "Digital Chat"
##                                                                Google Docs
##                                                              "Google Docs"
##                                          Messages with friends and family
##                                                             "Digital Chat"
##                                                           talking to people
##                                                                  "Verbal"
##                 Actual conversation with a human in person or on the phone
##                                                                  "Verbal"
##                                                                   talking
##                                                                  "Verbal"
##                                               discussing them with friends
##                                                                  "Verbal"
##                                             Talking to friends and family
##                                                                  "Verbal"
##                                                       Chatting with pals
##                                                                  "Verbal"
##                                             Privately with family/friends
##                                                                  "Verbal"
##    I don't really. I read comments and will directly give recs to friends
##                                                                  "Verbal"
## Various channels of communication (i.e. personal text, group chats, etc.)
##                                                             "Digital Chat"
##                                                                    i don't
##                                                                     "None"
##                                 I text people, or I check reviews on google
##                                                             "Digital Chat"
##                                          discuss with family and friends
##                                                                  "Verbal"
##                                                       conversations/texts
##                                                             "Digital Chat"
##                                                      Messaging platforms
##                                                             "Digital Chat"
##                                                     don't really do this
##                                                                     "None"
```

```
drop<-c(9,11,19,21)
my.data.clean<-my.data[-c(9,11,19,21)]
search.data<-my.data.clean[c(7,8,9,11,12,13)]
search.data<-data.frame(search.data)
colnames(search.data)<-c("Primary","Enjoyed","NOT.Enjoyed","Repeat.Search","Browse.Search","Click.Rate"
search.data<-tibble::rowid_to_column(search.data, "ID")
```

For the sake of this analysis any website that has a test kitchen that creates editorial content or is able to curate content from proffesional sources is a magazine, a a website with one or two people testing recipes is a blog, and a website that allows users to contribute their own recipes is community based. The information for this classification is found on the website's about page. Additionally, media such as cookbooks and podcasts are classified under Influencers due to their personality driven nature.

```r
dummies<-function(search.data, to.clean){
  col.names<-c(names(search.data))
  col.names<-col.names[col.names!=to.clean]
  search.data.clean<- search.data%>% separate_rows(to.clean, sep = ";")

  # cleaned.vars<-c("Mags",
  #  "Blogs",
  # "Google"                                                    ,
  # "YouTube"                                                   ,
  #  "Community Based" ,
  #  "Mags" ,
  #  "Community Based" ,
  # "Pinterest"                                                 ,
  # "Blogs" ,
  # "TikTok"                                                    ,
  # "Mags" ,
  # "Facebook"                                                  ,
  # "Reddit"                                                    ,
  #  "Mags" ,
  # "Mags")
  #
  # names(cleaned.vars)<- c("Online Cooking Magazines (New York Times, Bon Appetit, etc.)",
  #                         "Blogs (Budget Bytes, Smitten Kitchen, etc.)"     ,
  # "Google"                                                    ,
  # "YouTube"                                                   ,
  # "Community Based Cooking Websites (AllRecipes, etc.)"       ,
  # "Edited recipe websites (e.g. Serious Eats)"                ,
  # "Allrecipes "                                               ,
  # "Pinterest"                                                 ,
  # "Cooks I follow their websites , ie againstallgrain"        ,
  # "TikTok"                                                    ,
  # "King Arthur Flour"                                         ,
  # "Facebook"                                                  ,
  # "Reddit"                                                    ,
  # "epicurious"                                                ,
  # "betty crocker's website")

  search.data.clean[[to.clean]]<-as.character(cleaned.variables[search.data.clean[[to.clean]]])

  search.data.dummies<-search.data.clean%>%
    select(to.clean)%>%
    dummy()%>%
    bind_cols(search.data.clean)%>%
    select(-to.clean)%>%
     pivot_longer(cols=-col.names, names_to = "key", values_to = "value")%>%
     filter(value!=0)%>% unique()%>%
  spread(key, value, fill = 0) %>%
  # pivot_wider(key,value)%>%
  group_by_at(col.names)%>%
  ungroup() %>%
  left_join(y=search.data, by=col.names)%>% select(-last_col())
}
search.data
```

```
##    ID
## 1   1
## 2   2
## 3   3
## 4   4
## 5   5
## 6   6
## 7   7
## 8   8
## 9   9
## 10 10
## 11 11
## 12 12
## 13 13
## 14 14
## 15 15
## 16 16
## 17 17
## 18 18
## 19 19
## 20 20
## 21 21
## 22 22
## 23 23
## 24 24
## 25 25
## 26 26
## 27 27
## 28 28
## 29 29
## 30 30
## 31 31
## 32 32
## 33 33
## 34 34
## 35 35
## 36 36
## 37 37
## 38 38
## 39 39
## 40 40
## 41 41
## 42 42
## 43 43
## 44 44
## 45 45
## 46 46
## 47 47
## 48 48
## 49 49
## 50 50
## 51 51
## 52 52
## 53 53
```

```
## 54 54
## 55 55
## 56 56
## 57 57
## 58 58
##
## 1                                                                                                    On
## 2
## 3  YouTube;Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten
## 4
## 5
## 6
## 7
## 8
## 9                                              Online Cooking Magazines (New York Times, Bon Appetit
## 10
## 11
## 12                                             Online Cooking Magazines (New York Times, Bon Appetit
## 13
## 14                                                                                          Online Coo
## 15
## 16
## 17
## 18
## 19
## 20                                  TikTok;Pinterest;Online Cooking Magazines (New York Times, Bon A
## 21
## 22                                                                                                Blog
## 23
## 24
## 25
## 26                                                                                                   Y
## 27                                                                                                   Y
## 28
## 29                                                                                  YouTube;Online Coo
## 30
## 31
## 32                                  Facebook;YouTube;Online Cooking Magazines (New York Times, Bon A
## 33                                           YouTube;Online Cooking Magazines (New York Times, Bon A
## 34                                                                                               Pinte
## 35                                    YouTube;Online Cooking Magazines (New York Times, Bon Appetit
## 36                                            Online Cooking Magazines (New York Times, Bon Appetit
## 37
## 38                                           YouTube;Online Cooking Magazines (New York Times, Bon A
## 39                                                                                                   P
## 40                                                                                         YouTube;Onl
## 41
## 42                                                                                      Online Cooking
## 43
## 44                                                                                          Online Coo
## 45                                                   Online Cooking Magazines (New York Times, Bon A
## 46
## 47
## 48
```

```
## 49
## 50                                      TikTok;Online Cooking Magazines (New York Times, Bon Appetit
## 51
## 52
## 53
## 54                                             Online Cooking Magazines (New York Times, Bon Appetit
## 55
## 56
## 57
## 58                                     YouTube;Online Cooking Magazines (New York Times, Bon Appetit
##
## 1                                                                                  Online Cooking Magaz
## 2
## 3                                              Online Cooking Magazines (New York Times, Bon Appeti
## 4
## 5
## 6                                                                                  Online Cooking Magaz
## 7                                                        YouTube;Online Cooking Magazines (New York
## 8
## 9                                                                                        Blogs (Budg
## 10
## 11                                                                                       Blogs (Budg
## 12          TikTok;YouTube;Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budg
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20                                                                TikTok;Pinterest;Online Cookin
## 21
## 22 Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budget Bytes, Smitten Kitchen
## 23
## 24
## 25
## 26        Pinterest;YouTube;Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budg
## 27                                                                                 YouTube;Blogs
## 28
## 29                                                                YouTube;Online Cooking Magazi
## 30
## 31
## 32
## 33
## 34
## 35                                                                                 TikTok;Online Cookin
## 36                          Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budg
## 37
## 38                                                                YouTube;Online Cooking Magazi
## 39                                                                                       Reddi
## 40
## 41
## 42
## 43
```

```
## 44
## 45
## 46
## 47
## 48
## 49
## 50
## 51
## 52
## 53
## 54                          Online Cooking Magazines (New York Times, Bon Appetit, etc.);Blogs (Budg
## 55
## 56
## 57
## 58
##
## 1
## 2  Facebook;Reddit;TikTok;Pinterest;YouTube;Online Cooking Magazines (New York Times, Bon Appetit, e
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10
## 11
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
## 21         Facebook;Reddit;TikTok;Pinterest;Online Cooking Magazines (New York Times, Bon Appetit, e
## 22
## 23
## 24
## 25
## 26
## 27
## 28
## 29
## 30
## 31
## 32
## 33
## 34
## 35
## 36
## 37
## 38
```

39
40
41
42
43
44
45
46
47
48 Facebook;Reddit;TikTok;Pinterest;Online Cooking Magazines (New York Times, Bon Appetit, e
49
50
51
52
53
54
55
56 Facebook;Reddit;TikTok;Pinte
57 Pinte
58

	Repeat.Search	Browse.Search	Click.Rate
1	1	4	4 - 7
2	5	1	0 - 3
3	3	4	4 - 7
4	4	2	0 - 3
5	1	4	0 - 3
6	3	3	0 - 3
7	4	5	8 - 11
8	2	1	0 - 3
9	4	3	0 - 3
10	4	5	4 - 7
11	5	5	4 - 7
12	3	3	0 - 3
13	2	1	0 - 3
14	3	5	4 - 7
15	2	2	4 - 7
16	2	1	4 - 7
17	5	3	0 - 3
18	4	3	4 - 7
19	4	5	4 - 7
20	5	4	0 - 3
21	2	2	4 - 7
22	3	3	0 - 3
23	4	3	0 - 3
24	2	2	0 - 3
25	3	2	0 - 3
26	2	4	4 - 7
27	4	2	4 - 7
28	3	1	0 - 3
29	5	2	0 - 3
30	1	1	0 - 3
31	3	3	0 - 3
32	4	5	0 - 3
33	4	4	4 - 7

```
## 34              5              3      4 - 7
## 35              4              3      0 - 3
## 36              4              3      0 - 3
## 37              2              1      4 - 7
## 38              2              2      0 - 3
## 39              2              2      0 - 3
## 40              4              3      4 - 7
## 41              3              2      0 - 3
## 42              3              1      0 - 3
## 43              4              1      0 - 3
## 44              3              2      4 - 7
## 45              3              4      0 - 3
## 46              5              4    16 - 19
## 47              5              1      0 - 3
## 48              3              3      0 - 3
## 49              3              2      0 - 3
## 50              4              5      0 - 3
## 51              5              2      0 - 3
## 52              5              4      0 - 3
## 53              1              3      0 - 3
## 54              4              3      0 - 3
## 55              3              5      4 - 7
## 56              4              4      4 - 7
## 57              4              2      4 - 7
## 58              2              3      4 - 7
```

```
cleaned<-dummies(search.data,c("Primary"))
```

```
## Note: Using an external vector in selections is ambiguous.
## i Use ‘all_of(to.clean)‘ instead of ‘to.clean‘ to silence this message.
## i See <https://tidyselect.r-lib.org/reference/faq-external-vector.html>.
## This message is displayed once per session.

## Note: Using an external vector in selections is ambiguous.
## i Use ‘all_of(col.names)‘ instead of ‘col.names‘ to silence this message.
## i See <https://tidyselect.r-lib.org/reference/faq-external-vector.html>.
## This message is displayed once per session.
```

```
cleaned<-dummies(cleaned,c("Enjoyed"))
cleaned<-dummies(cleaned, c("NOT.Enjoyed"))
cleaned=cleaned%>%mutate(Repeat.Search= cut(Repeat.Search, c(0, 1.2, 2.5,3.5,4.5,5.5),right=FALSE,labels
# cleaned.search<-recode(cleaned$Repeat.Search,old=c(1,2,3,4,5), new =c("Never","Rarely","Sometimes", "


cols<-names(cleaned)
cleaned<-lapply(cleaned[cols], as.factor)
# missing.vals<-imputeMCA(cleaned, tab.disj =missing.vals$tab.disj, ncp = 1)
# search.MCA=MCA(cleaned,graph=FALSE)
# fviz_screeplot(search.MCA,addlabels=T)
# fviz_mca_var(search.MCA, choice = "mca.cor", repel = TRUE,
#              ggtheme = theme_minimal())
# fviz_contrib(search.MCA, choice = "var", axes = 1, top = 15)
# fviz_mca_var(search.MCA, col.var = "cos2",
```

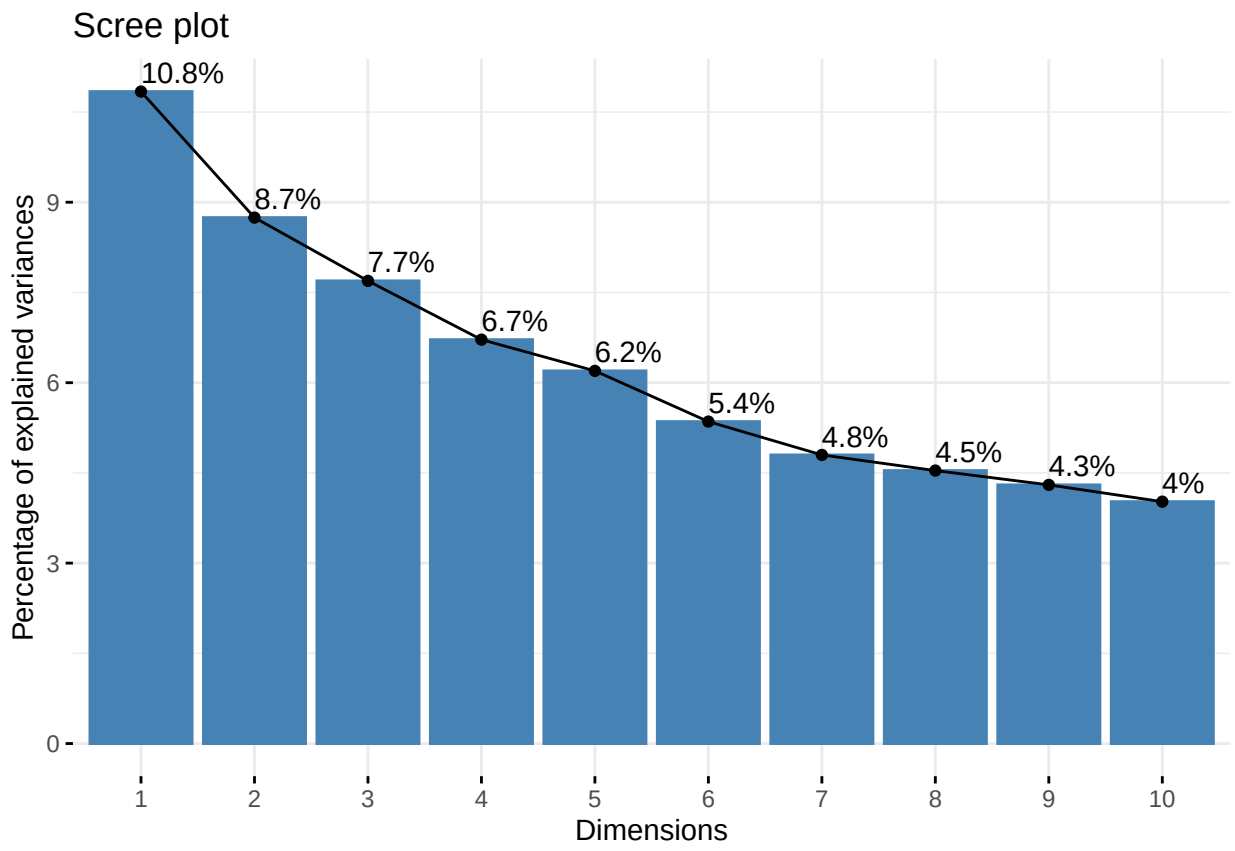
```
#              gradient.cols = c("#00AFBB", "#E7B800", "#FC4E07"),
#              repel = TRUE, ggtheme = theme_minimal())
```

```
c(colnames(cleaned))
```

```
## NULL
```

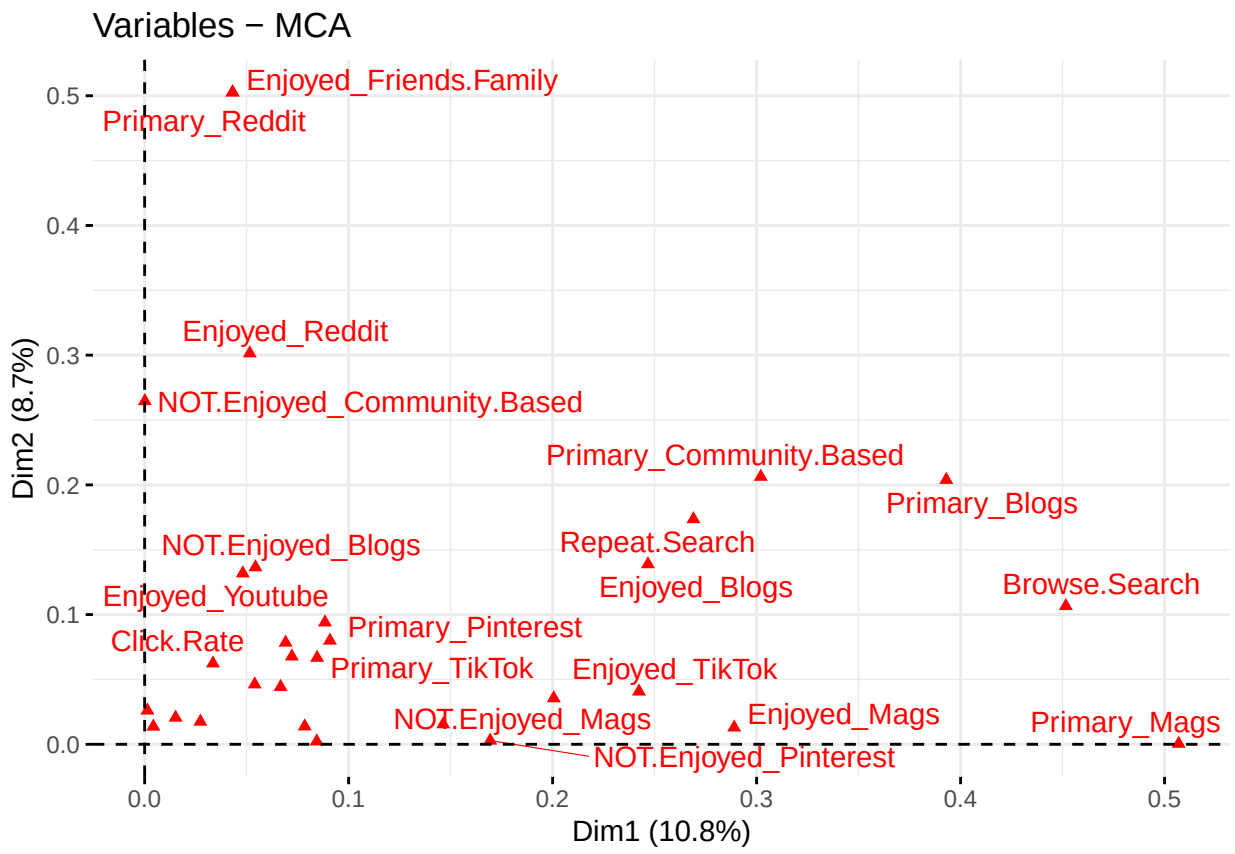
```
var.names<-c(colnames(cleaned))
var.names[7]<-"Primary_Blogs"
var.names[8]<-"Primary_Community.Based.Websites"
var.names[15]<-"Primary_Online.Cooking.Magazines"
var.names[]<-"NOT.Enjoyed_Blogs"
```

```
cleaned.search.data1<-data.frame(cleaned[-c(1)])
search.MCA=MCA(cleaned.search.data1,graph=FALSE)
fviz_screeplot(search.MCA,addlabels=T)
```

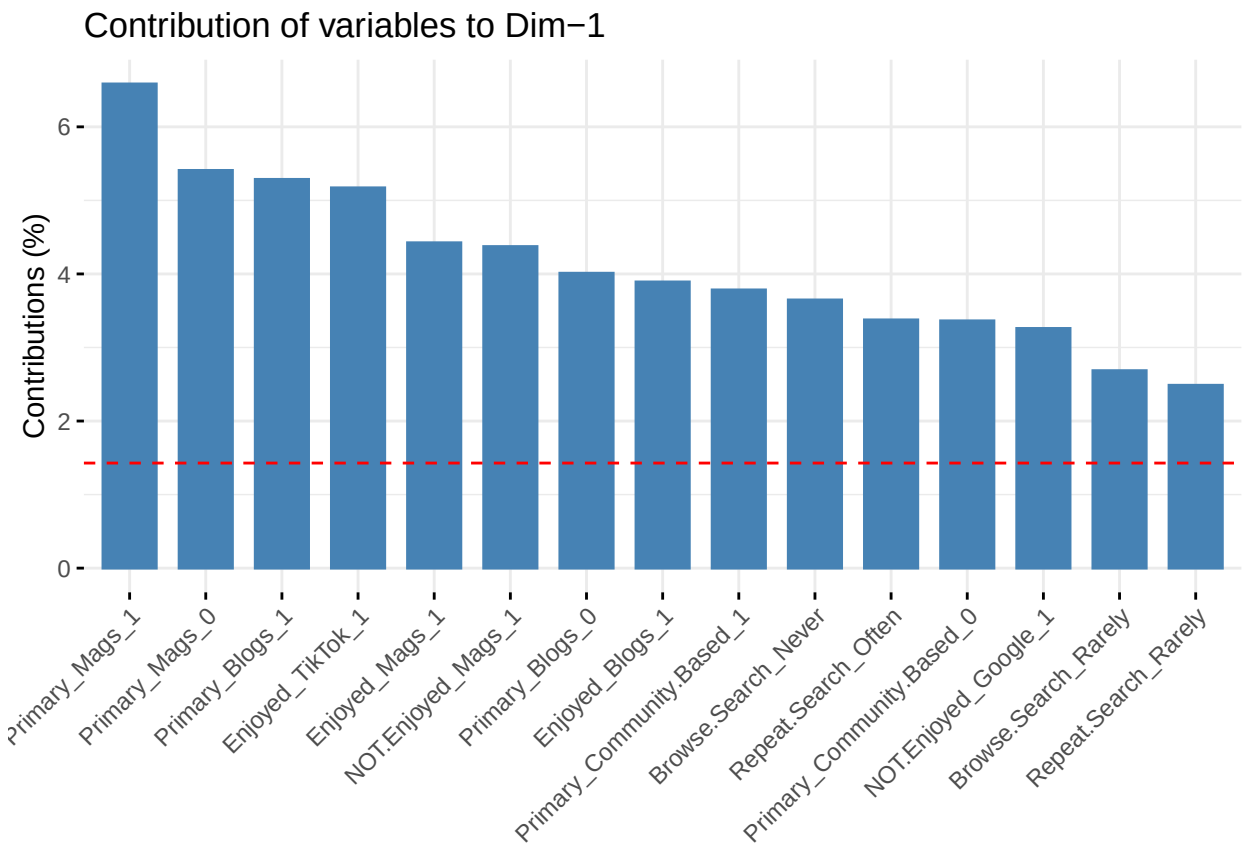



```
fviz_mca_var(search.MCA, choice = "mca.cor", repel = TRUE,
             ggtheme = theme_minimal())
```

```
## Warning: ggrepel: 12 unlabeled data points (too many overlaps). Consider
## increasing max.overlaps
```

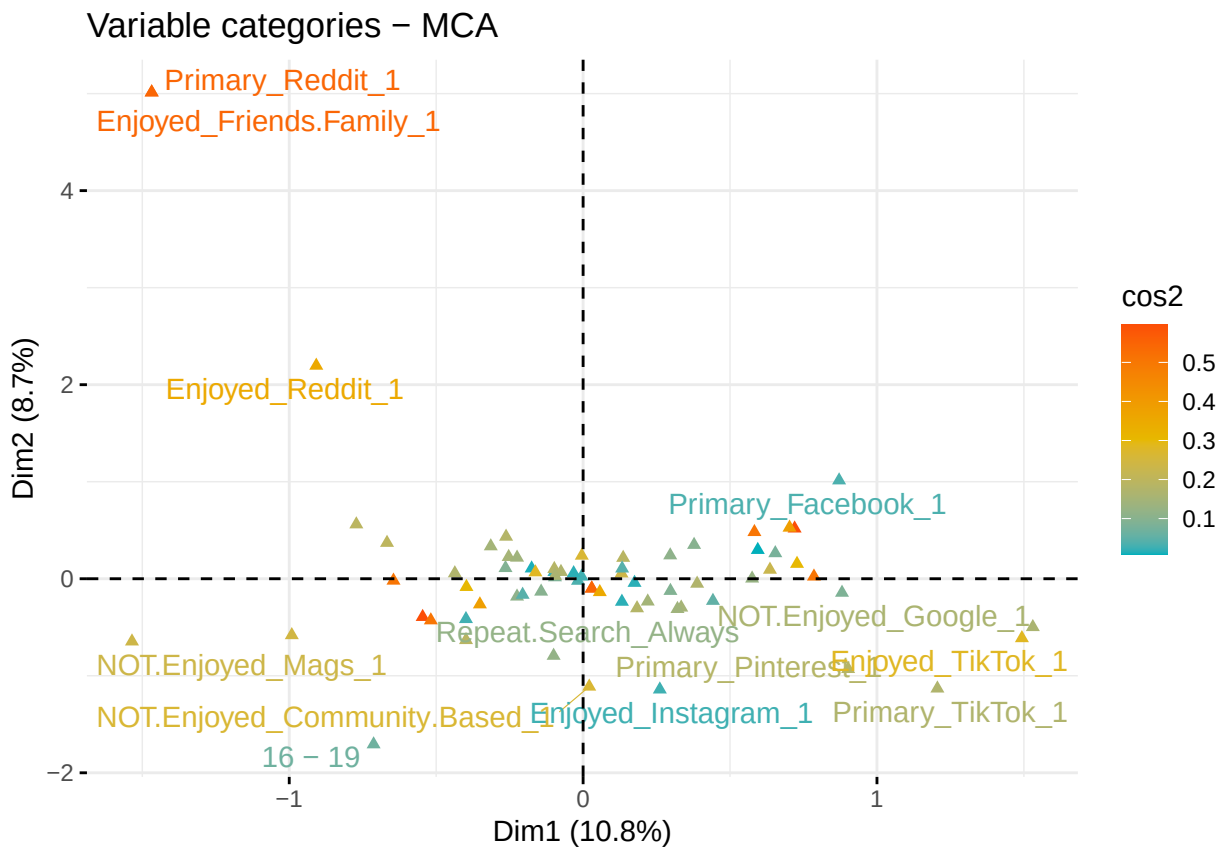



```
fviz_contrib(search.MCA, choice = "var", axes = 1, top = 15)
```




```
fviz_mca_var(search.MCA, col.var = "cos2",
             gradient.cols = c("#00AFBB", "#E7B800", "#FC4E07"),
             repel = TRUE, ggtheme = theme_minimal())
```

```
## Warning: ggrepel: 57 unlabeled data points (too many overlaps). Consider
## increasing max.overlaps
```




```
set.seed(6933)

fruit_words <- c("apple", "orange", "banana", "pappels", "orong", "bernaner")

dat <- data.frame(fruit = sample(fruit_words, size=10, replace=TRUE),
                  stringsAsFactors=FALSE)

fruit_lkup <- c(apple="appl", orange="orng", banana="bnna",
                pappels="appl", orong="orng", bernaner="bnna")
str(dat)
```

```
## 'data.frame':    10 obs. of  1 variable:
##  $ fruit: chr  "orong" "banana" "orong" "banana" ...
```

```
str(dat$fruit)
```

```
##  chr [1:10] "orong" "banana" "orong" "banana" "apple" "apple" "apple" ...
```

```
dat$fruit_clean <- as.character(fruit_lkup[dat$fruit])
dat
```

```
##     fruit fruit_clean
## 1   orong        orng
## 2  banana        bnna
```

```
## 3   orong        orng
## 4  banana        bnna
## 5   apple        appl
## 6   apple        appl
## 7   apple        appl
## 8  orange        orng
## 9  banana        bnna
## 10  orong        orng
```