

# Music Descriptors Supplementary materials

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## **Supplementary Materials for Experiment 1**

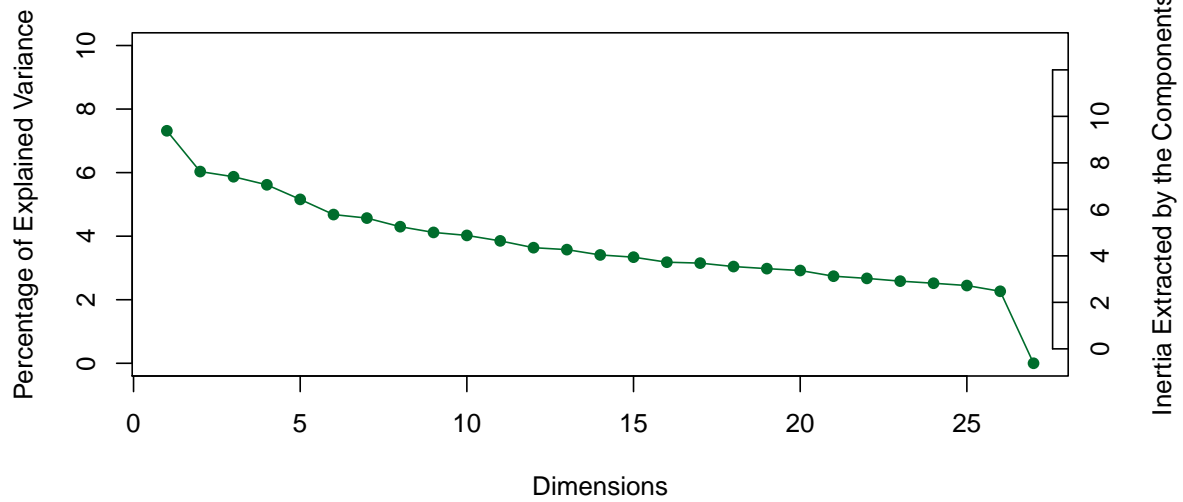
Table 1: Musical Qualities and the provided survey response options, English.

Harmonic Material	Tempo	Meter	Density	Genre	Articulation
Diatonic: Major	Very slow	Simple Duple	Very sparse	Baroque	Staccato
Diatonic: Minor	Slow	Simple Triple	Moderately sparse	Classical	Marcato
Blues	Moderately Slow	Simple Quadruple	More sparse than dense	Romantic	Legato
Chromatic	Moderate	Compound Duple	More dense than sparse	Impressionist	Tenuto
Whole tone	Moderately Fast	Compound Triple	Moderately Dense	Modern	Other
Modal	Fast	Compound Quadruple	Very Dense	Jazz/Blues	
Quintal/Quartal	Very Fast	Complex		Contemporary	
Ambiguous				Other	
Other					
	Contour	Motion	Range	Dynamics	
	Ascending	Conjunct	Narrow	Soft	
	Descending	Disjunct	Moderate	Moderate	
	Arch	Combination of conjunct	Wide	Loud	
	Undulating	and disjunct	Very Wide	Varied: gradual crescendo	
	Pendulum	I do not think this	I do not think this	Varied: gradual	
	Terrace	excerpt has a melody	excerpt has a melody	decrescendo	
	I do not think this	Other		Some of each, soft and	
	excerpt has a melody			loud	
	Other			Other	

Table 2: Musical Qualities and the provided survey response options, French.

Harmonie	Vitesse	Mesure	Densité	Genre	Articulation
Diatonique: majeur	Très lente	Mesure simple, deux temps	Très épurée	Baroque	Staccato
Diatonique: mineur	Lente	Mesure simple, trois temps	Modérément épurée	Classique	Marcato
Gamme Blues	Moyennement lent	Mesure simple, quatre temps	Plutôt épurée que dense	Romantique	Legato
Chromatique	Moyenne	Mesure composée, deux temps	Plutôt dense qu'épurée	Impressioniste	Tenuto
Gamme par ton	Moyennement rapide	Mesure composée, trois temps	Moyennement dense	Moderne	Autre (précisez)
Modal	Rapide	Mesure composée, quatre temps	Très dense	Jazz-Blues	
Ambigu	Très rapide	Mesure complexe		Contemporain	
Je ne pense pas que cet extrait ait une mélodie				Autre (précisez)	
	Contour	Mouvement	Ambitus	Dynamiques	
	Ascendant	Conjoint	Ambitus resserré	Doux	
	Descendant	Disjoint	Ambitus modéré	Moyen	
	Forme en arche	Une combinaison de	Ambitus grand	Fort	
	Petites vagues successives	conjoint et disjoint	Ambitus très grand	Varié : crescendo progressif	
	Grandes vagues successives	Je ne pense pas que cet extrait ait une mélodie	Je ne pense pas que cet extrait ait une mélodie	Varié : decrescendo progressif	
	Plusieurs phases descendantes successives				
	Je ne pense pas que cet extrait ait une mélodie	Autre (précisez)		Un peu des deux: doux et fort	
	Autre (précisez)			Autre (précisez)	

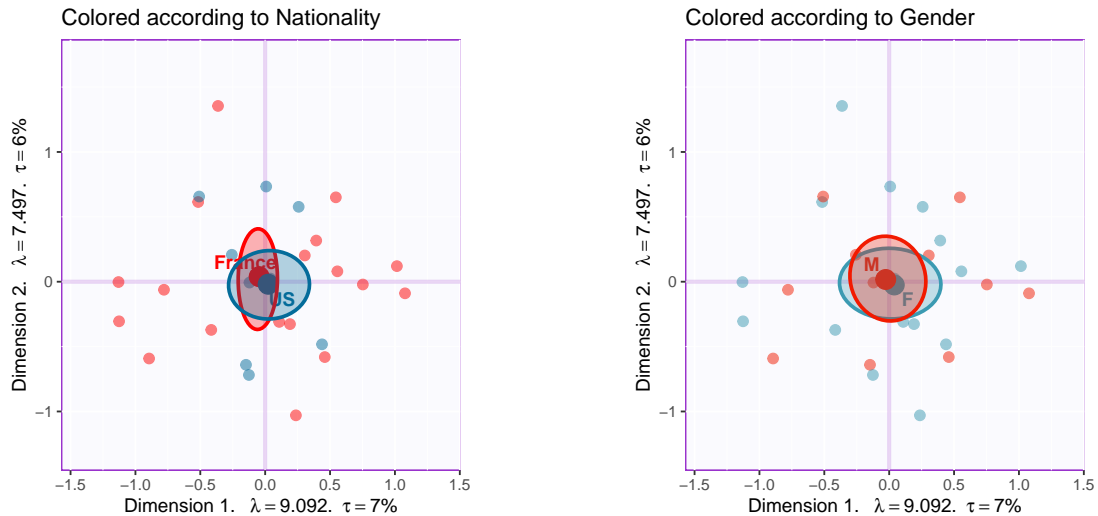
## RV Analysis: Explained Variance per Dimension



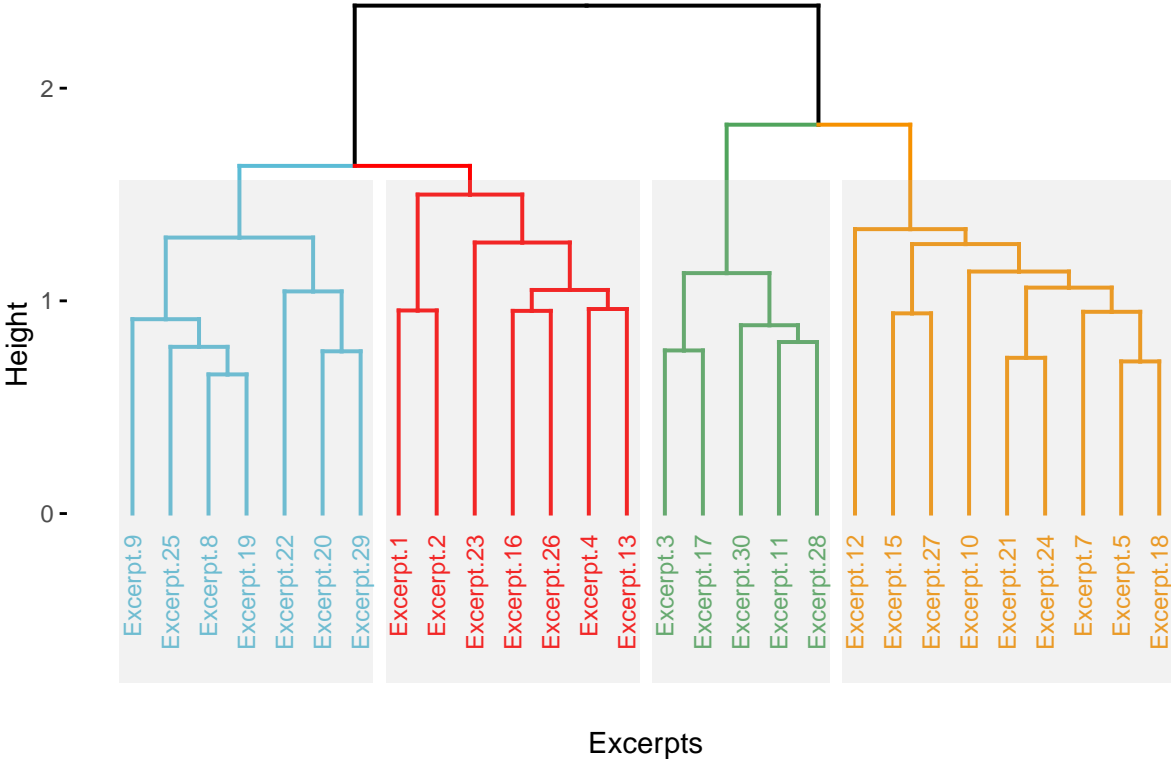
```
n.ellipse <- MakeCIEllipses(BootCube.N$BootCube[,1:2,],
                             names.of.factors = c("Dimension 1", "Dimension 2"),
                             col = c(col4AM, col4FR))
g.ellipse <- MakeCIEllipses(BootCube.G$BootCube[,1:2,],
                             names.of.factors = c("Dimension 1", "Dimension 2"),
                             col = c(col4M, col4F))
```

```
grid.arrange(as.grob(a.01.map4part),
              as.grob(a.02.map4part), ncol = 2,
              top = textGrob("Factor Scores for Expert Ratings",
                              gp = gpar(fontsize = 18, font = 3)))
```

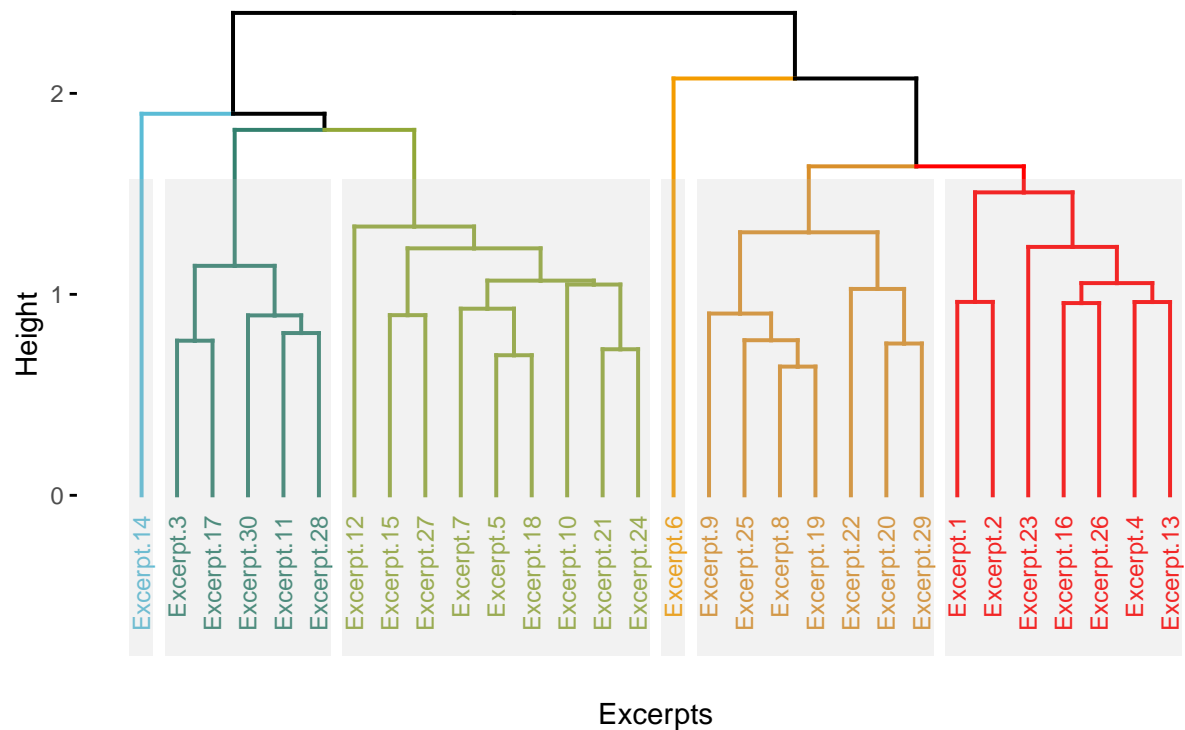
## Factor Scores for Expert Ratings



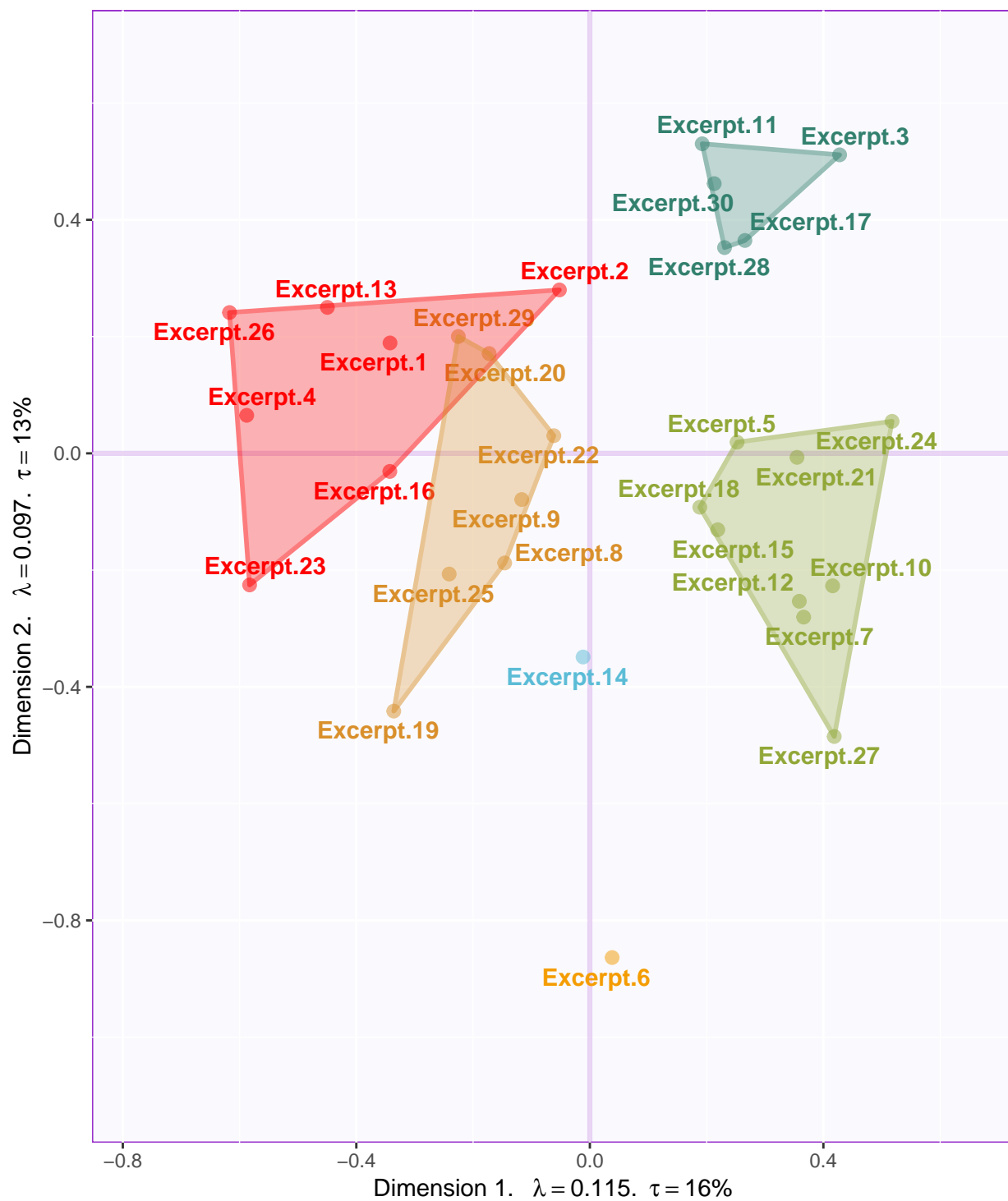
Hierarchical Cluster Analysis: Excerpts, Musical Qualities Survey



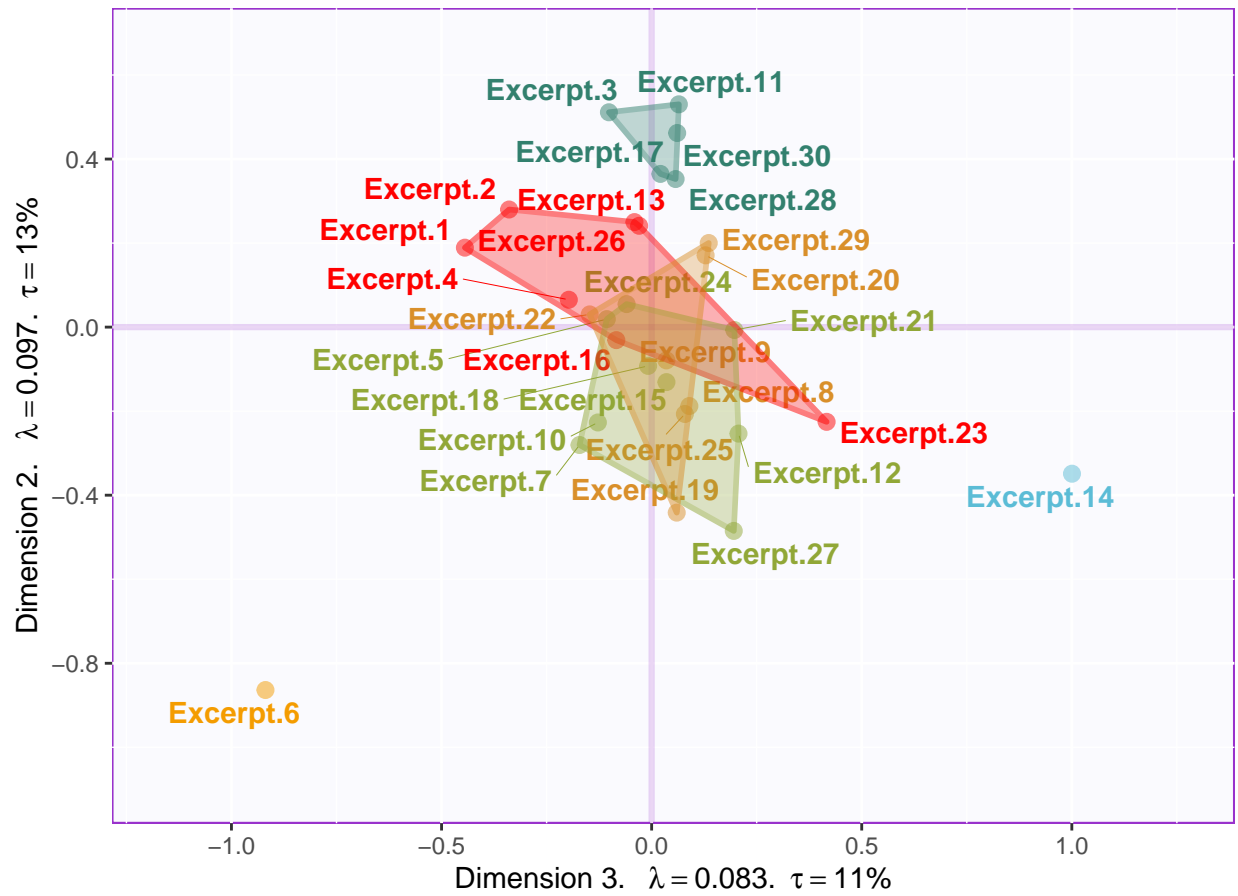
# Hierarchical Cluster Analysis: Excerpts, Musical Qualities Survey Including Excerpts 6 and 14



Dimensions 1 and 2



Dimensions 2 and 3



```
axisone <- 1
axistwo <- 2

mustau <- dimcares.inf$Fixed.Data$ExPosition.Data$pdq$tau
```



```

muslam <- dimcares.inf$Fixed.Data$ExPosition.Data$pdq$eigs

labelsforexcerpts <- createxyLabels.gen(axisone, axistwo, lambda = muslam, tau = mustau)

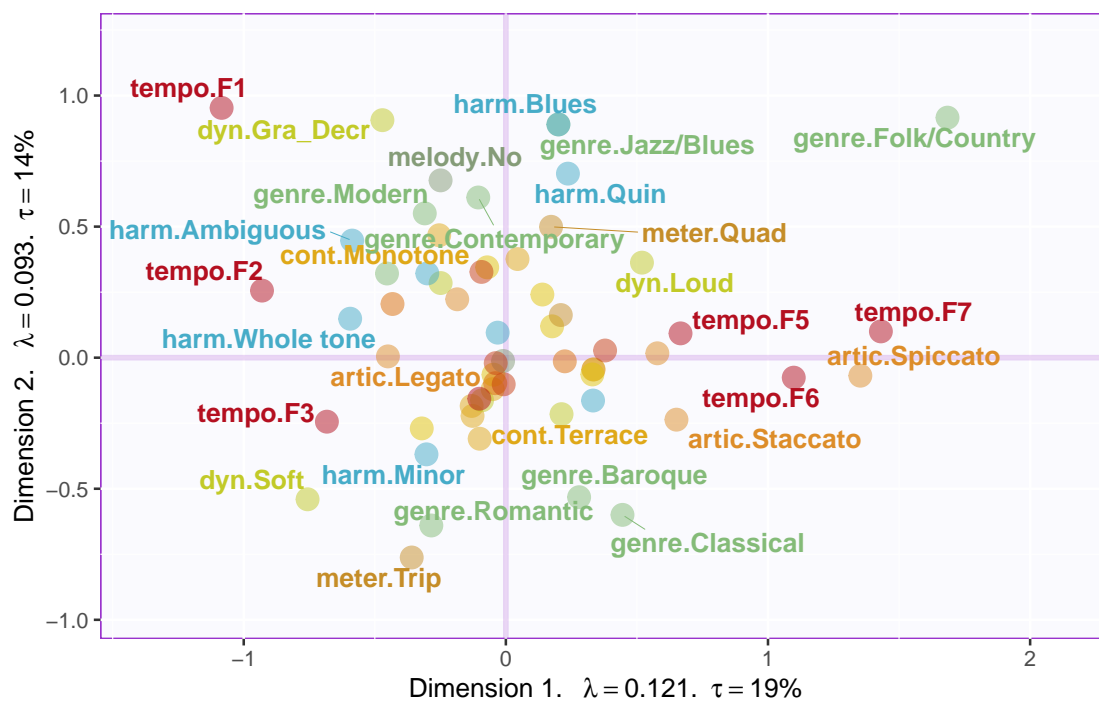
Basemap.cols <- createFactorMap(X = FJs,
                                axis1 = axisone,
                                axis2 = axistwo,
                                col.points = col4cols,
                                # constraints = Basemap.excerpts$constraints,
                                title = "Column Factor Scores \nColored according to dimension group",
                                display.points = T,
                                pch = 19, cex = 4,
                                display.labels = T,
                                col.labels = col4cols,
                                text.cex = 4, font.face = "bold",
                                font.family = "sans",
                                col.axes = "darkorchid",
                                alpha.axes = 0.2,
                                width.axes = 1.1,
                                col.background = adjustcolor("lavender",
                                                                alpha.f = 0.2),
                                force = 1, segment.size = 3
                                )

mus.007 <- Basemap.cols$zeMap_background + labelsforexcerpts + Basemap.cols$zeMap_dots
mus.008 <- Basemap.cols$zeMap_background + labelsforexcerpts + Basemap.cols$zeMap_text
mus.009 <- Basemap.cols$zeMap + labelsforexcerpts

print(mus.009)

```

Column Factor Scores  
Colored according to dimension group



```

# This was originally initialized as something else. Instead of changing each
# instance, I'm just changing this one.
FJ.all <- FJs
#Initialize an empty list
FJ.split <- vector(mode = "list", length = length(numberofdims))

# Name the elements of the list with the names of each group of musical dimensions
names(FJ.split) <- names(numberofdims)

# This loop puts the factor scores for each group of musical dimensions
# in each element of the list
for (i in 1:length(numberofdims)){
  FJ.split[[i]] = FJ.all[which(strstr_startswith(rownames(FJ.all),
                                                    coll = names(numberofdims)[i])), ]
}

# We also need to do the same for the constraints
FJ.constraints <- vector(mode = "list", length = length(numberofdims))
names(FJ.constraints) = names(numberofdims)
axisone <- 1
axistwo <- 2

for (i in 1:length(numberofdims)){

  FJ.constraints[[i]] <- minmaxHelper(FJ.split[[i]],
                                     axis1 = axisone, axis2 = axistwo)
}

# And finally we need to create a list for the actual maps
FJ.maps <- vector(mode = "list", length = length(numberofdims))
names(FJ.maps) = names(numberofdims)
# This loop uses the three lists we've created to create a set of maps, with one
# for each group of factor scores.

for (i in 1:length(numberofdims)){

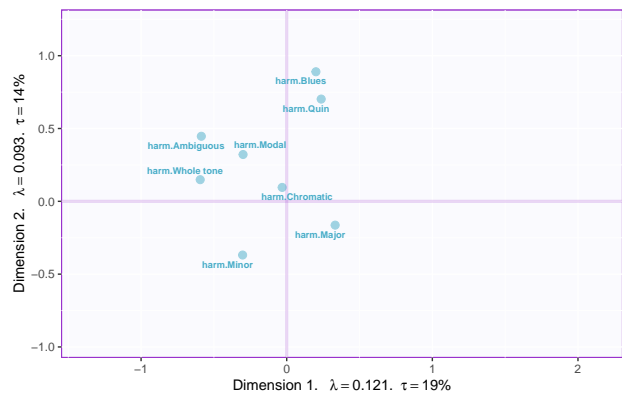
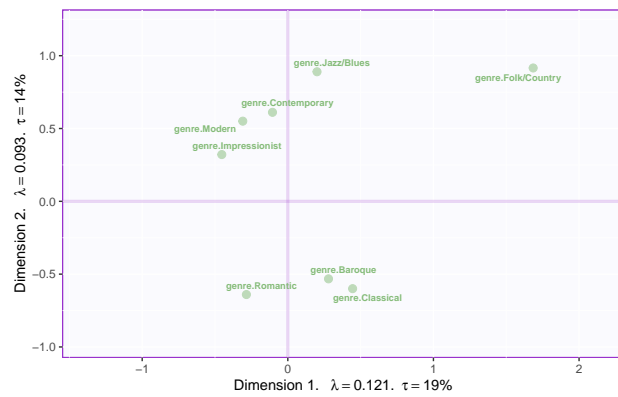
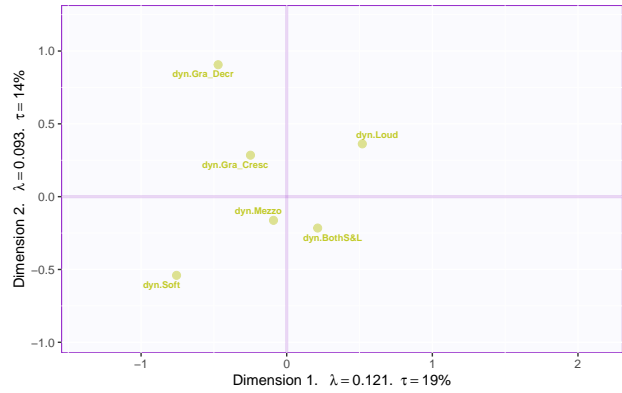
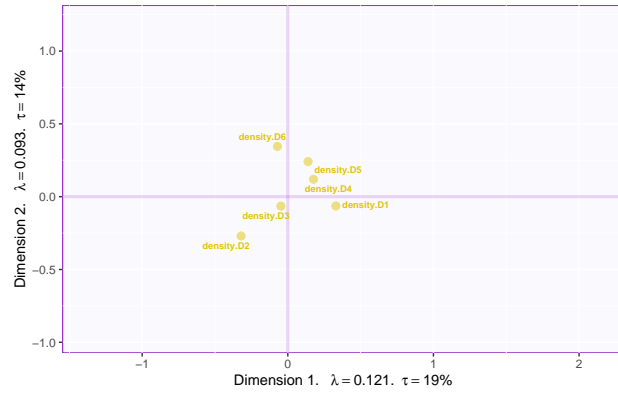
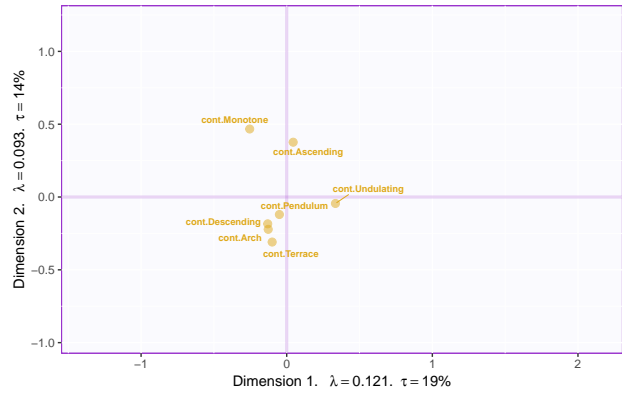
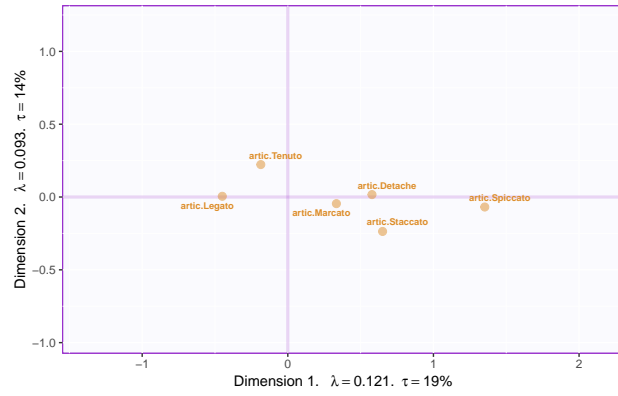
  FJ.maps[[i]] <- createFactorMap(FJ.split[[i]],
                                axis1 = axisone, axis2 = axistwo,
                                constraints = Basemap.cols$constraints,
                                col.points = unique(col4cols)[i],
                                display.points = T,
                                pch = 19, cex = 2.5,
                                display.labels = T,
                                col.labels = unique(col4cols)[i],
                                text.cex = 2.5, font.face = "bold",
                                font.family = "sans",
                                col.axes = "darkorchid",
                                alpha.axes = 0.2,
                                width.axes = 1.1,
                                col.background = adjustcolor("lavender",
                                                              alpha.f = 0.2),
                                force = 1, segment.size = 3
  )
}

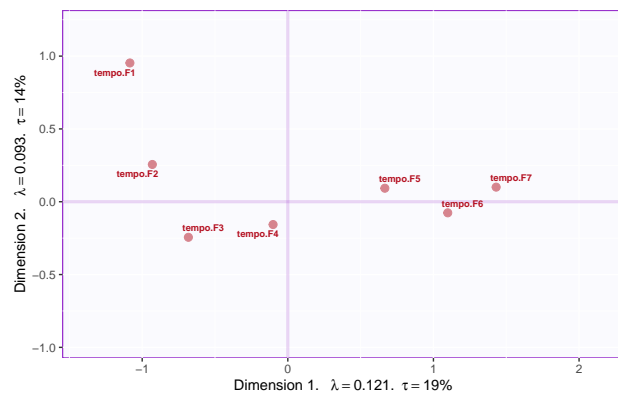
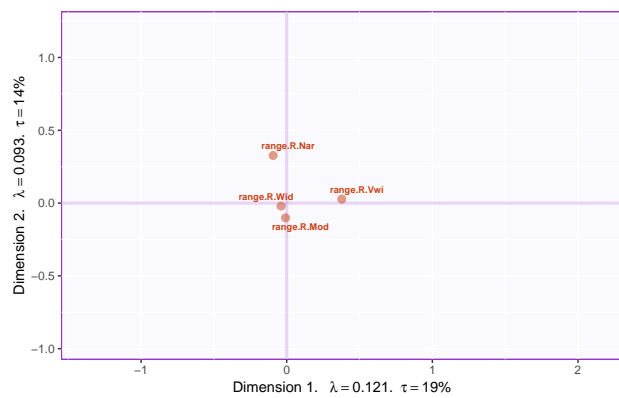
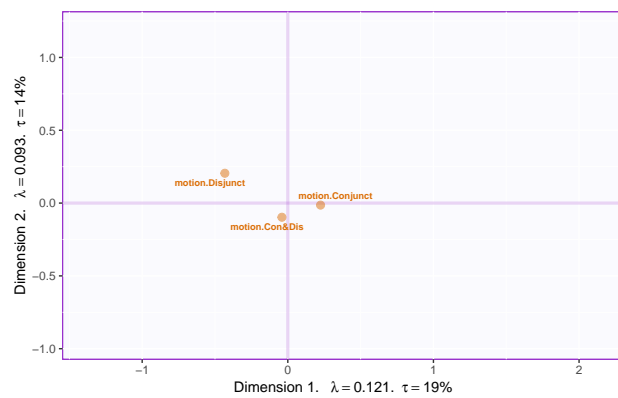
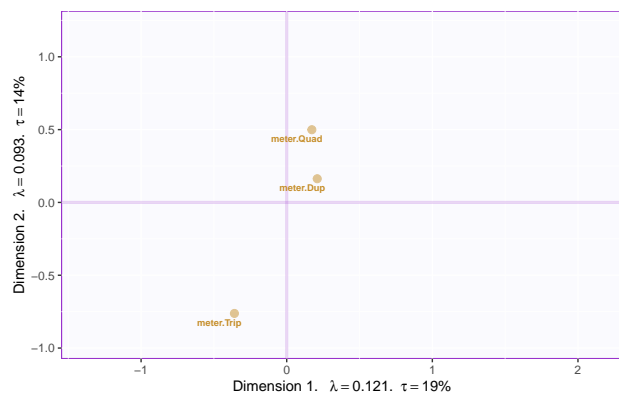
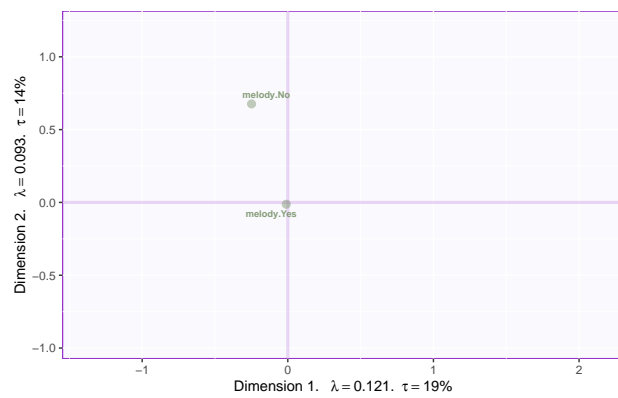
```

```

    )
    print(FJ.maps[[i]]$zeMap + labelsforexcerpts)
  }

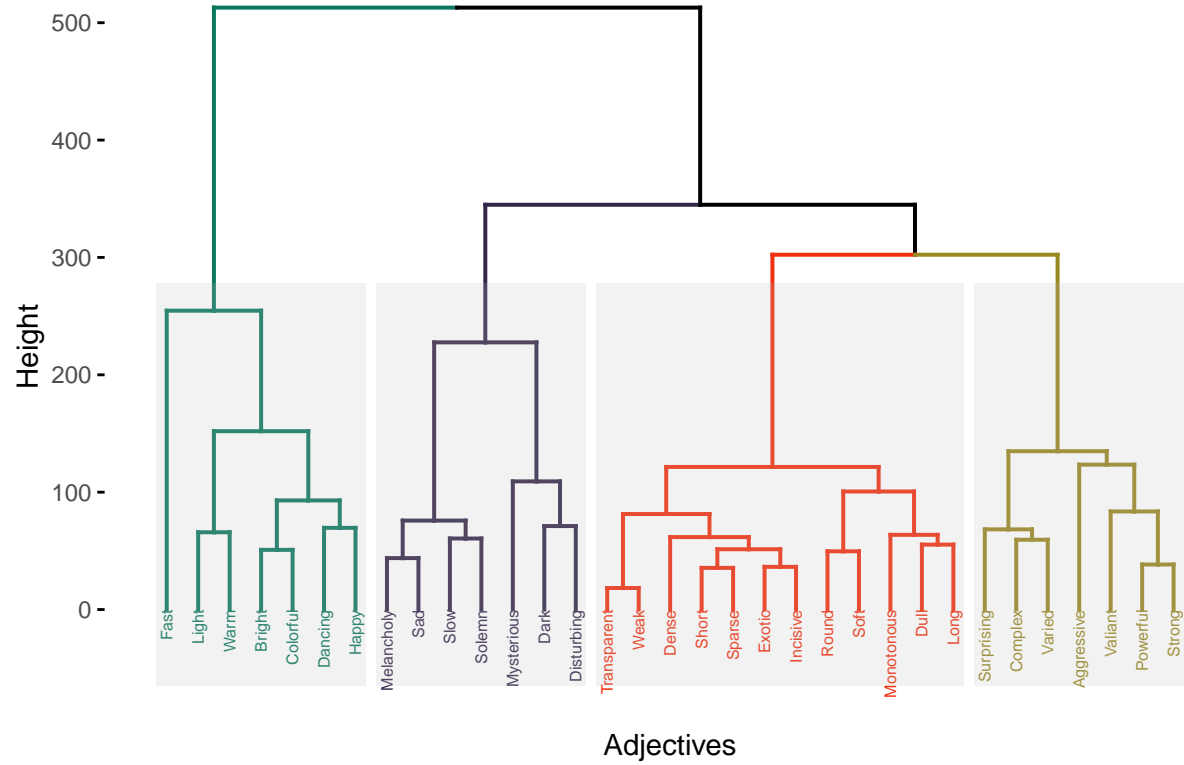
```







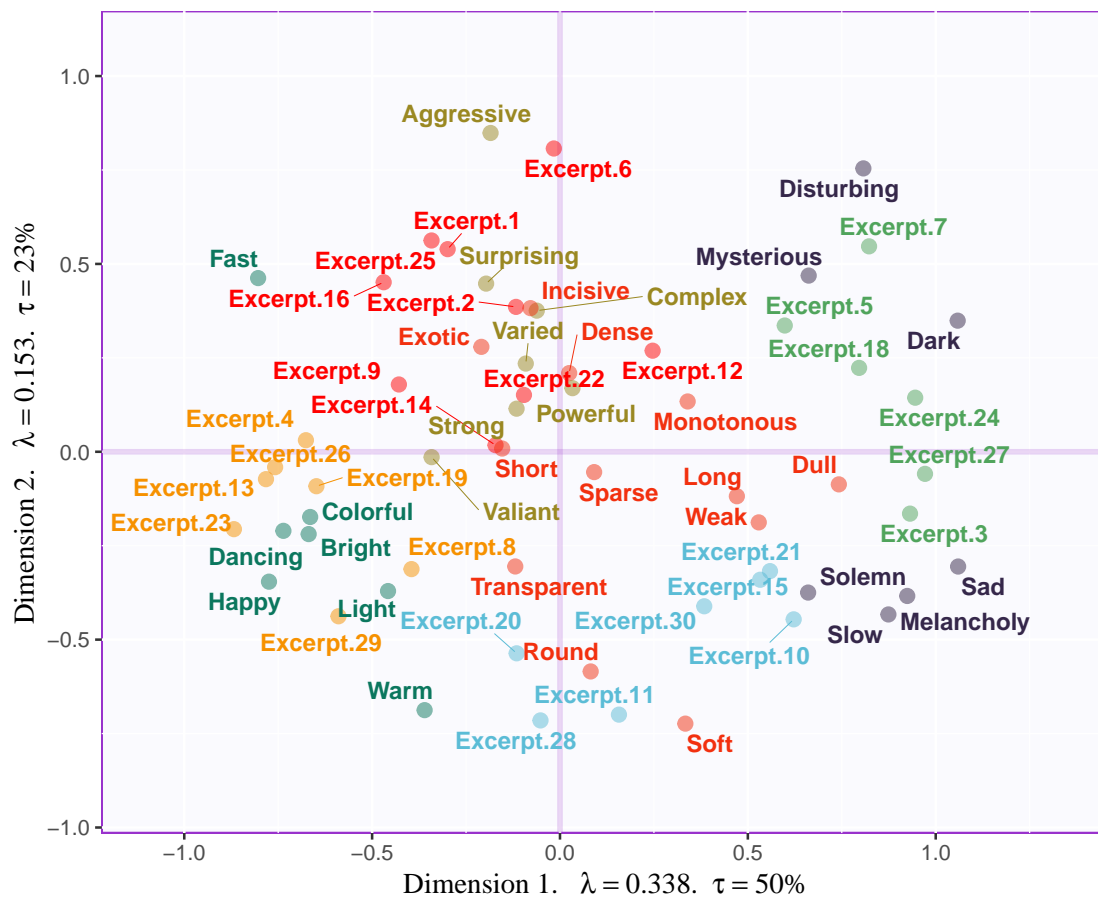
## Hierarchical Cluster Analysis, using Ward's Distance: Adjectives



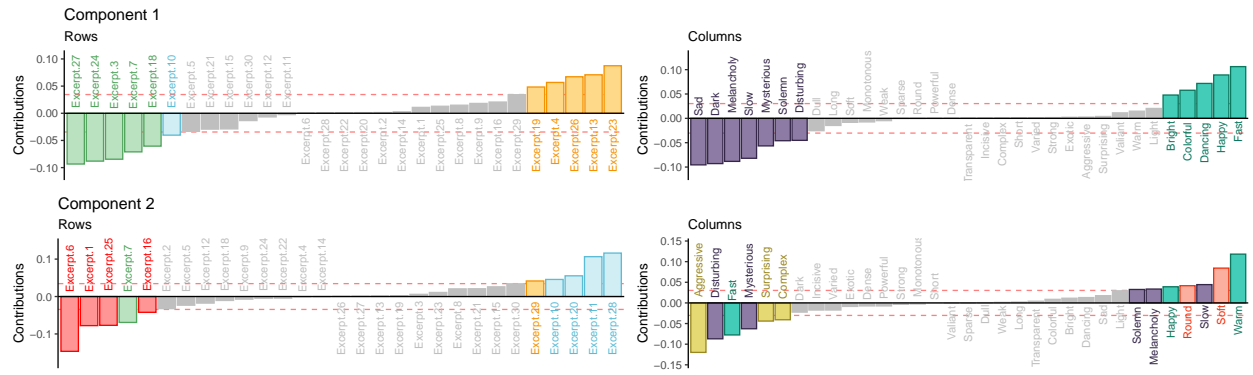




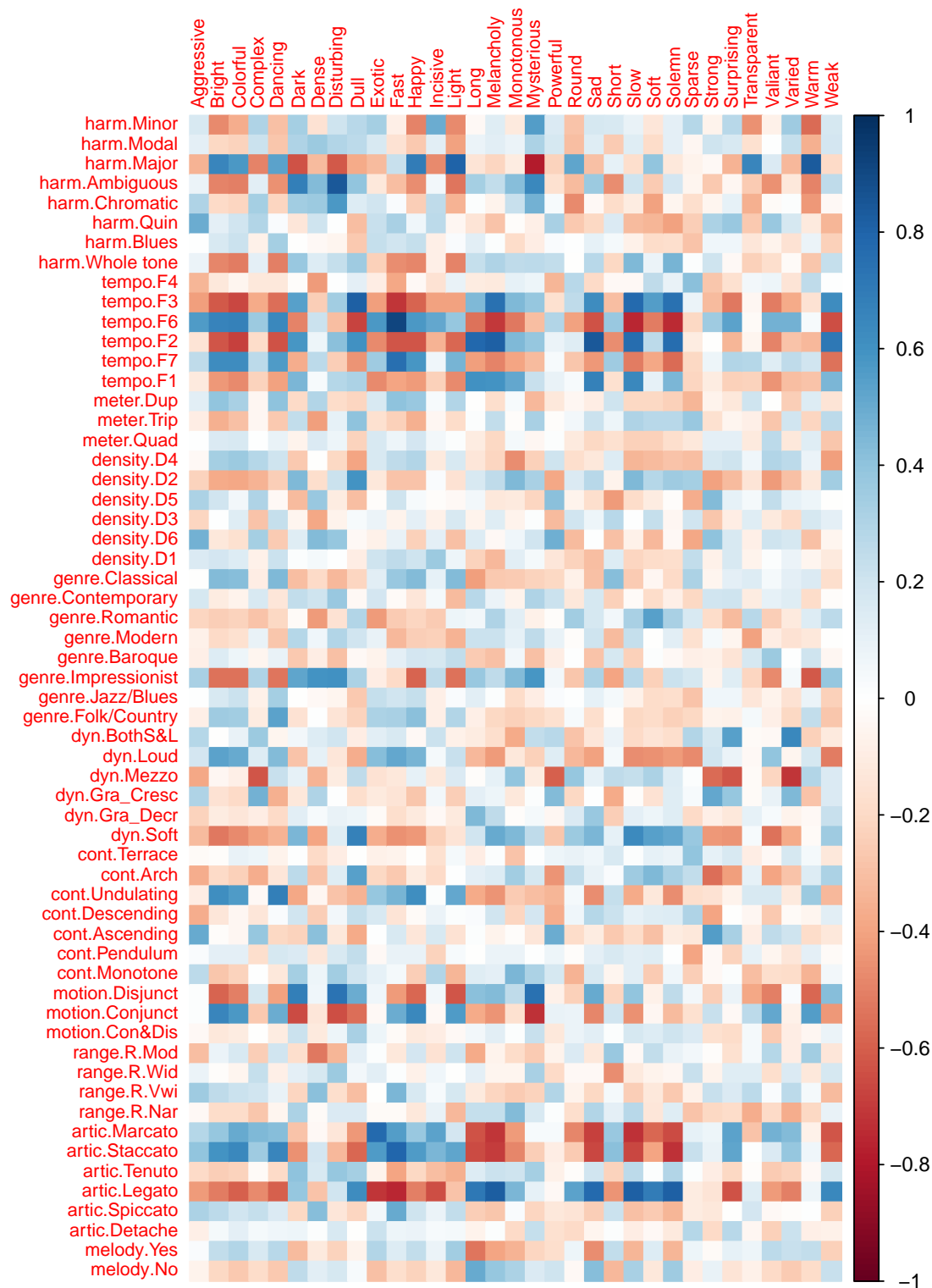
Symmetric biplot showing factor scores for Excerpts & Adjectives



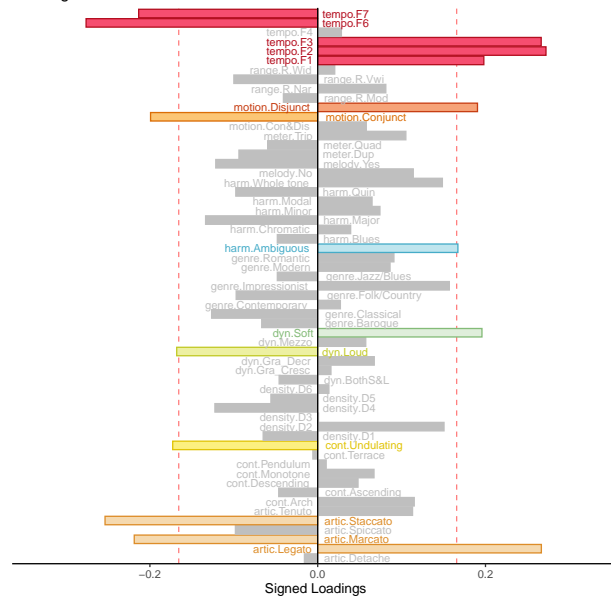
## Contributions



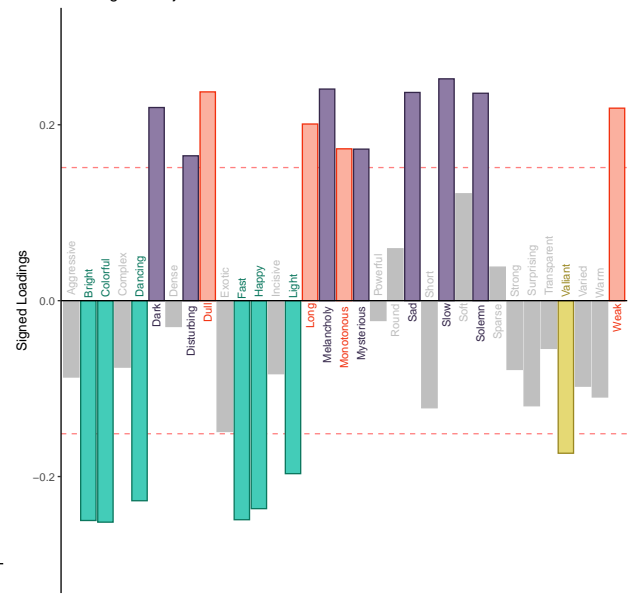
## Supplementary materials for Experiment 3



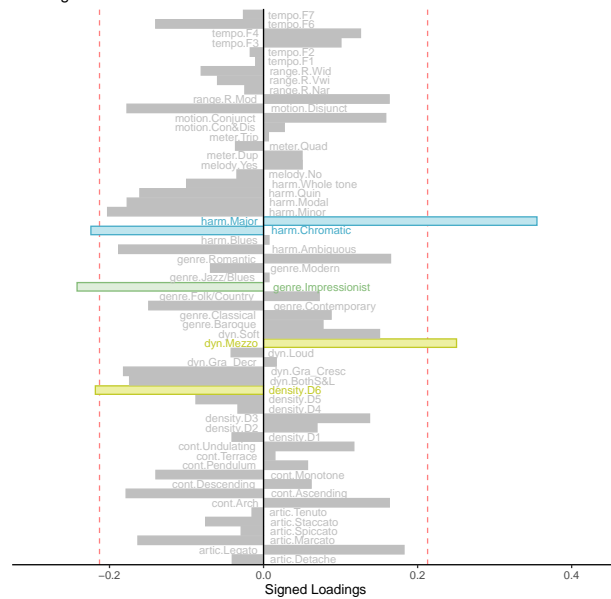
Loadings for Musical Qualities for LV1



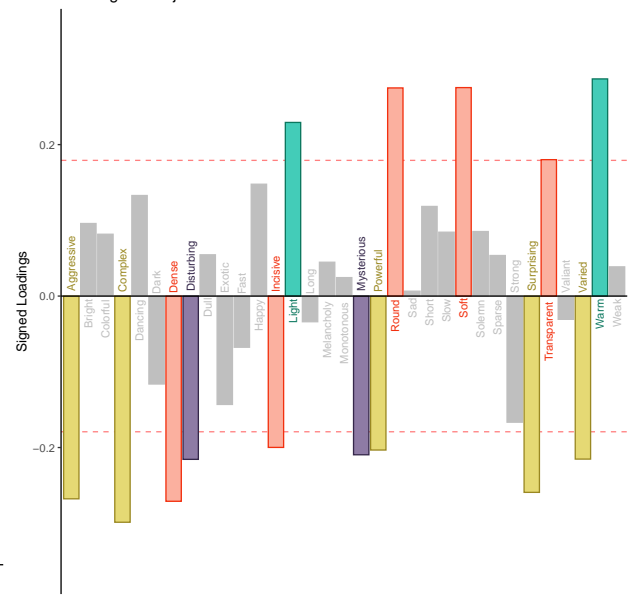
Loadings for Adjectives for LV1



Loadings for Musical Qualities for LV2



Loadings for Adjectives for LV2



## List of Tables

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Table 3 CATA Adjectives

English	French
Slow	Lent
Fast	Rapide
Dense	Bavard
Sparse	Epure
Complex	Complexe
Transparent	Transparent
Light	Clair
Dark	Sombre
Bright	Brillant
Dull	Terne
Soft	Doux
Strong	Fort
Mysterious	Mysterieux
Melancholy	Melancolique
Incisive	Incisif
Round	Tendre
Aggressive	Agressif
Weak	Faible
Strong	Puissant
Warm	Chaleureux
Solemn	Solennel
Valiant	Vaillant
Sad	Triste
Happy	Joyeux
Dancing	Dansant
Disturbing	Inquietant
Exotic	Exotique
Colorful	Colore
Varied	Changeant
Monotonous	Monotone
Long	Long
Short	Court
Surprising	Surprenant