

Anàlisi Descriptiu Bivariant

2024-02-24

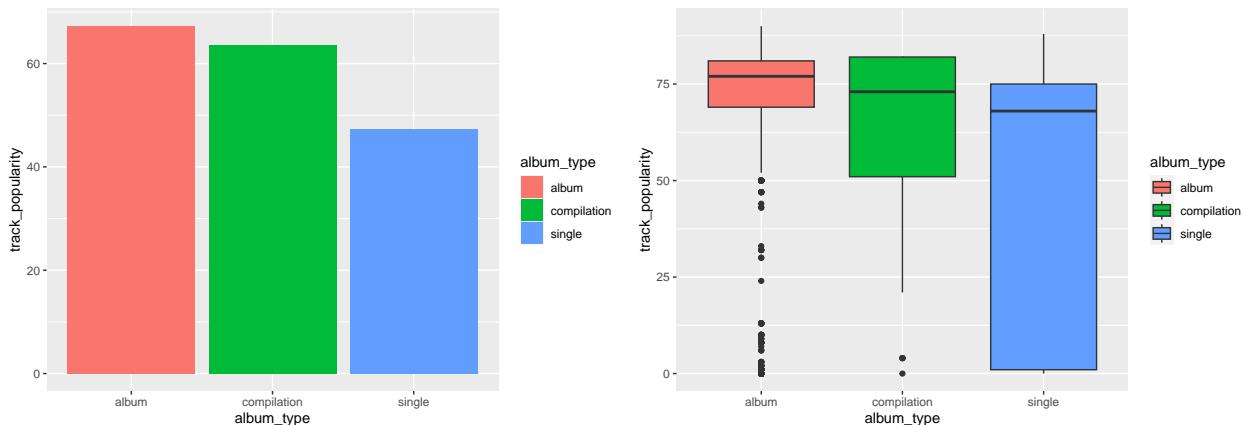
Per fer el anàlisi bivariant inicial, s'han analitzat parells de diferents tipus de variables per observar si hi ha relacions entre variables:

```
## [1] "track_name"      "track_popularity"   "album_name"
## [4] "album_type"       "album_label"        "album_popularity"
## [7] "artist_num"        "artist_name"         "artist_followers"
## [10] "artist_popularity" "pop"                 "hip_hop"
## [13] "rock"              "electro"             "christmas"
## [16] "cinema"            "latino"              "collab"
## [19] "explicit"          "danceability"       "energy"
## [22] "key"               "major_mode"          "time_signature"
## [25] "loudness"           "speechiness"         "acousticness"
## [28] "liveness"           "valence"             "tempo"
## [31] "duration"           "streams"              "year_release"
## [34] "month_release"      "day_release"         "weekday_release"
## [37] "year_week"          "month_week"          "week_index"
## [40] "rank_group"         "nationality"         "city"
## [43] "gender"             "is_group"            "lyrics"
```

1. Una numèrica i una categòrica

Per veure la influència d'una variable categòrica a una numèrica, fem un anàlisi descriptiu de la variable numèrica per cada categoria de la categòrica i també ho vistualitzam amb barplots i boxplots:

```
[1] "track_popularity and album_type"
```

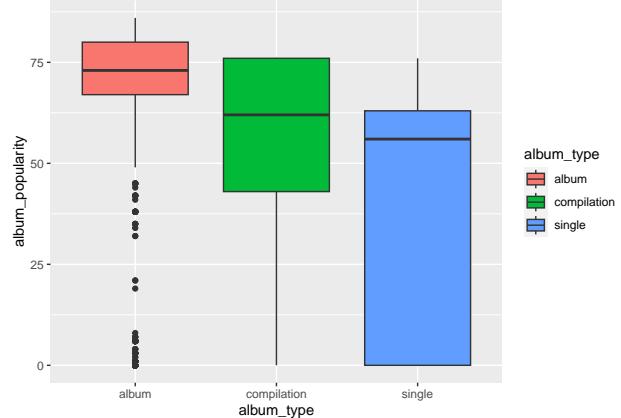
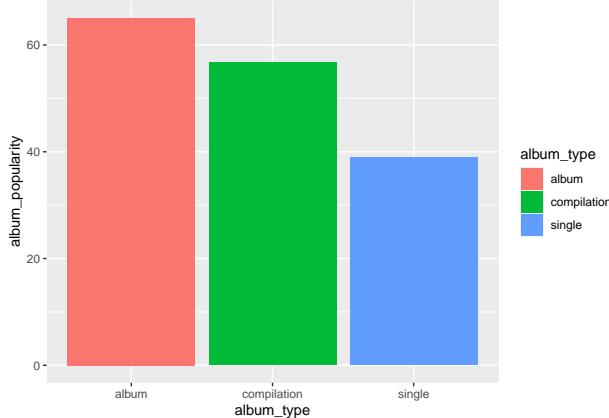


```
Descriptive statistics by group  
group: album
```

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3475	67.24	25.73	77	73.27	7.41	0	90	90	-1.99	2.42

```
group: compilation
  vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1  90 63.53 23.07      73  67.78 13.34    0  82    82 -1.3      0.7 2.43
```

```
group: single
  vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 3877 47.24 34.29      68  48.85 16.31    0  88    88 -0.51     -1.61 0.55
[1] "album_popularity and album_type"
```



Descriptive statistics by group

group: album

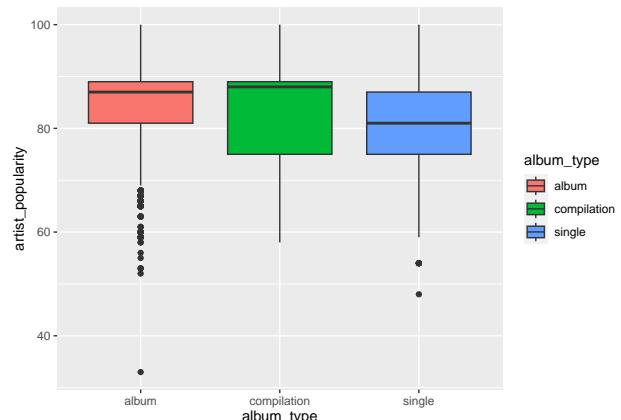
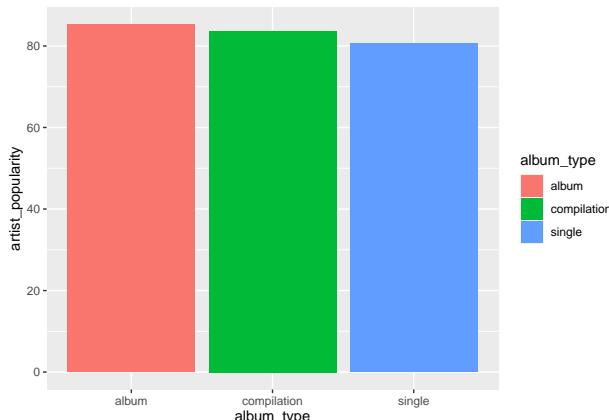
```
  vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 3475 65.08 25.39      73  70.76 10.38    0  86    86 -1.9      2.16 0.43
```

group: compilation

```
  vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1  90 56.73 22.61      62  60.58 20.76    0  76    76 -1.15     0.31 2.38
```

group: single

```
  vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 3877 38.94 29.27      56  39.98 16.31    0  76    76 -0.47     -1.65 0.47
[1] "artist_popularity and album_type"
```

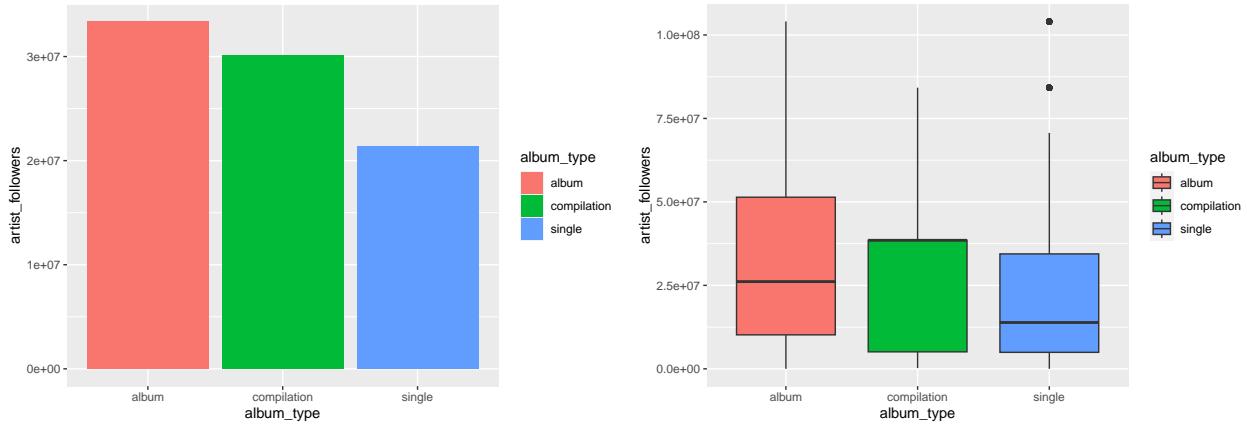


Descriptive statistics by group

```

group: album
  vars   n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1      1 3475 85.22 7.64      87   85.78 5.93   33 100     67 -0.98      2.01 0.13
-----
group: compilation
  vars   n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1      1  90 83.69 10.31      88   84.19 5.93   58 100     42 -0.51     -0.13 1.09
-----
group: single
  vars   n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1      1 3877 80.6 8.08      81   80.95 8.9    48 100     52 -0.33      0 0.13
[1] "artist_followers and album_type"

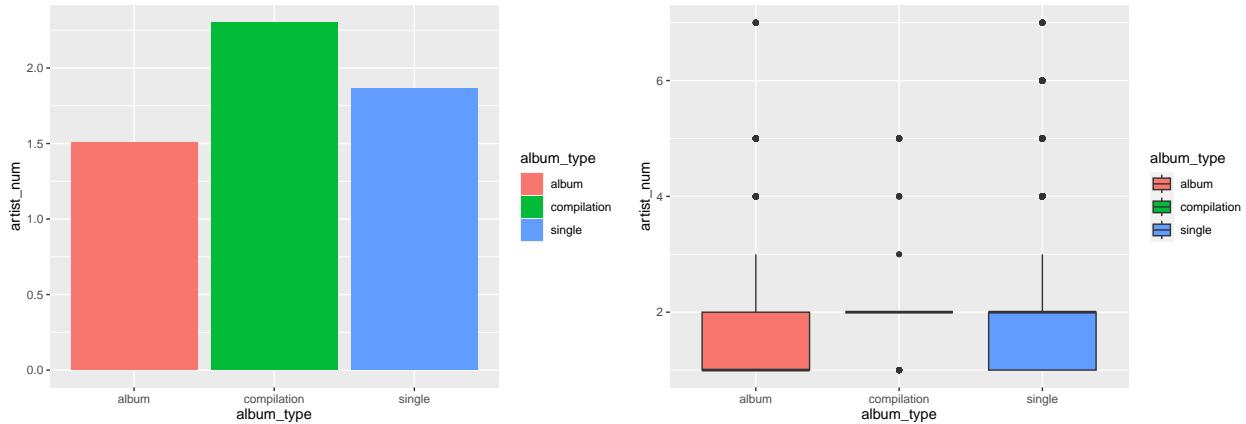
```



```

Descriptive statistics by group
group: album
  vars   n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1      1 3475 33374897 27036105 26132019 30323622 24705717 3805 104059839
          range skew kurtosis    se
X1 104056034 0.89      0.09 458634.5
-----
group: compilation
  vars   n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1      1  90 30122238 19429877 38503280 29870996 782849.9 219478 84227300
          range skew kurtosis    se
X1 84007822 -0.12     -0.77 2048089
-----
group: single
  vars   n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1      1 3877 21338903 21745516 13884321 17540728 16284481 14787 104059839
          range skew kurtosis    se
X1 104045052 1.41     1.65 349238.3
[1] "artist_num and album_type"

```



Descriptive statistics by group

group: album

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3475	1.5	0.77	1	1.35	0	1	7	6	2.09	6.93	0.01

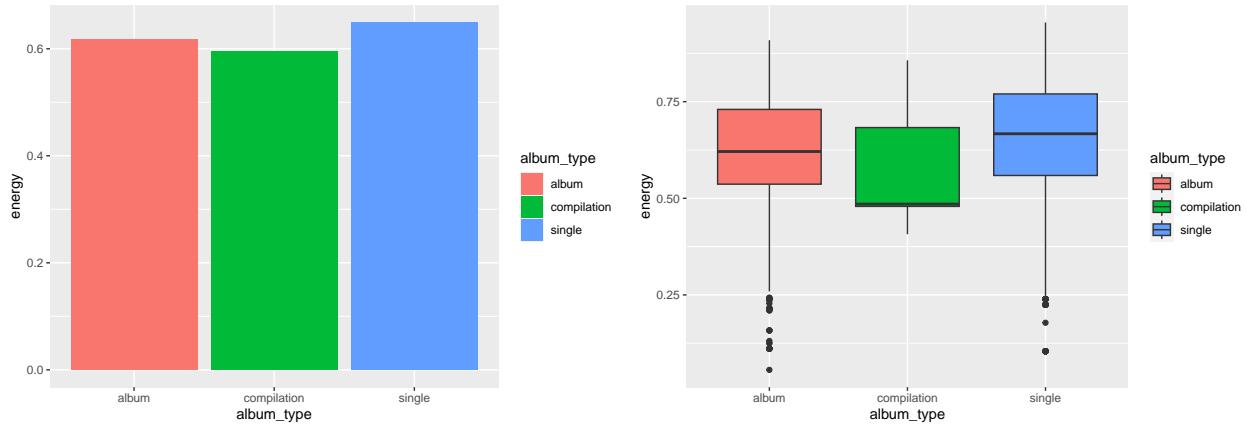
group: compilation

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	90	2.3	1.18	2	2.12	0	1	5	4	1.38	0.85	0.12

group: single

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3877	1.87	0.96	2	1.71	1.48	1	7	6	1.7	4.4	0.02

[1] "energy and album_type"



Descriptive statistics by group

group: album

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3475	0.62	0.15	0.62	0.62	0.62	0.16	0.91	0.85	-0.4	-0.11	0

group: compilation

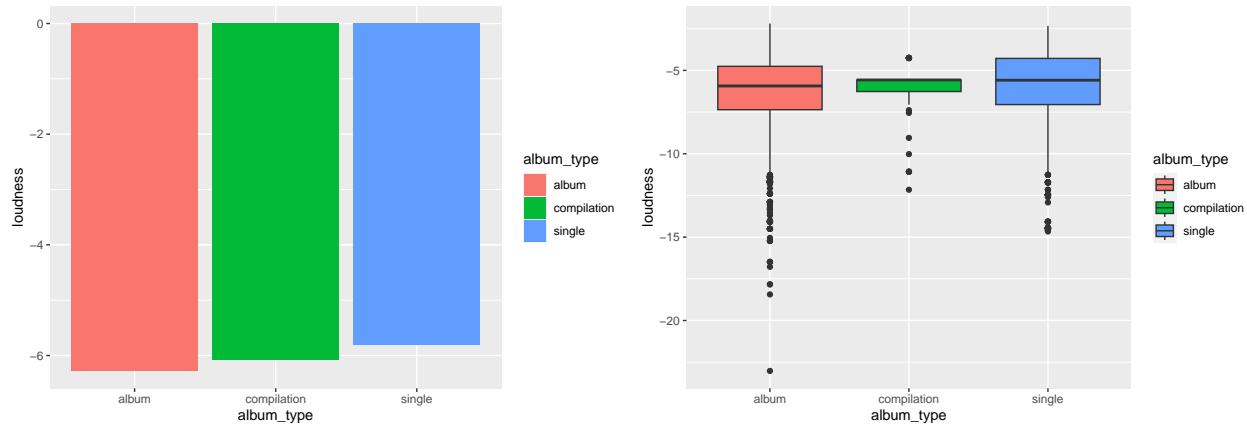
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	90	0.59	0.13	0.48	0.58	0.06	0.41	0.86	0.45	0.44	-1.36	0.01

group: single

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 3877 0.65 0.15    0.67    0.66 0.15 0.1 0.96   0.85 -0.66      0.26  0
[1] "loudness and album_type"

```



Descriptive statistics by group
group: album

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 3475 -6.28 2.23   -5.93   -6.05 1.92 -23.02 -2.19 20.84 -1.27      2.89
se
X1 0.04
-----
```

group: compilation

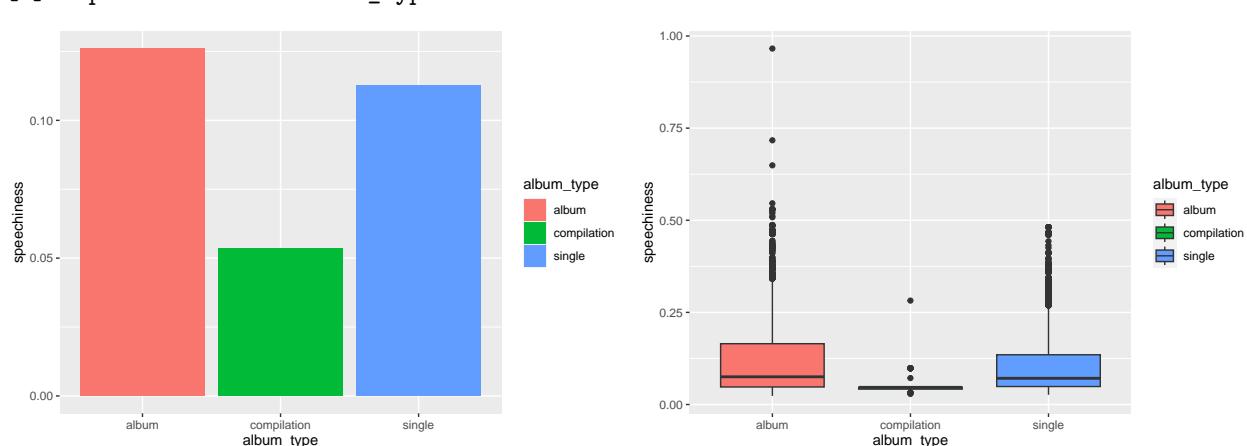
```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1  90 -6.09 1.58   -5.57   -5.82 1.01 -12.15 -4.26  7.9 -2.06      4.71
se
X1 0.17
-----
```

group: single

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 3877 -5.81 2.1   -5.59   -5.63 2.03 -14.66 -2.33 12.33 -1.19      2.57
se
X1 0.03
[1] "speechiness and album_type"
```



Descriptive statistics by group

group: album

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3475	0.13	0.11	0.08	0.1	0.05	0.02	0.97	0.94	1.56	2.13	0

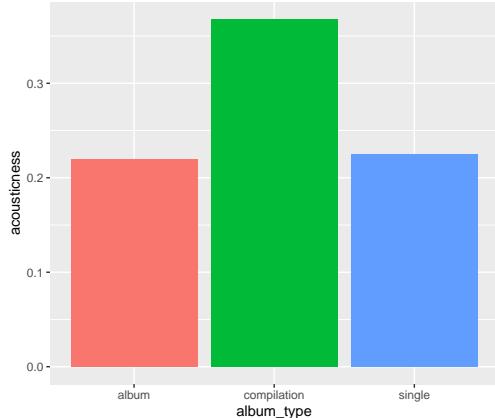
group: compilation

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	90	0.05	0.03	0.05	0.05	0	0.03	0.28	0.25	4.94	32.01	0

group: single

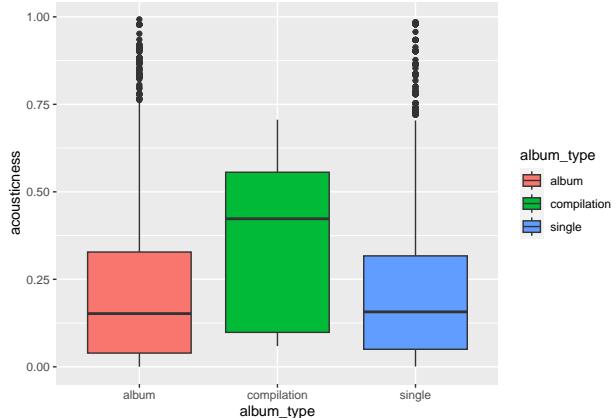
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3877	0.11	0.1	0.07	0.09	0.04	0.03	0.48	0.45	1.69	2.24	0

[1] "acousticness and album_type"



album_type

album
compilation
single



album_type

album
compilation
single

Descriptive statistics by group

group: album

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3475	0.22	0.22	0.15	0.19	0.18	0	0.99	0.99	1.24	0.85	0

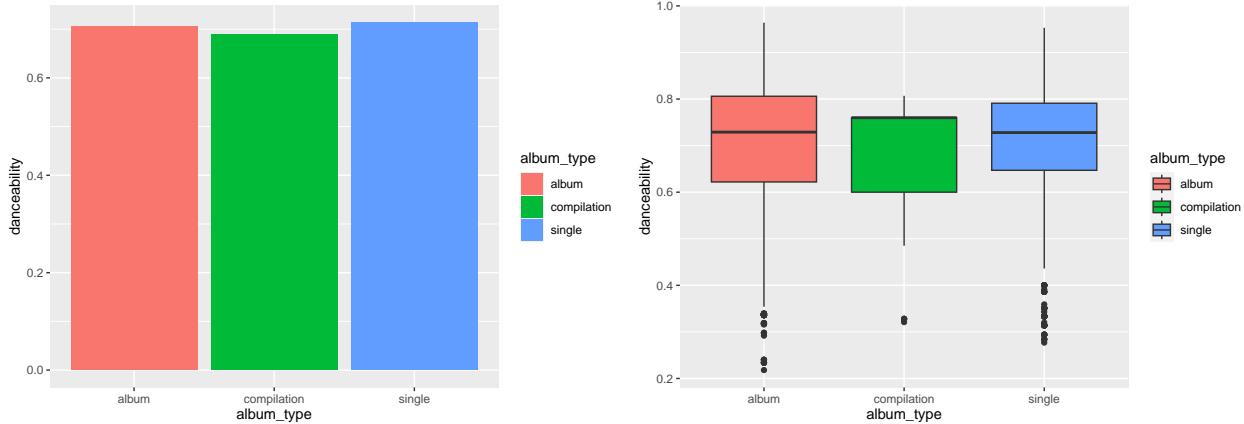
group: compilation

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	90	0.37	0.21	0.42	0.38	0.2	0.06	0.71	0.65	-0.43	-1.57	0.02

group: single

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3877	0.22	0.23	0.16	0.19	0.17	0	0.98	0.98	1.37	1.15	0

[1] "danceability and album_type"



Descriptive statistics by group

group: album

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3475	0.7	0.14	0.73	0.72	0.13	0.22	0.96	0.75	-0.71	0.21	0

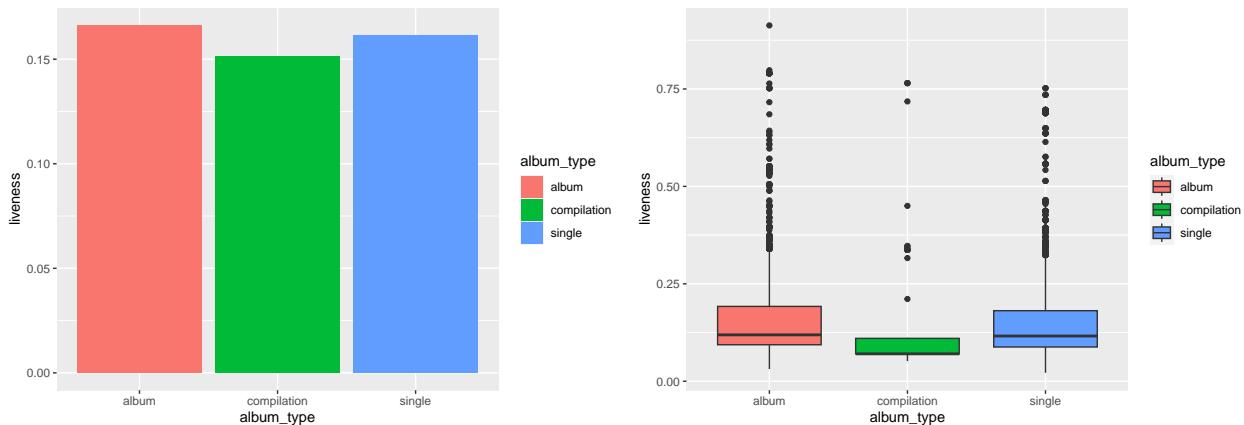
group: compilation

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	90	0.69	0.13	0.76	0.71	0.03	0.32	0.81	0.49	-1.44	0.98	0.01

group: single

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3877	0.71	0.12	0.73	0.72	0.1	0.28	0.95	0.68	-0.7	0.8	0

[1] "liveness and album_type"



Descriptive statistics by group

group: album

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3475	0.17	0.12	0.12	0.14	0.05	0.03	0.91	0.88	2.55	8.14	0

group: compilation

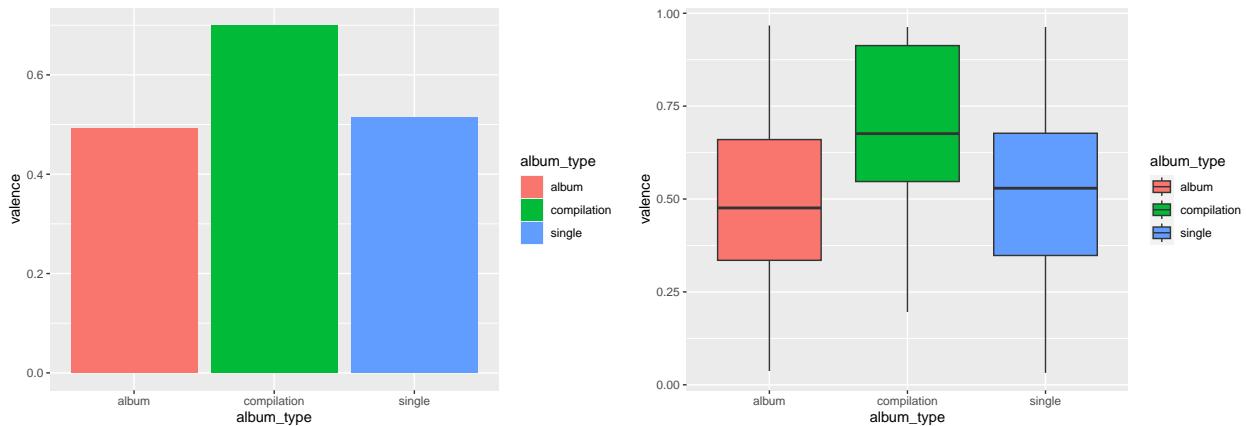
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	90	0.15	0.18	0.07	0.11	0.03	0.05	0.76	0.71	2.41	5.18	0.02

group: single

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 3877 0.16 0.12    0.12    0.14 0.06 0.02 0.75 0.73 2.23      5.75 0
[1] "valence and album_type"

```



```

Descriptive statistics by group
group: album

```

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 3475 0.49 0.21    0.48    0.49 0.23 0.04 0.97 0.93 0.18      -0.79 0
-----
```

```

group: compilation

```

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1  90  0.7 0.24    0.68    0.73 0.35 0.2 0.96 0.77 -0.64      -0.81 0.02
-----
```

```

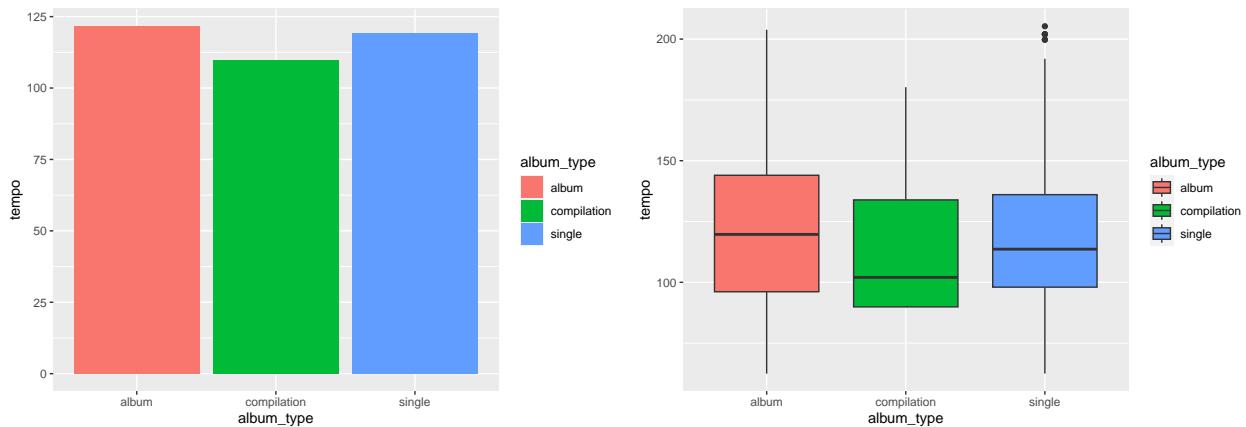
group: single

```

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 3877 0.52 0.22    0.53    0.52 0.25 0.03 0.96 0.93 -0.06      -0.81 0
[1] "tempo and album_type"

```



```

Descriptive statistics by group
group: album

```

```

vars      n  mean   sd median trimmed  mad min  max range skew
X1      1 3475 121.62 29.86  119.7  119.88 35.44 62.45 203.86 141.42 0.42
kurtosis      se
X1      -0.7 0.51

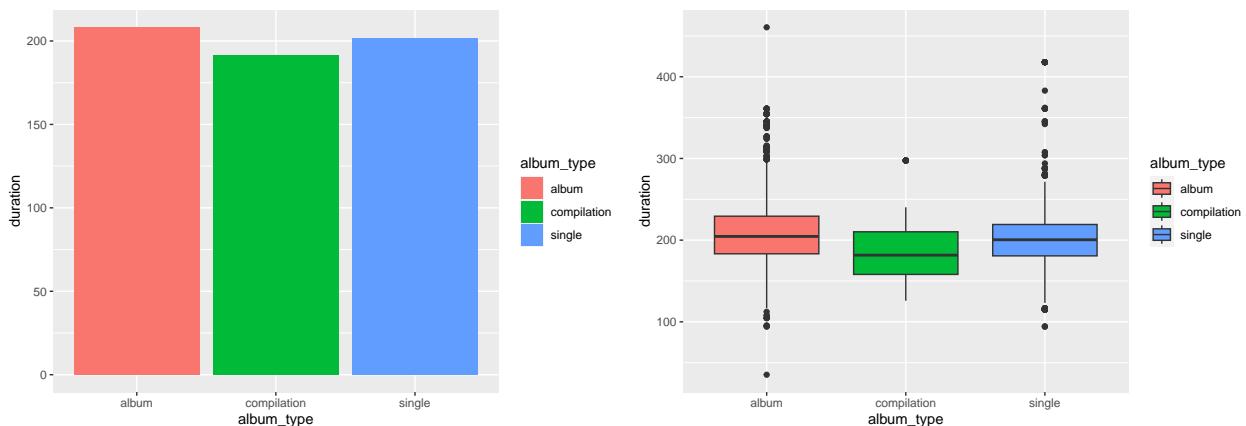
```

```

group: compilation
  vars   n   mean     sd median trimmed   mad   min    max range skew kurtosis
X1      1 90 109.79 23.39 102.04 107.14 17.98 89.91 180.22 90.31 0.79 -0.78
      se
X1 2.47

group: single
  vars   n   mean     sd median trimmed   mad   min    max range skew kurtosis
X1      1 3877 119.05 26.83 113.63 116.2 26.11 62.48 205.27 142.79 0.78
      se
X1 -0.15 0.43
[1] "duration and album_type"

```



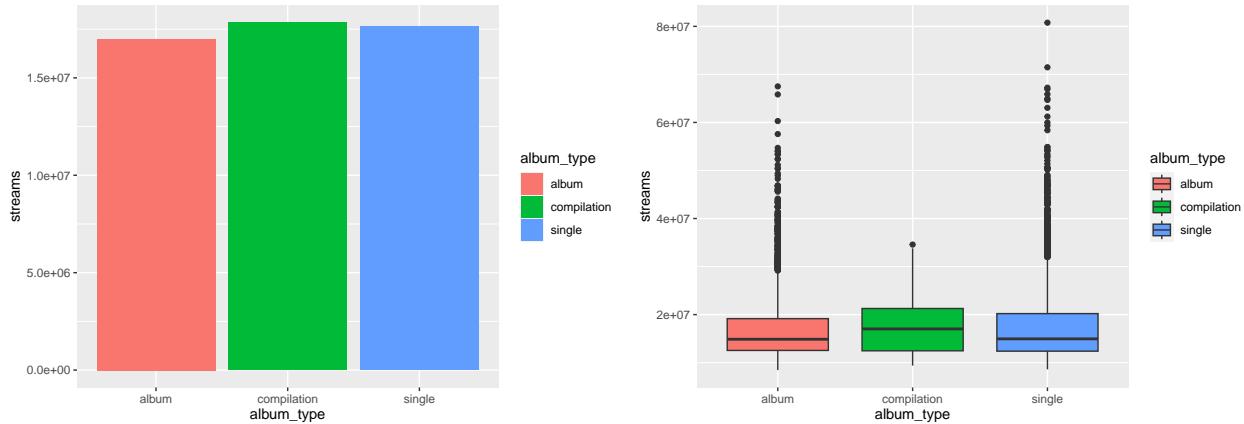
```

Descriptive statistics by group
group: album
  vars   n   mean     sd median trimmed   mad   min    max range skew kurtosis
X1      1 3475 208.2 41.78 204.53 205.88 33.11 35.24 460.57 425.33 0.73  1.89
      se
X1 0.71

group: compilation
  vars   n   mean     sd median trimmed   mad   min    max range skew kurtosis
X1      1 90 191.24 45.81 181.61 183 34.95 125.83 297.48 171.66 1.34  0.78
      se
X1 4.83

group: single
  vars   n   mean     sd median trimmed   mad   min    max range skew kurtosis
X1      1 3877 201.92 37.01 200.48 200.11 29.14 94.25 417.92 323.68 1.56
      se
X1 7.77 0.59
[1] "streams and album_type"

```



Descriptive statistics by group

group: album

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	3475	16992256	6708731	14875553	15827090	4263381	8454914	67499798
			range	skew	kurtosis		se		
X1		59044884	2.23	7.12	113805.4				

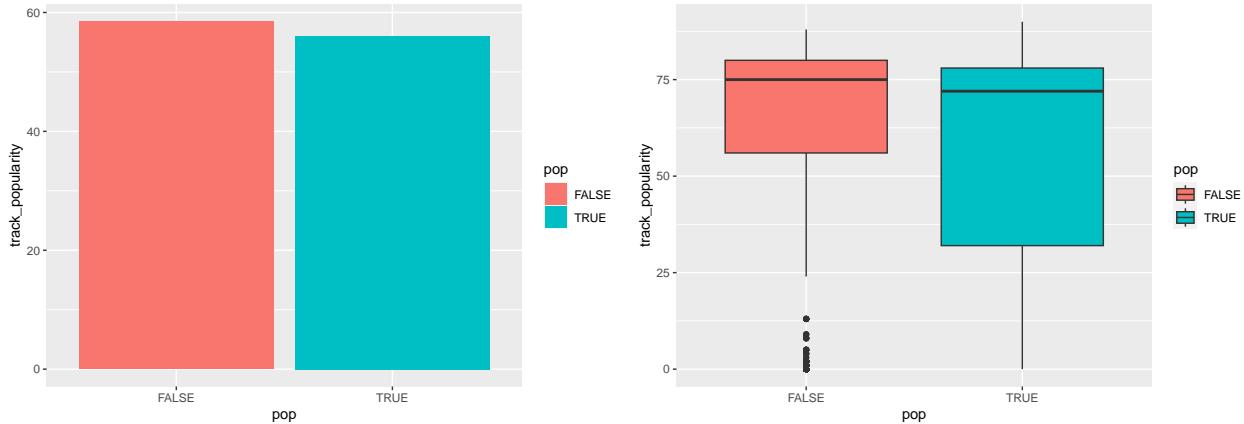
group: compilation

	vars	n	mean	sd	median	trimmed	mad	min	max	range
X1	1	90	17833345	5930828	17022839	17193984	6497056	9382981	34579416	25196435
			skew	kurtosis		se				
X1		0.82	0.15	625164.2						

group: single

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	3877	17625655	7835113	14952714	16196069	4694866	8602986	80764045
			range	skew	kurtosis	se			
X1		72161059	2.25	7.15	125833.8				

[1] "track_popularity and album_type"



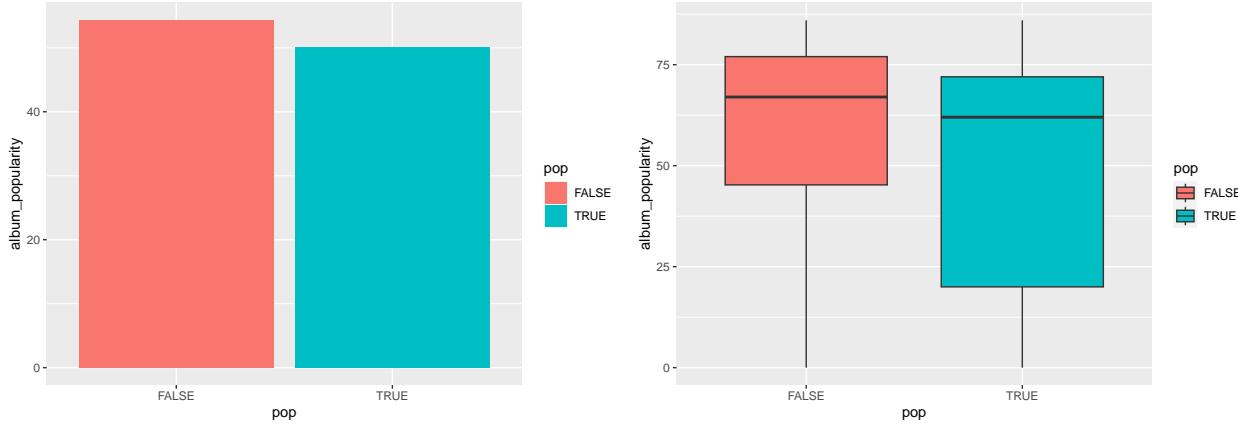
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2266	58.45	32.44	75	62.62	10.38	0	88	88	-1.14	-0.55	0.68

group: TRUE

```
vars     n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 5176 56.04 31.85      72  59.44 11.86    0  90  90 -1.01    -0.77 0.44
[1] "album_popularity and album_type"
```



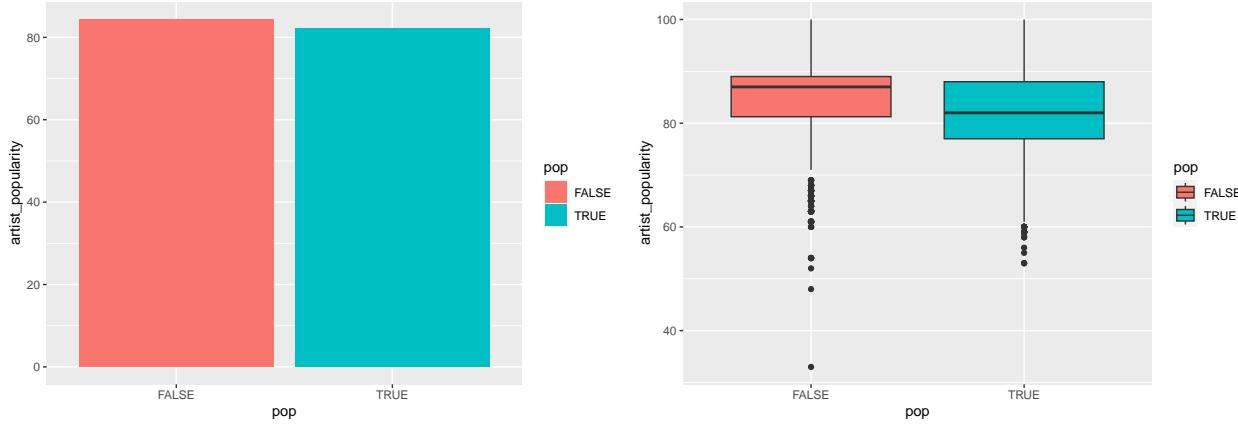
Descriptive statistics by group

group: FALSE

```
vars     n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 2266 54.3 31.21      67  57.4 19.27    0  86  86 -0.99    -0.7 0.66
```

group: TRUE

```
vars     n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 5176 50.08 29.9      62  52.24 16.31    0  86  86 -0.85    -0.91 0.42
[1] "artist_popularity and album_type"
```



Descriptive statistics by group

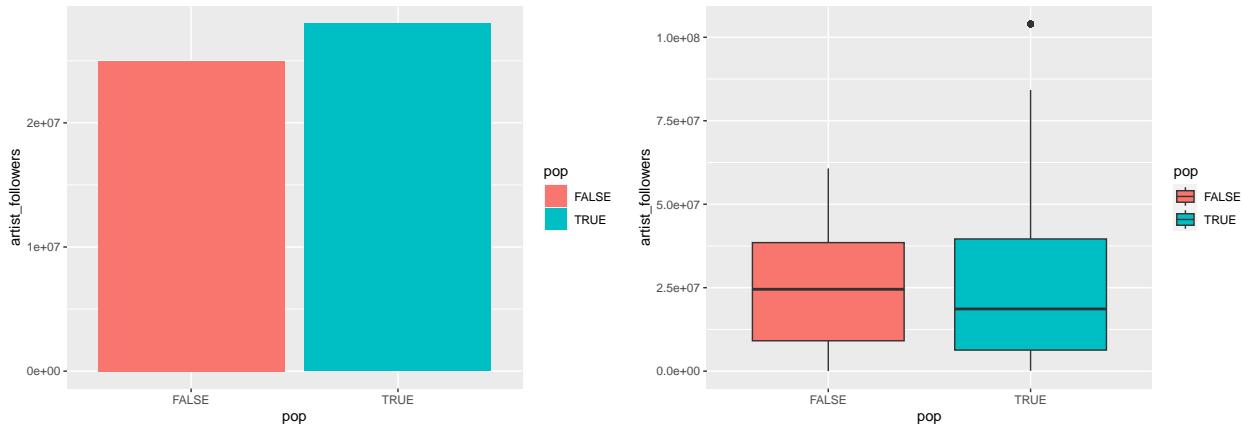
group: FALSE

```
vars     n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 2266 84.33 8.53      87  85.19 2.97   33 100    67 -1.11    1.69 0.18
```

group: TRUE

```
vars     n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 5176 82.13 8.01      82  82.42 8.9    53 100    47 -0.35    0.05 0.11
```

```
[1] "artist_followers and album_type"
```



Descriptive statistics by group

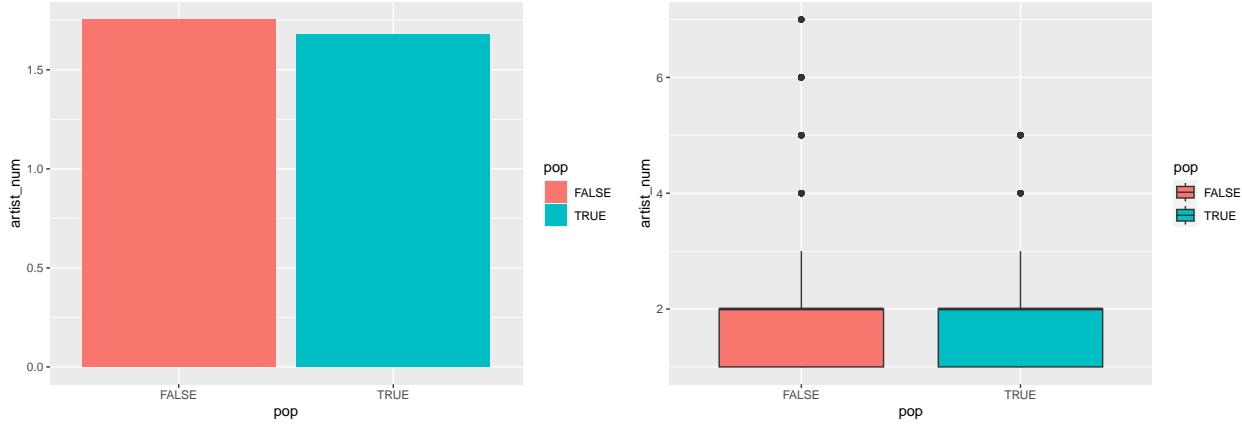
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	2266	24969595	17392781	24524888	23871003	20754964	3805	60731551
	range				skew	kurtosis	se		
X1	60727746	0.32	-0.89	365375.2					

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	5176	27982726	27706479	18625123	24012373	22820409	104055	104059839
	range				skew	kurtosis	se		
X1	103955784	1.12	0.32	385109.5					

```
[1] "artist_num and album_type"
```



Descriptive statistics by group

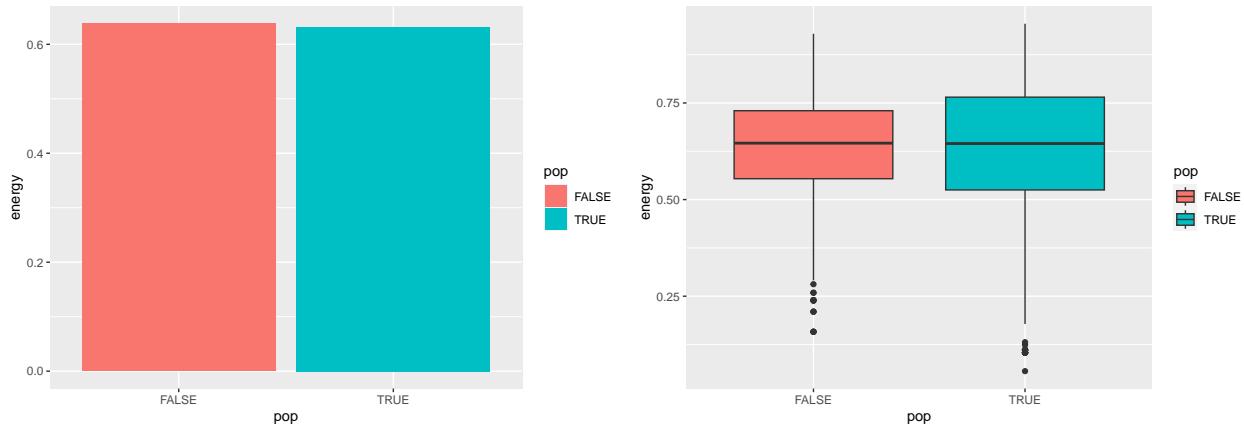
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2266	1.75	1.06	2	1.55	1.48	1	7	6	2.3	6.68	0.02

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5176	1.68	0.82	2	1.54	1.48	1	5	4	1.32	1.89	0.01

```
[1] "energy and album_type"
```



Descriptive statistics by group

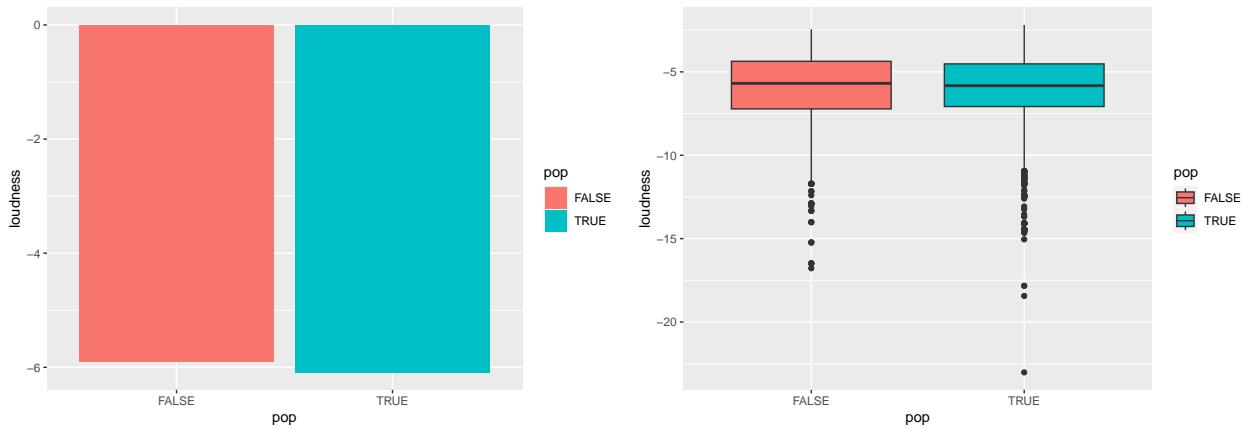
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	2266	0.64	0.13	0.65	0.64	0.64	0.13	0.16	0.93	0.77	-0.42	0.08	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	5176	0.63	0.16	0.64	0.64	0.64	0.18	0.06	0.96	0.9	-0.53	-0.09	0

```
[1] "loudness and album_type"
```



Descriptive statistics by group

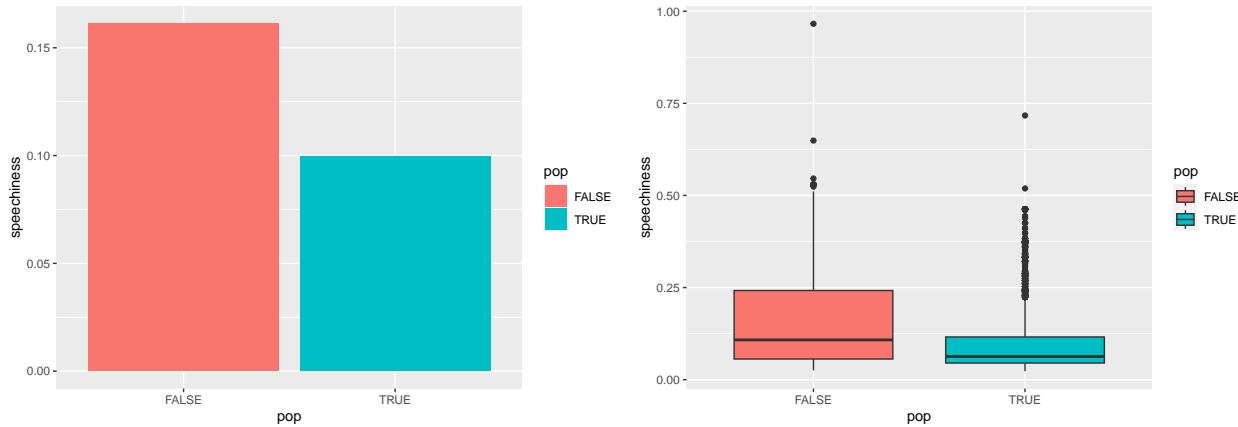
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2266	-5.9	2.08	-5.69	-5.73	1.98	-16.78	-2.44	14.34	-1.05	2.1	0.04

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5176	-6.09	2.21	-5.83	-5.86	1.9	-23.02	-2.19	20.84	-1.3	2.97	0.03

[1] "speechiness and album_type"



Descriptive statistics by group

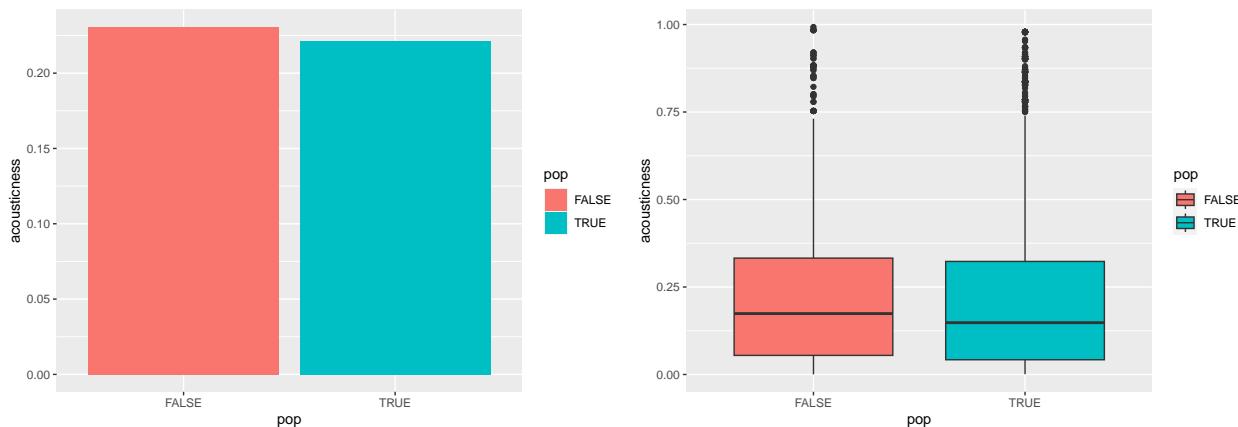
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2266	0.16	0.12	0.11	0.15	0.1	0.03	0.97	0.94	1.01	0.49	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5176	0.1	0.09	0.06	0.08	0.04	0.02	0.72	0.69	2.07	4.18	0

[1] "acousticness and album_type"



Descriptive statistics by group

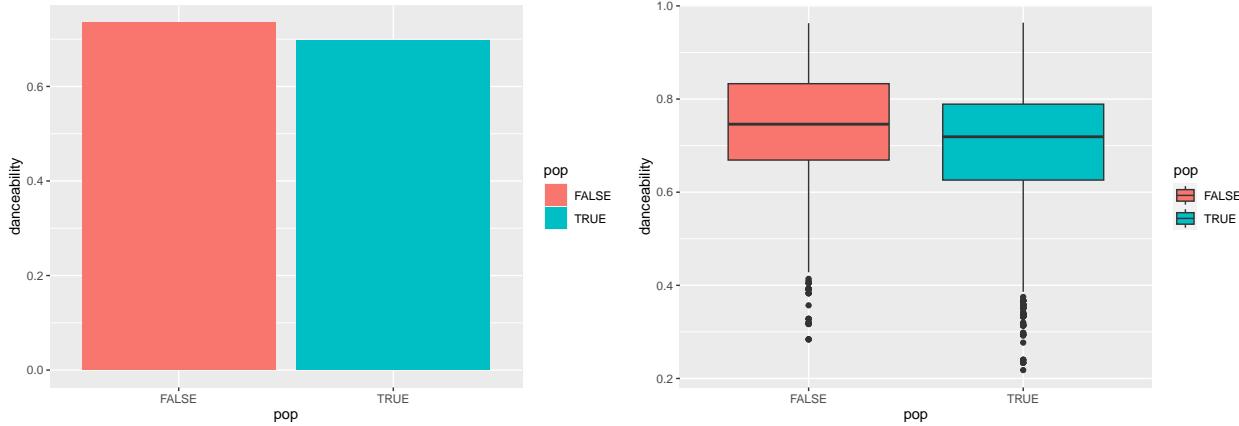
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2266	0.23	0.22	0.17	0.2	0.2	0	0.99	0.99	1.07	0.45	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5176	0.22	0.23	0.15	0.18	0.17	0	0.98	0.98	1.37	1.1	0

[1] "danceability and album_type"



Descriptive statistics by group

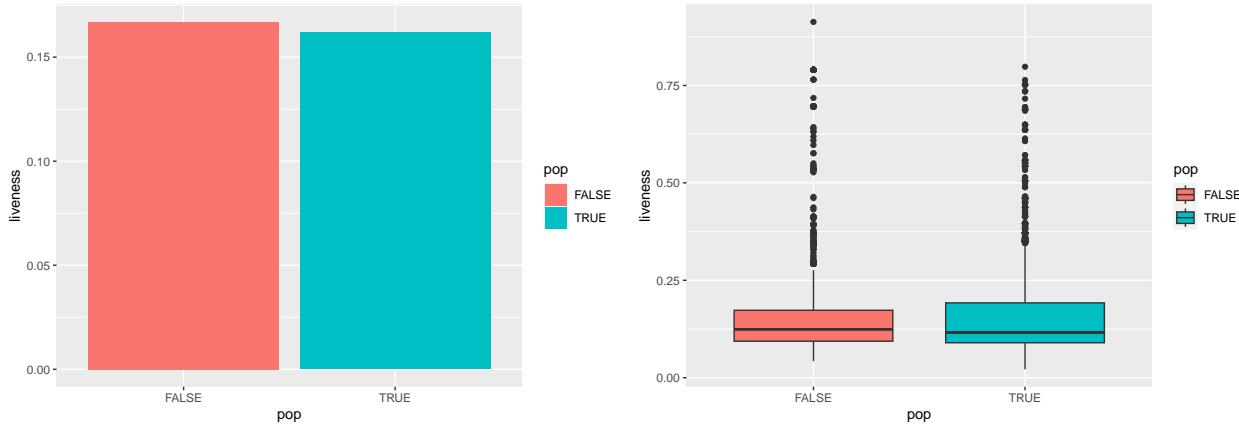
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2266	0.73	0.12	0.75	0.74	0.74	0.12	0.28	0.96	0.68	-0.68	0.4

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5176	0.7	0.13	0.72	0.71	0.71	0.12	0.22	0.96	0.75	-0.77	0.59

[1] "liveness and album_type"



Descriptive statistics by group

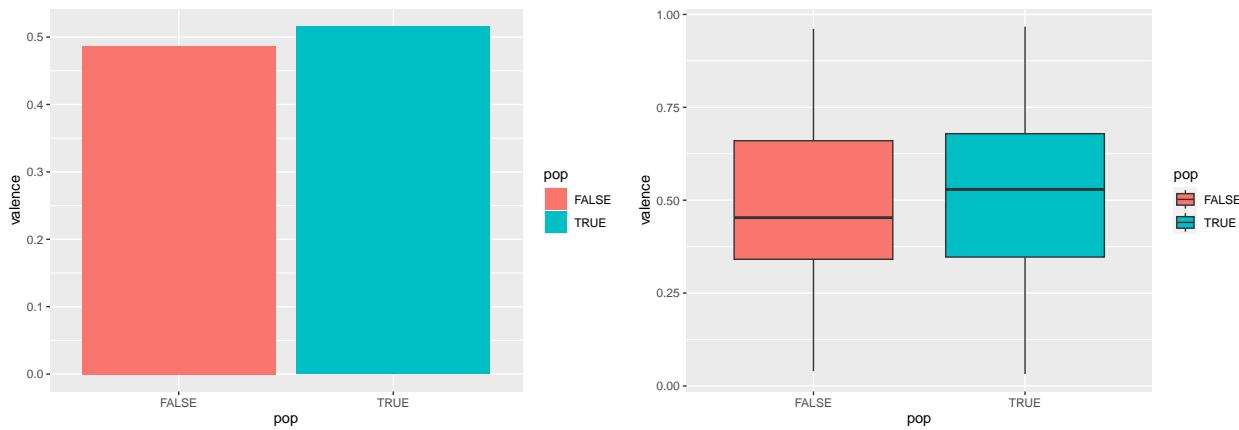
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2266	0.17	0.14	0.12	0.14	0.14	0.05	0.04	0.91	0.87	2.71	8.02

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5176	0.16	0.11	0.12	0.14	0.14	0.05	0.02	0.8	0.78	2.06	5.04

[1] "valence and album_type"



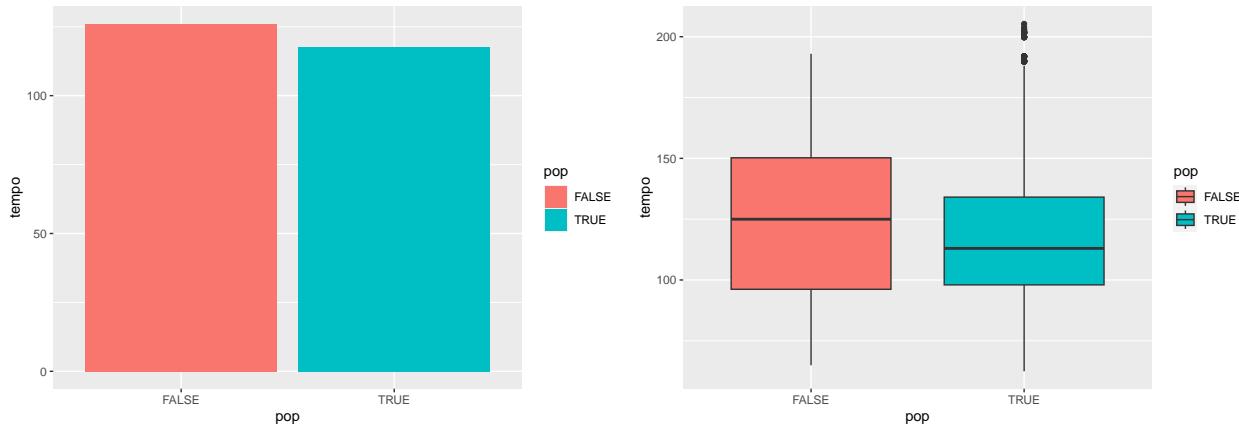
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 2266 0.49 0.2    0.45    0.48 0.23 0.04 0.96 0.92 0.25 -0.73 0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 5176 0.52 0.22   0.53    0.52 0.26 0.03 0.97 0.93 -0.03 -0.83 0
[1] "tempo and album_type"
```



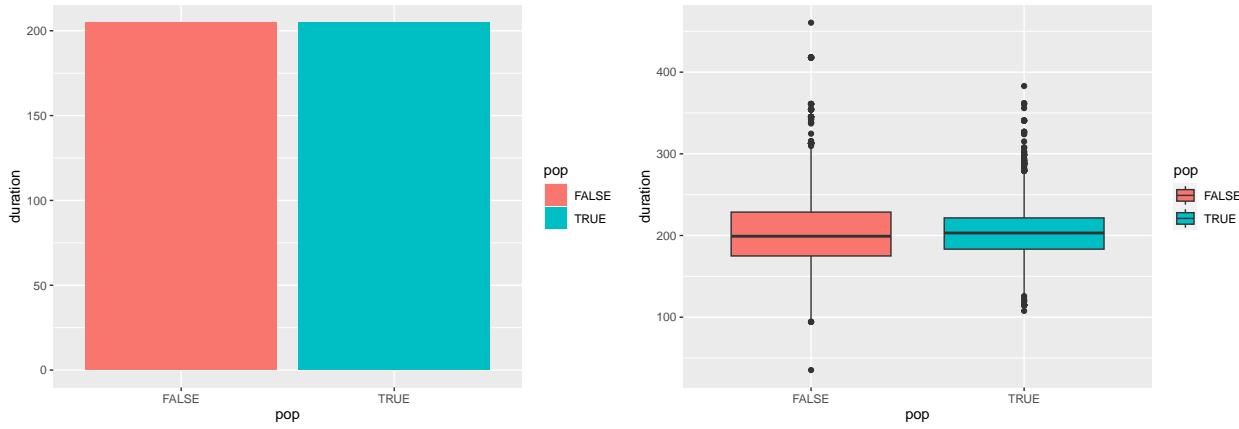
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 2266 126.03 31.9 124.98 124.98 42.22 64.93 193.02 128.08 0.18 -1.24
      se
X1  0.67
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew
X1     1 5176 117.56 26.16 112.98    115 25.22 62.45 205.27 142.83 0.81
      kurtosis   se
X1      0.25 0.36
[1] "duration and album_type"
```



Descriptive statistics by group

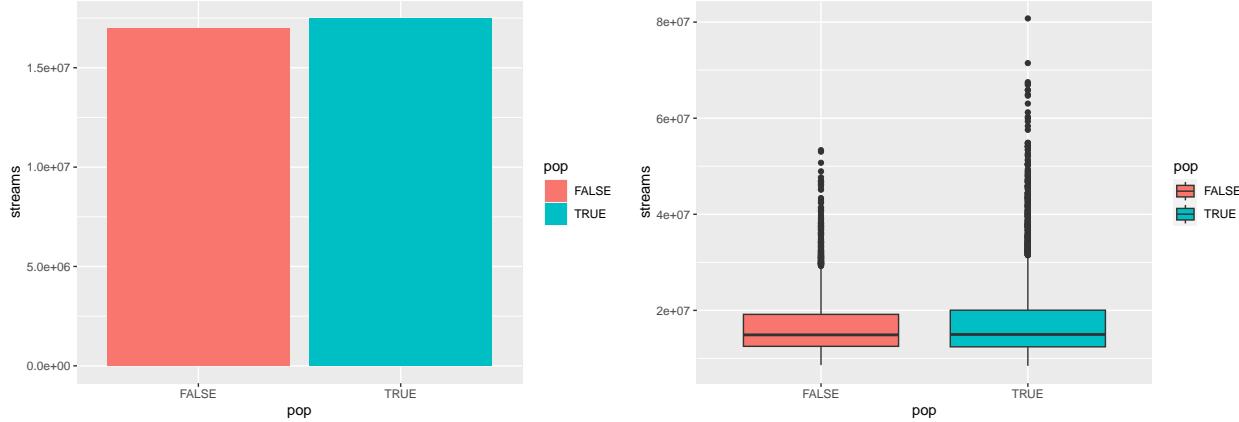
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	2266	204.75	53.34	199.11	199.71	38.22	35.24	460.57	425.33	1.25
	kurtosis										se
X1		2.87	1.12								

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	5176	204.71	31.72	203.06	203.5	27.81	107.67	383.04	275.36	0.52
	kurtosis										se
X1		1.45	0.44								

[1] "streams and album_type"



Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	2266	16989907	6520520	14901005	15841953	4309445	8602986	53344093		
	kurtosis										se
X1		44741107	1.88	4.24	136978.5						

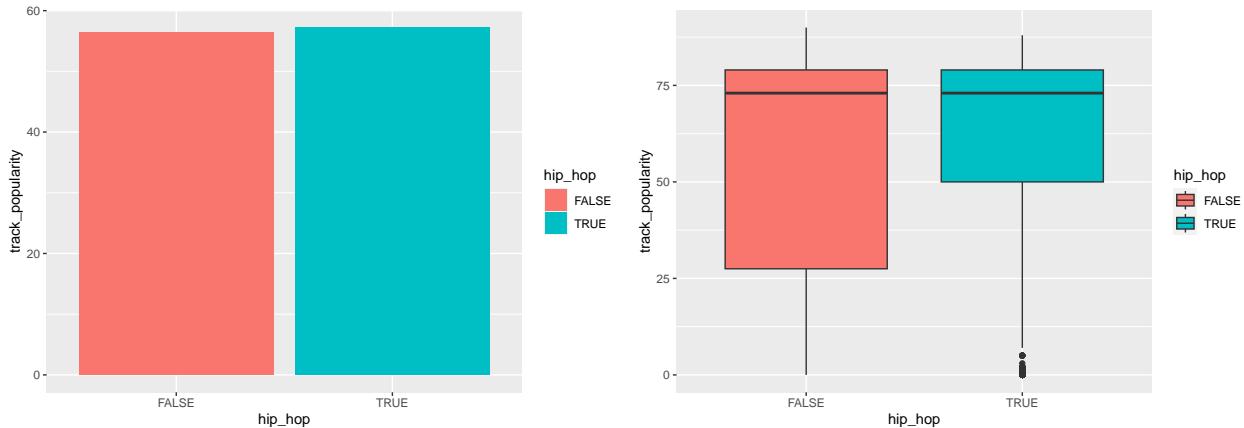
group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	5176	17482347	7632923	14981863	16103195	4639356	8454914	80764045

```

range skew kurtosis      se
X1 72309131 2.34      7.84 106094.7
[1] "track_popularity and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3935	56.38	32.32	73	59.78	11.86	0	90	90	-0.99	-0.81	0.52

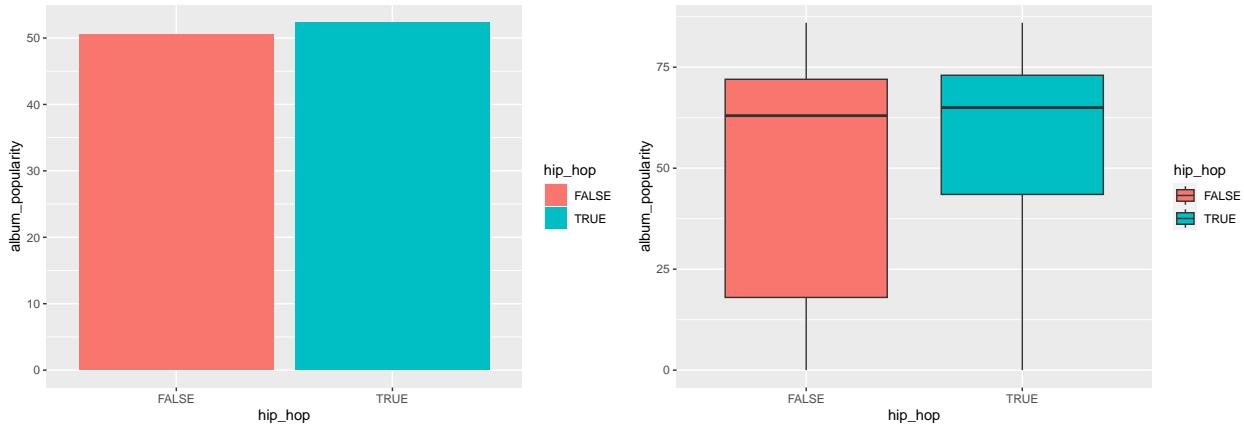
```

group: TRUE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3507	57.22	31.74	73	61.15	10.38	0	88	88	-1.11	-0.58	0.54

```
[1] "album_popularity and album_type"
```



```

Descriptive statistics by group
group: FALSE

```

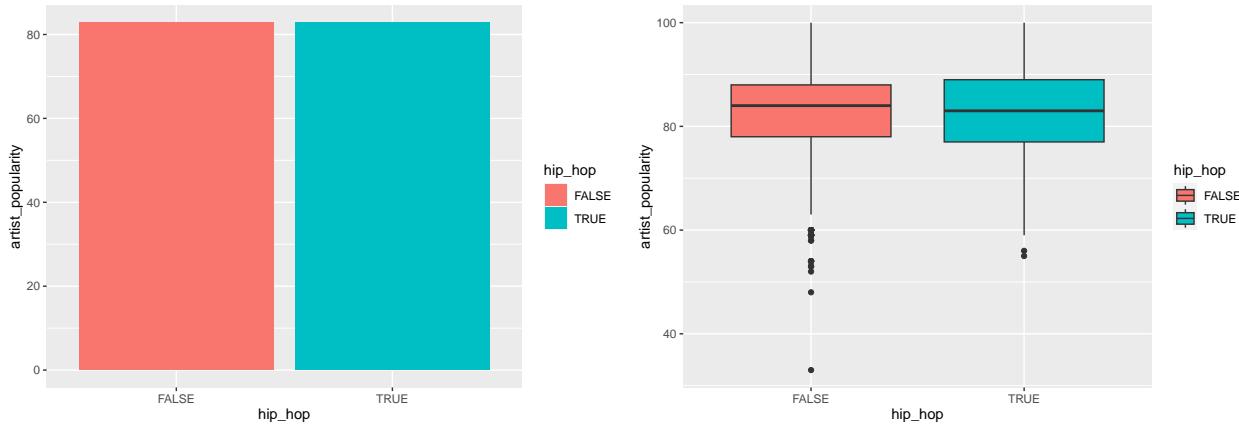
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3935	50.53	30.43	63	52.71	17.79	0	86	86	-0.83	-0.96	0.49

```

group: TRUE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3507	52.3	30.26	65	55.01	16.31	0	86	86	-0.95	-0.75	0.51



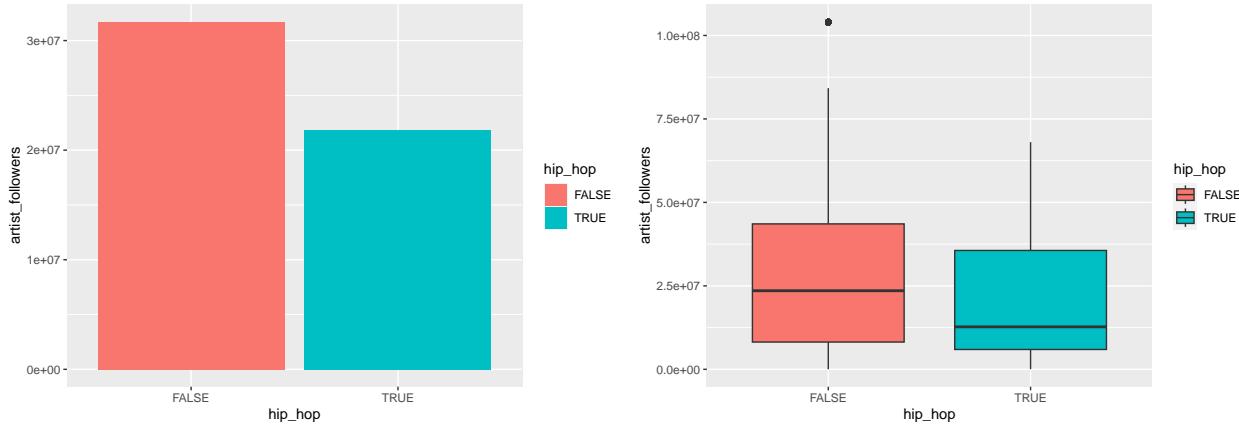
Descriptive statistics by group

group: FALSE

```
vars   n   mean    sd median trimmed mad min max range skew kurtosis   se
X1     1 3935 82.78 8.05      84    83.46 7.41   33 100     67 -0.81     1.04 0.13
```

group: TRUE

```
vars   n   mean    sd median trimmed mad min max range skew kurtosis   se
X1     1 3507 82.82 8.44      83    83.08 8.9    55 100     45 -0.35    -0.14 0.14
[1] "artist_followers and album_type"
```



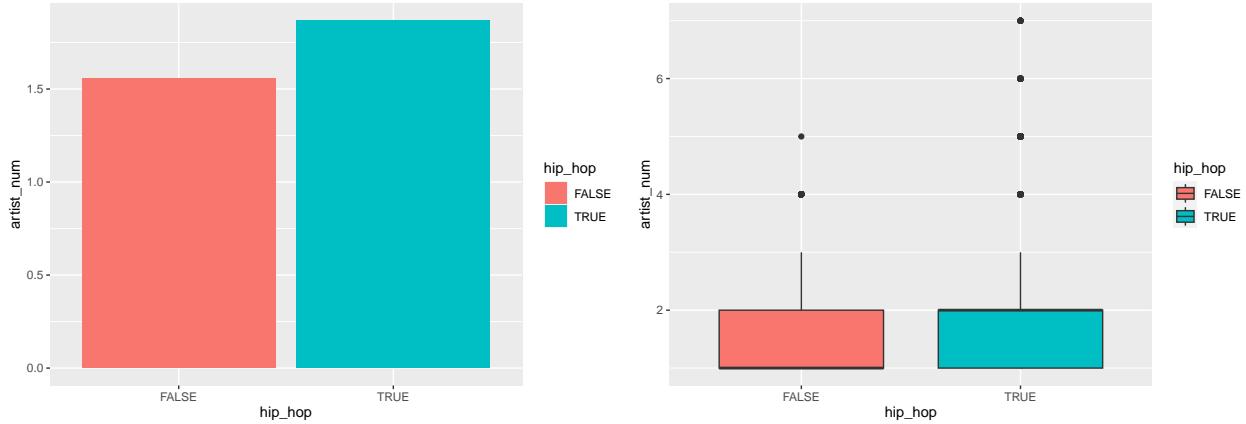
Descriptive statistics by group

group: FALSE

```
vars   n   mean    sd median trimmed mad min max range skew kurtosis   se
X1     1 3935 31702093 28048760 23543519 28018510 23833545 3805 104059839
          range skew kurtosis   se
X1 104056034 0.99     0.18 447137.7
```

group: TRUE

```
vars   n   mean    sd median trimmed mad min max range skew kurtosis   se
X1     1 3507 21862549 19965285 12729451 19129439 15215862 42127 68054384
          range skew kurtosis   se
X1 68012257 0.96    -0.15 337137.9
[1] "artist_num and album_type"
```



Descriptive statistics by group

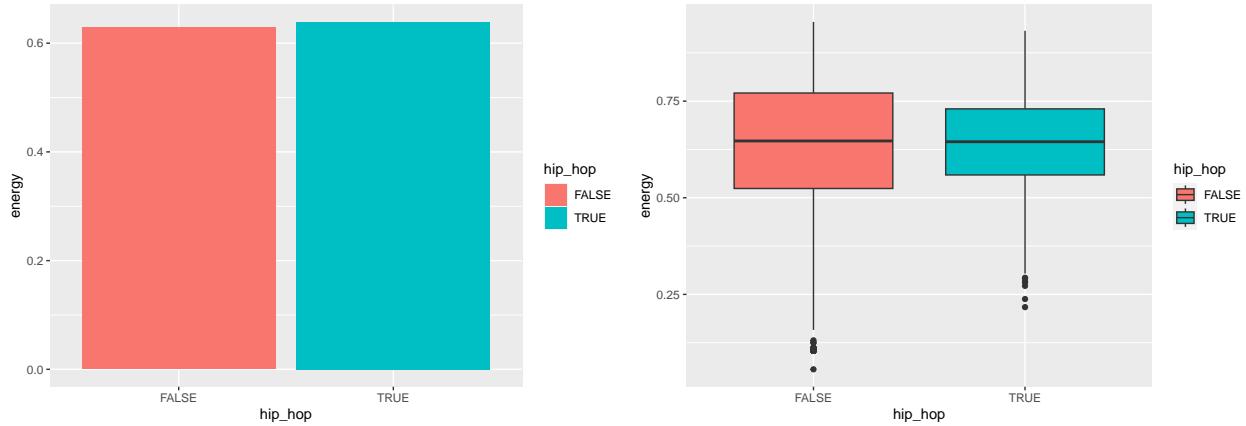
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3935	1.55	0.71	1	1.44	0	1	5	4	1.28	1.62	0.01

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3507	1.87	1.05	2	1.69	1.48	1	7	6	1.79	4.22	0.02

[1] "energy and album_type"



Descriptive statistics by group

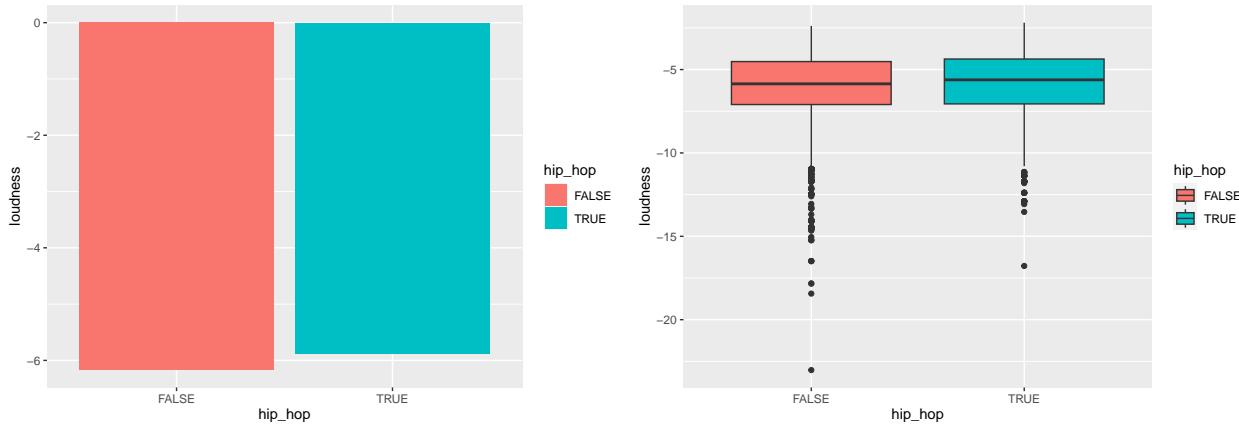
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3935	0.63	0.17	0.65	0.64	0.18	0.06	0.96	0.9	-0.56	-0.17	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3507	0.64	0.13	0.64	0.64	0.13	0.22	0.93	0.72	-0.28	-0.37	0

[1] "loudness and album_type"



Descriptive statistics by group

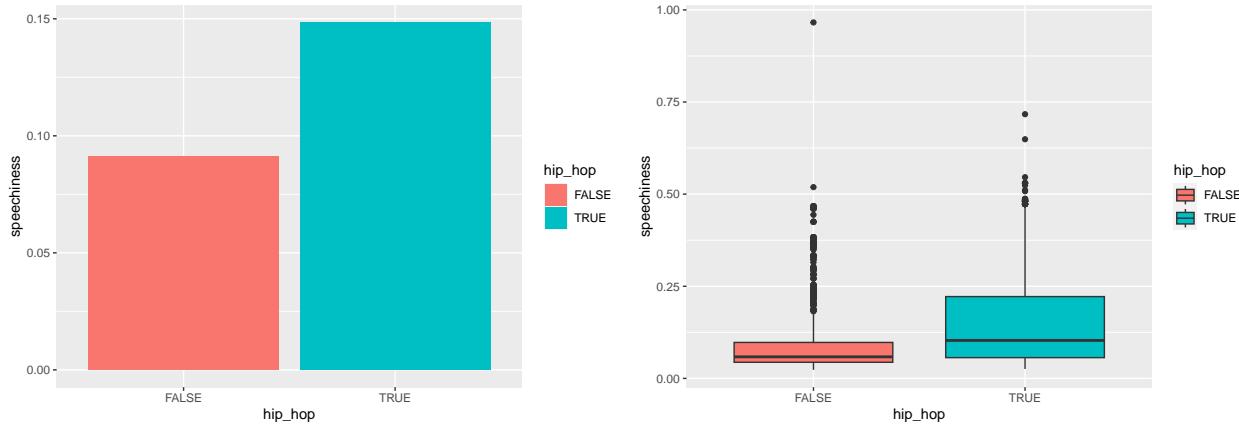
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	3935	-6.17	2.37	-5.86	-5.89	1.94	-23.02	-2.38	20.64	-1.42	3.09
	se											
X1	0.04											

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	3507	-5.88	1.92	-5.62	-5.75	1.97	-16.78	-2.19	14.59	-0.69	0.59
	se											
X1	0.03											

[1] "speechiness and album_type"



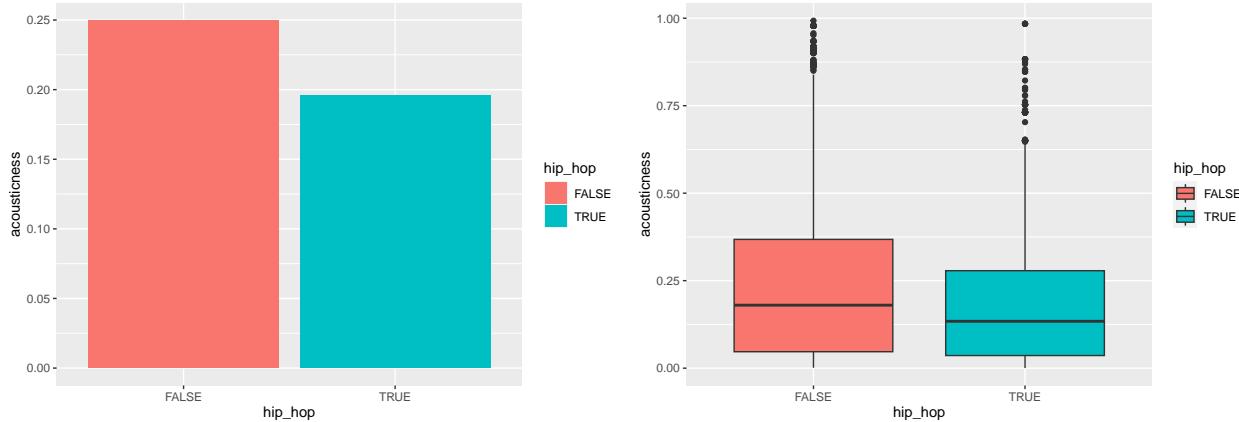
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3935	0.09	0.09	0.06	0.07	0.03	0.02	0.97	0.94	2.65	8.39	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3507	0.15	0.11	0.1	0.13	0.08	0.03	0.72	0.69	1.08	0.35	0
[1]	"acousticness and album_type"												



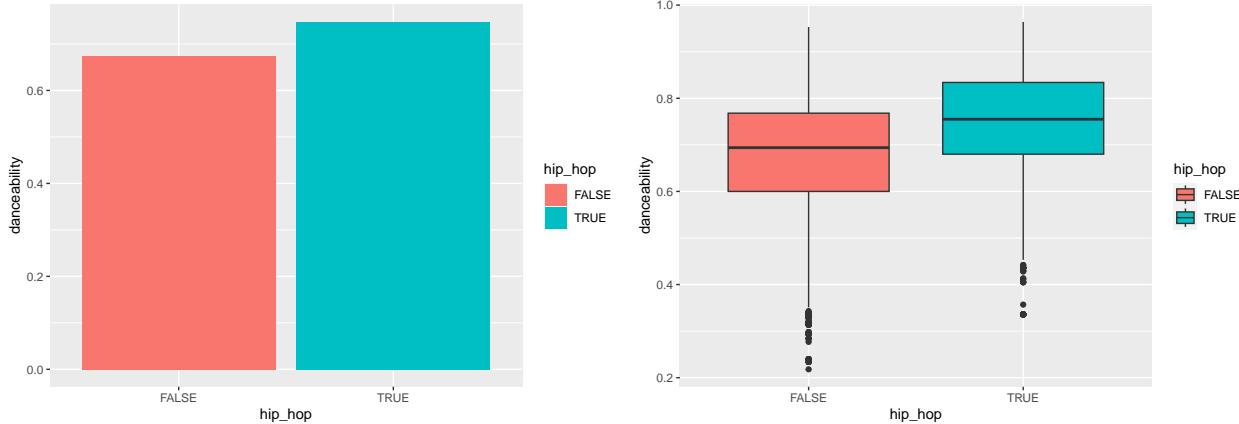
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1     1 3935 0.25 0.25    0.18    0.21  0.21    0 0.99  0.99 1.17      0.43  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1     1 3507 0.2 0.19    0.13    0.17  0.16    0 0.98  0.98 1.27      1.02  0
[1] "danceability and album_type"
```



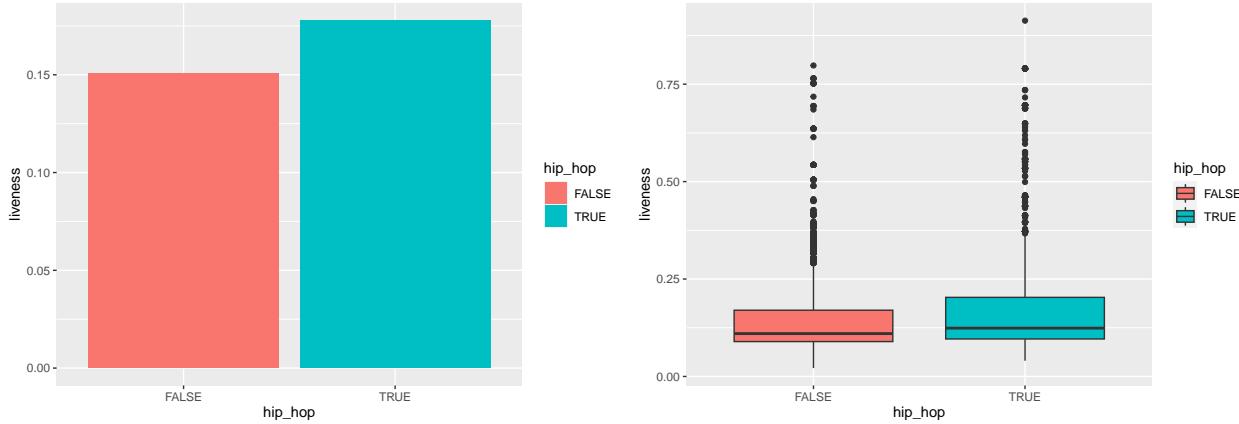
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1     1 3935 0.67 0.13    0.69    0.69  0.12 0.22 0.95  0.74 -0.79      0.48  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1     1 3507 0.75 0.12    0.76    0.76  0.12 0.34 0.96  0.63 -0.66      0.32  0
[1] "liveness and album_type"
```



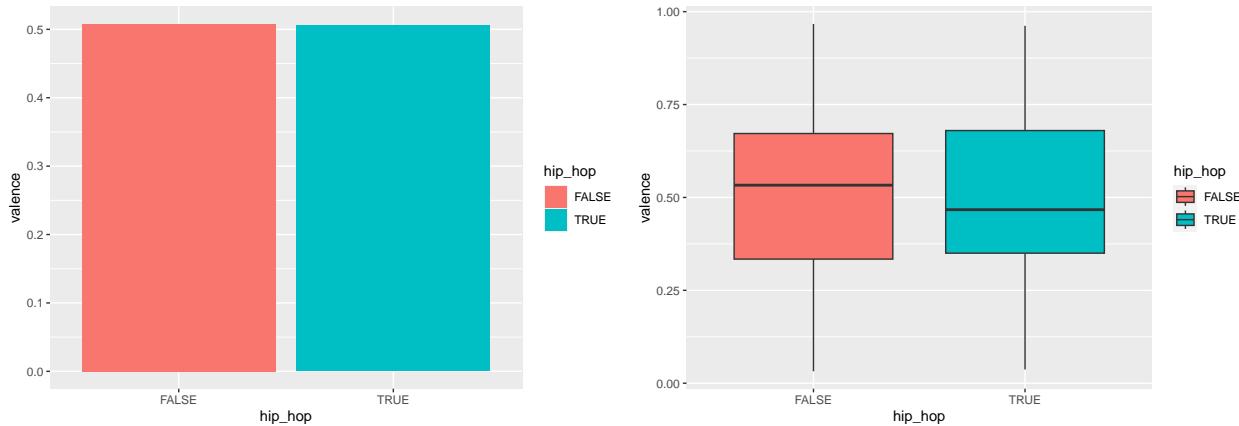
Descriptive statistics by group

group: FALSE

```
vars      n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1      1 3935 0.15 0.1    0.11    0.13 0.04 0.02 0.8  0.78 2.34    7.44  0
```

group: TRUE

```
vars      n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1      1 3507 0.18 0.14   0.12    0.15 0.06 0.04 0.91  0.87 2.22    5.36  0
[1] "valence and album_type"
```



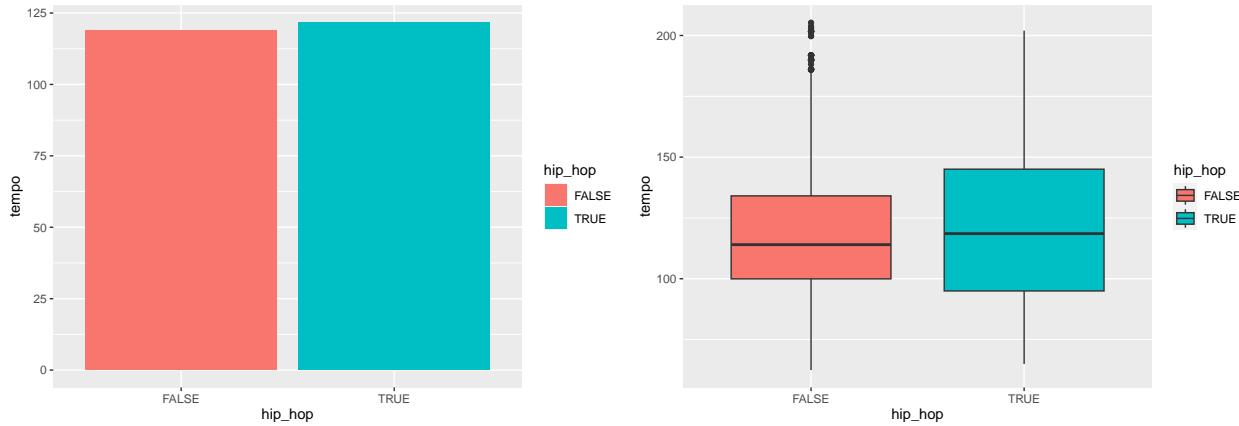
Descriptive statistics by group

group: FALSE

```
vars      n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1      1 3935 0.51 0.22   0.53    0.51 0.25 0.03 0.97  0.93 -0.04   -0.83  0
```

group: TRUE

```
vars      n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1      1 3507 0.51 0.21   0.47    0.5 0.23 0.04 0.96  0.92 0.19   -0.81  0
[1] "tempo and album_type"
```



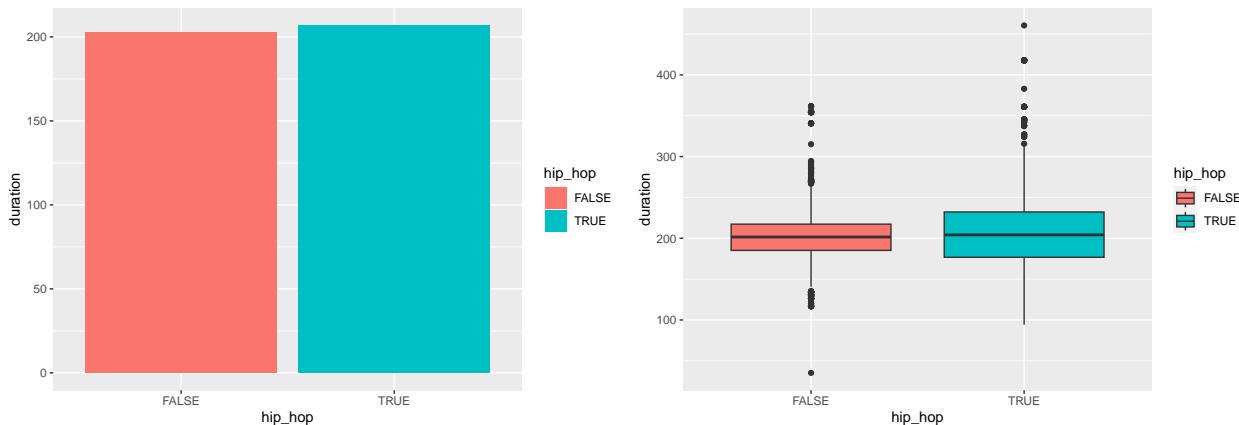
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	3935	118.82	26	114.01	116.18	23.61	62.45	205.27	142.83	0.82	0.31
	se											
X1	0.41											

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	3507	121.62	30.61	118.55	119.73	36.44	64.93	202.01	137.07	0.41	
	se											
X1	-0.98	0.52										
	[1]	"duration and album_type"										



Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	3935	202.84	29.75	201.57	201.7	23.33	35.24	361.95	326.71	0.88	
	se											
X1	4.44	0.47										

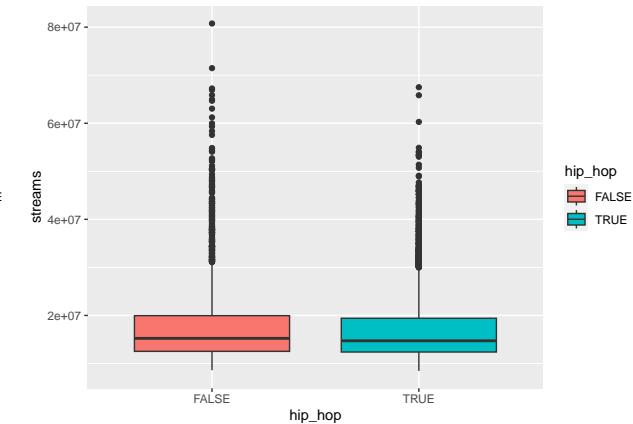
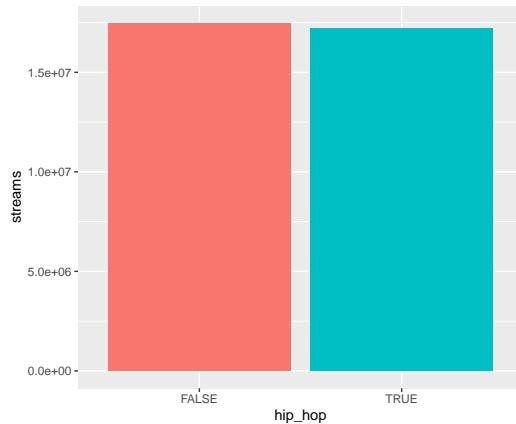
group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	3507	206.83	48.18	204.17	203.65	41.45	94.25	460.57	366.33	1

```

kurtosis      se
X1      2.57 0.81
[1] "streams and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	3935	17453282	7432055	15230859	16142683	4750972	8595924	80764045
	range	skew	kurtosis	se					
X1	72168121	2.48	9.13	118477.7					

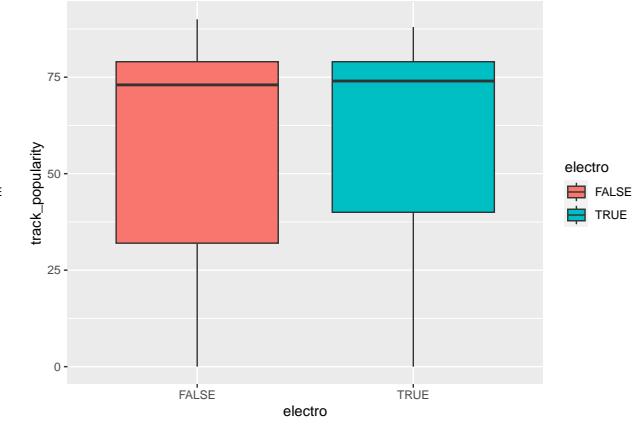
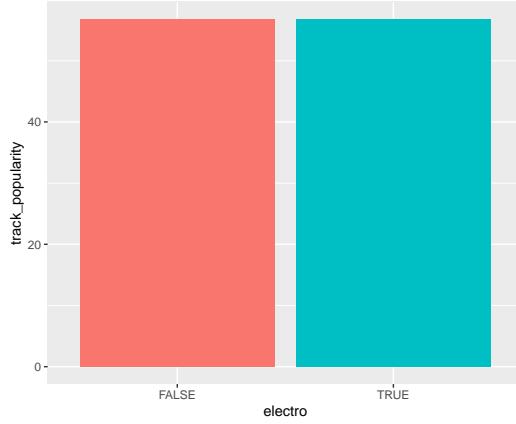
```

group: TRUE

```

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	3507	17196775	7180516	14720921	15894671	4245759	8454914	67499798
	range	skew	kurtosis	se					
X1	59044884	2	5.12	121251.7					

```
[1] "track_popularity and album_type"
```



```

Descriptive statistics by group
group: FALSE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4655	56.77	32.04	73	60.35	11.86	0	90	90	-1.04	-0.72	0.47

```

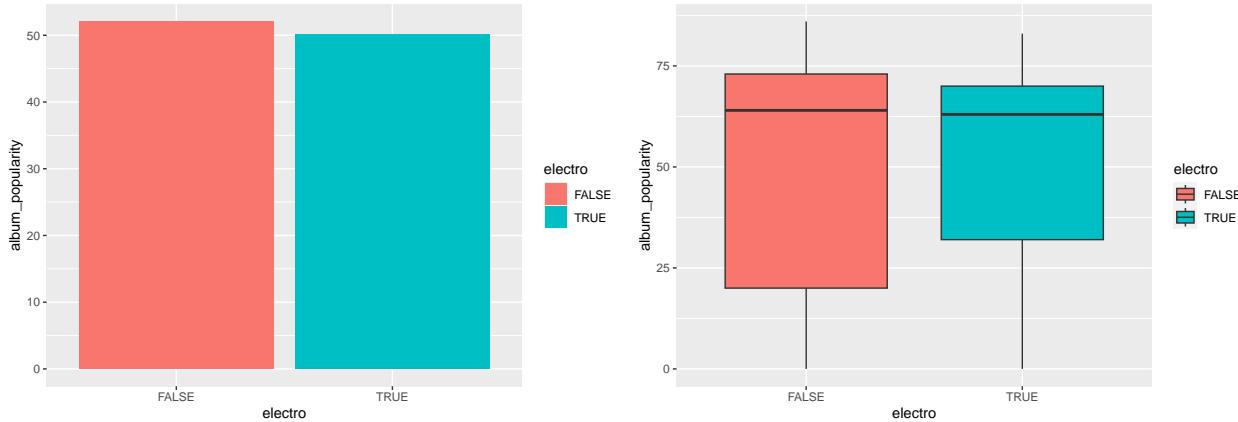
group: TRUE

```

```

vars      n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 2787 56.78 32.06      74  60.49 10.38    0  88     88 -1.05      -0.7 0.61
[1] "album_popularity and album_type"

```



Descriptive statistics by group
group: FALSE

```

vars      n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 4655 52.07 30.84      64  54.55 17.79    0  86     86 -0.88      -0.88 0.45

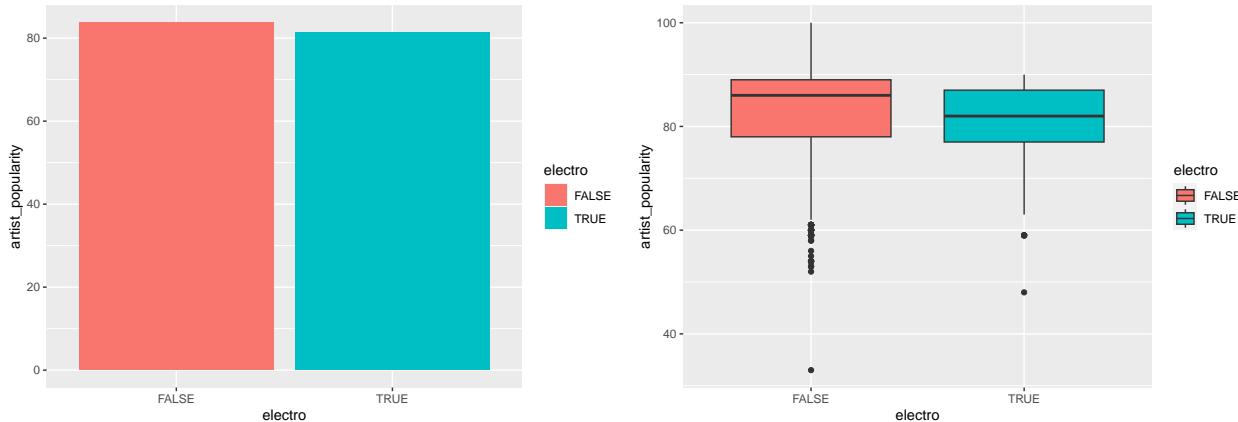
```

group: TRUE

```

vars      n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 2787 50.19 29.52      63  52.57 16.31    0  83     83 -0.9      -0.83 0.56
[1] "artist_popularity and album_type"

```



Descriptive statistics by group
group: FALSE

```

vars      n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 4655 83.7 9.08      86  84.29 7.41   33 100     67 -0.67      0.29 0.13

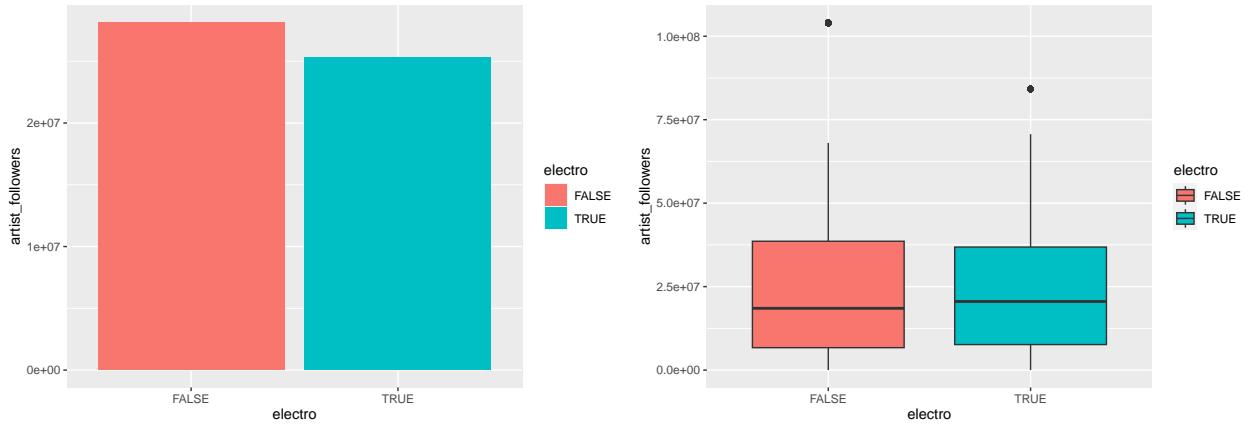
```

group: TRUE

```

vars      n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 2787 81.29 6.3      82  81.97 7.41   48  90     42 -0.86      0.42 0.12
[1] "artist_followers and album_type"

```



Descriptive statistics by group

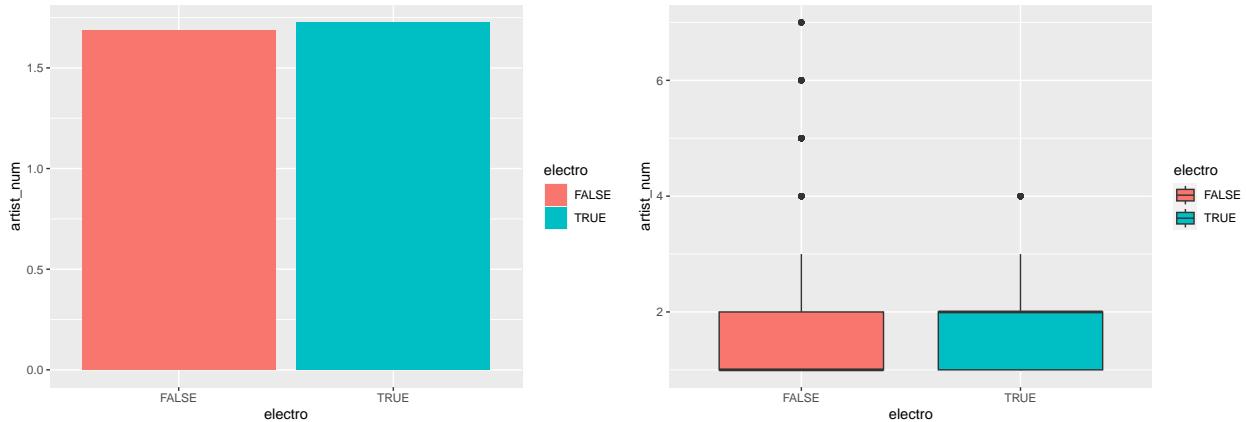
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	4655	28124104	26162341	18503013	24764600	24099054	3805	104059839
			range	skew	kurtosis	se			
X1		104056034	1.07	0.64	383457.1				

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	2787	25296732	22990871	20550098	21716052	20594678	14787	84227300
			range	skew	kurtosis	se			
X1		84212513	1.26	0.8	435498.8				

[1] "artist_num and album_type"



Descriptive statistics by group

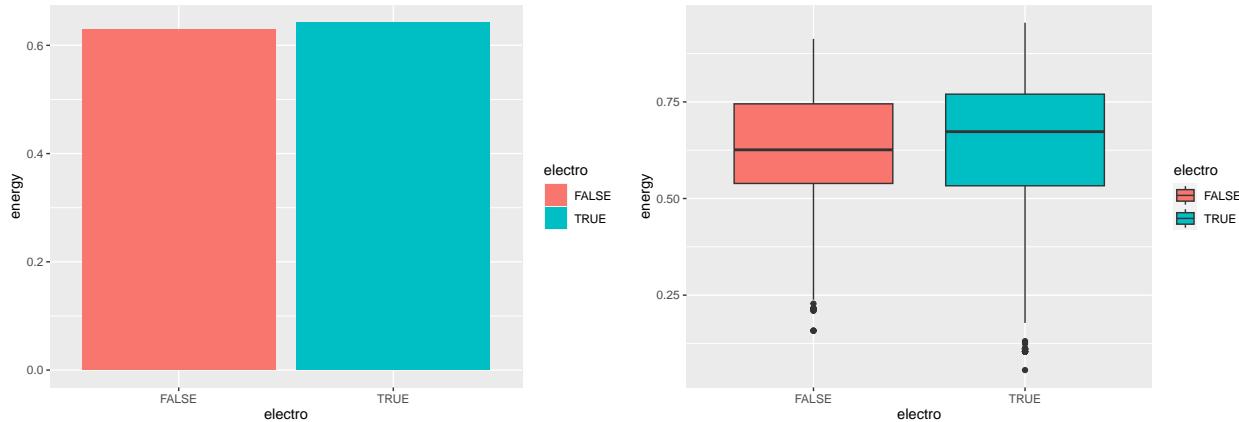
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4655	1.69	0.95	1	1.51	0	1	7	6	2.14	6.38	0.01

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2787	1.73	0.8	2	1.6	1.48	1	4	3	1.06	0.77	0.02

[1] "energy and album_type"

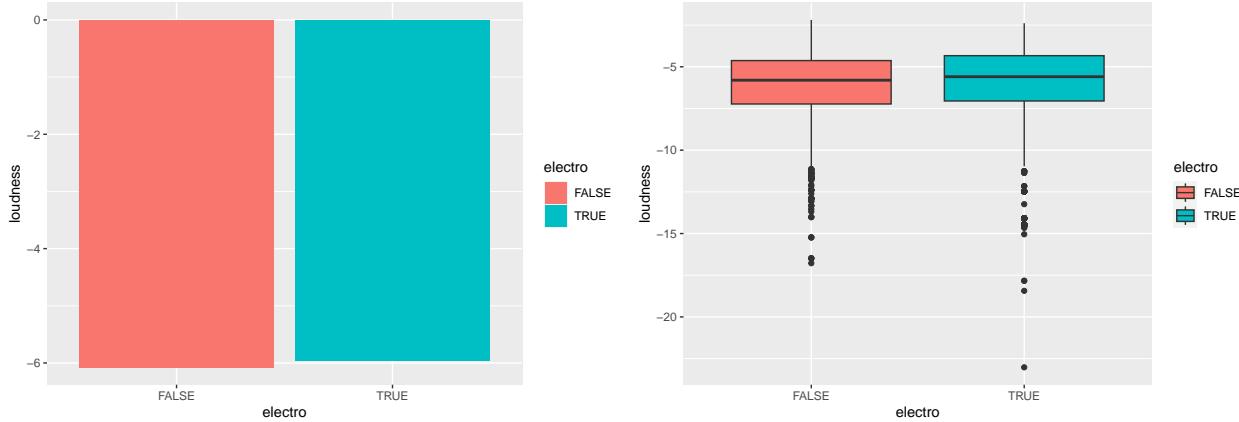


Descriptive statistics by group
group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 4655 0.63 0.14    0.63    0.63 0.15 0.16 0.91 0.76 -0.37   -0.25  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 2787 0.64 0.16    0.67    0.65 0.18 0.06 0.96 0.9 -0.72    0.31  0
[1] "loudness and album_type"
```

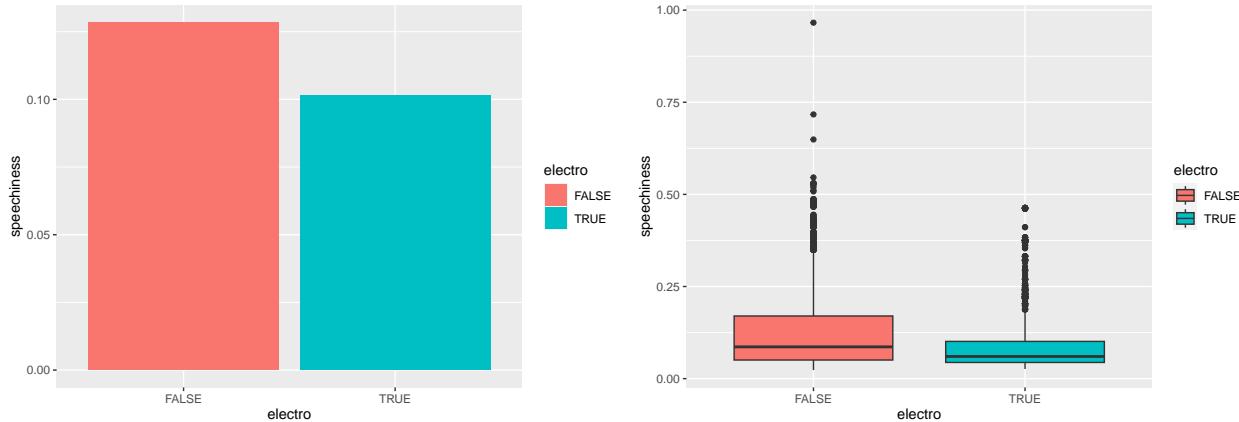


Descriptive statistics by group
group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 4655 -6.08 2.04    -5.8    -5.93 1.93 -16.78 -2.19 14.59 -0.83   1.13
      se
X1  0.03
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 2787 -5.96 2.38    -5.6    -5.65 1.95 -23.02 -2.38 20.64 -1.66   4.15
      se
X1  0.05
[1] "speechiness and album_type"
```



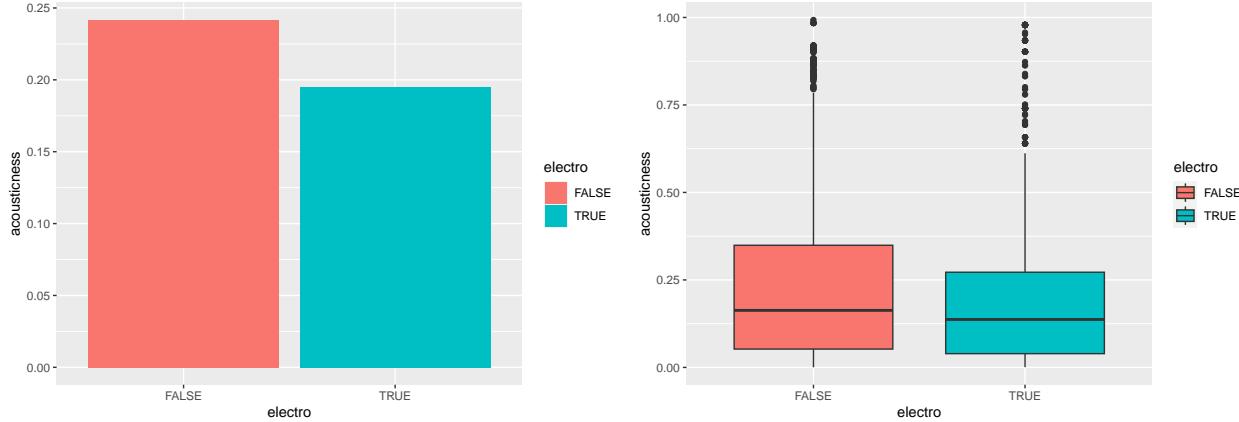
Descriptive statistics by group

group: FALSE

```
vars      n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1      1 4655 0.13 0.11    0.09    0.11 0.06 0.02 0.97 0.94 1.51     2.11  0
```

group: TRUE

```
vars      n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1      1 2787 0.1 0.1    0.06    0.08 0.03 0.03 0.46 0.44 2.01     3.33  0
[1] "acousticness and album_type"
```



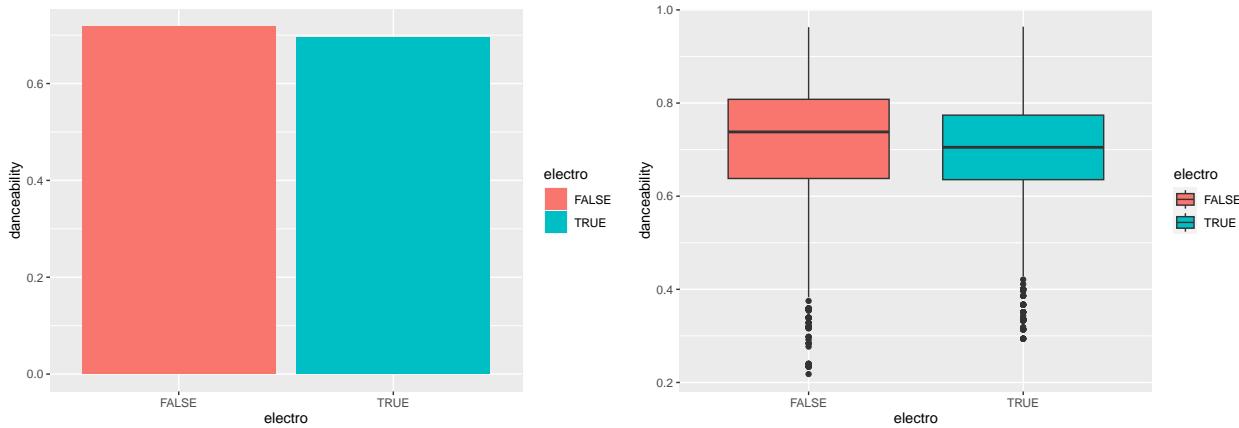
Descriptive statistics by group

group: FALSE

```
vars      n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1      1 4655 0.24 0.24    0.16    0.21 0.2    0 0.99 0.99 1.09     0.21  0
```

group: TRUE

```
vars      n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1      1 2787 0.19 0.21    0.14    0.16 0.15    0 0.98 0.98 1.68     2.87  0
[1] "danceability and album_type"
```



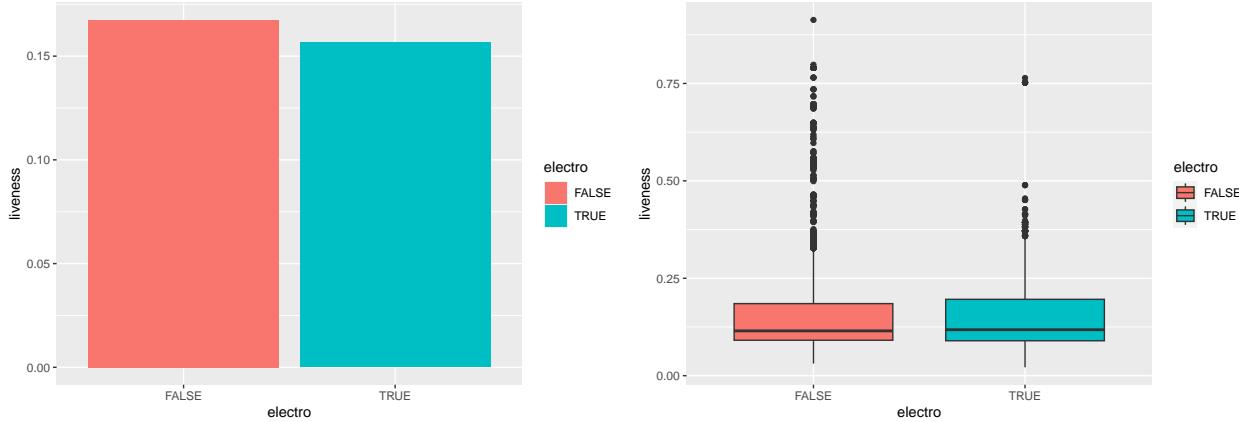
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 4655 0.72 0.13    0.74    0.73 0.12 0.22 0.96  0.74 -0.76      0.47  0
```

group: TRUE

```
vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 2787 0.69 0.12    0.7     0.7 0.1 0.29 0.96  0.67 -0.75      0.82  0
[1] "liveness and album_type"
```



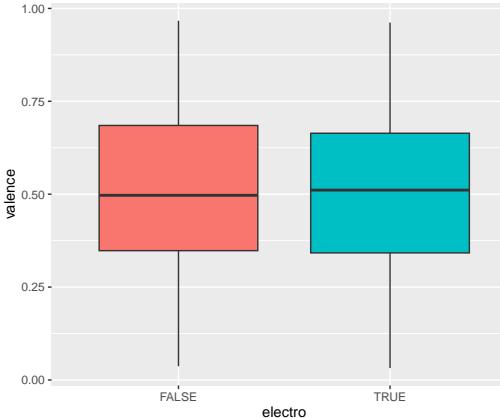
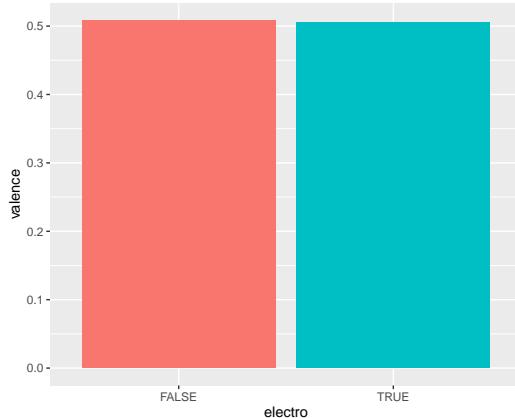
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 4655 0.17 0.13    0.12    0.14 0.05 0.03 0.91  0.88 2.44      6.47  0
```

group: TRUE

```
vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 2787 0.16 0.1    0.12    0.14 0.06 0.02 0.76  0.74 1.76      4.51  0
[1] "valence and album_type"
```



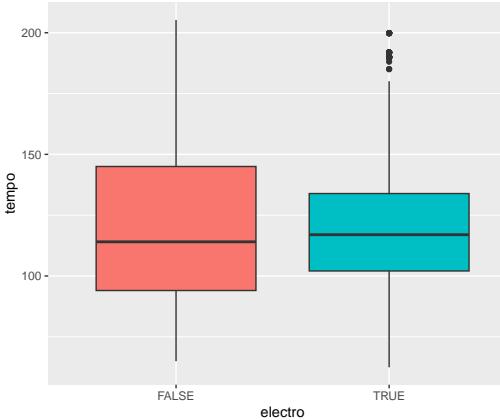
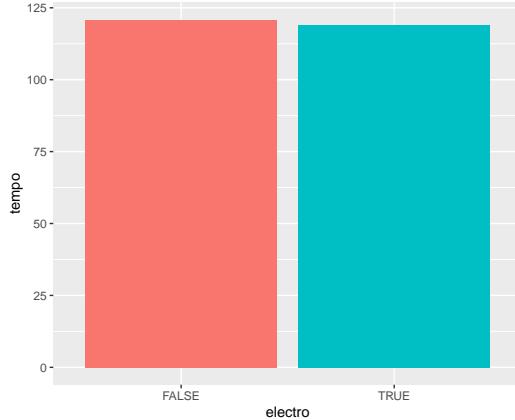
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 4655 0.51 0.22      0.5    0.51 0.24 0.04 0.97 0.93 0.06   -0.88  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 2787 0.5 0.21      0.51    0.5 0.24 0.03 0.96 0.93 0.05   -0.71  0
[1] "tempo and album_type"
```



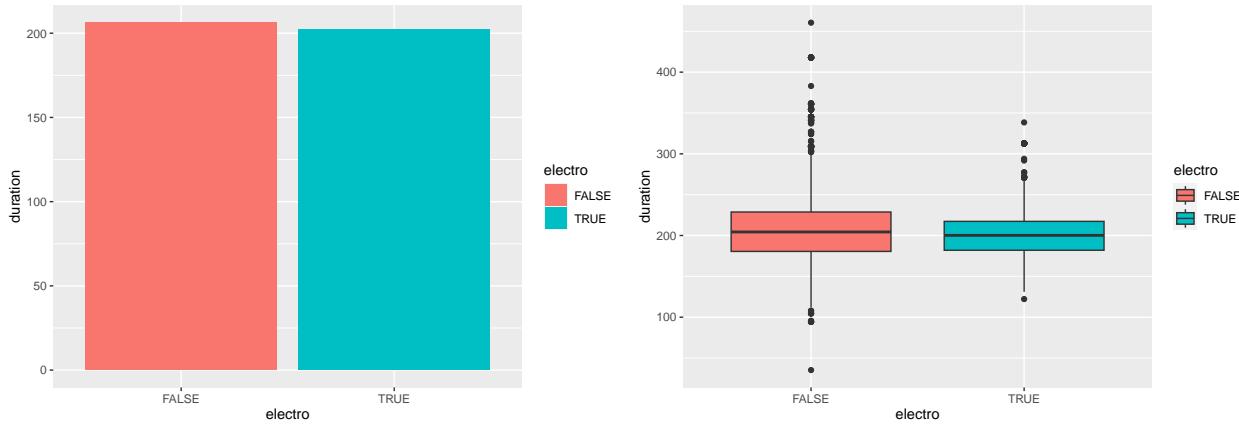
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew
X1     1 4655 120.78 31.39 114.04 118.74 33.96 64.93 205.27 140.34 0.49
kurtosis   se
X1     -0.92 0.46
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew
X1     1 2787 119.07 22.16 116.97 117.15 23.77 62.45 199.86 137.42 0.88
kurtosis   se
X1     1.01 0.42
[1] "duration and album_type"
```



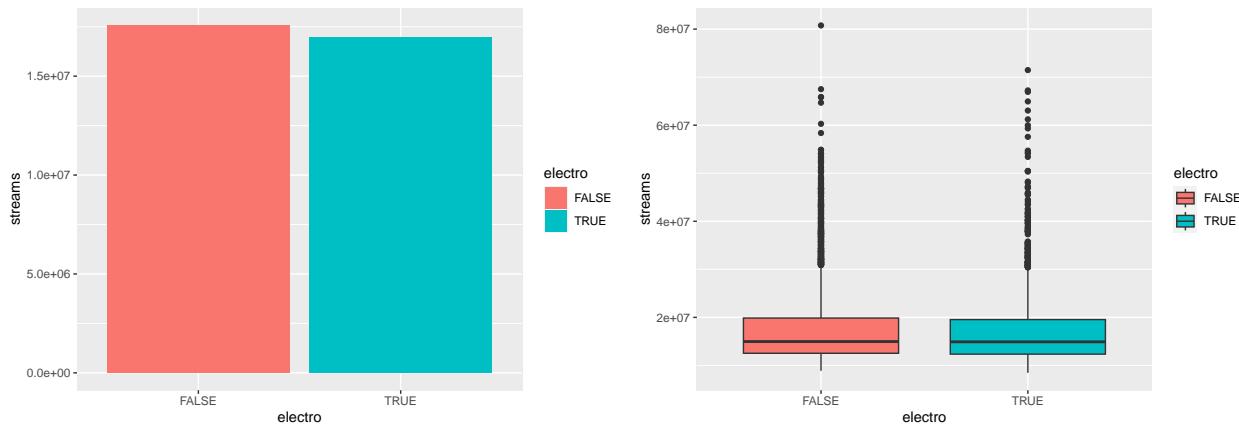
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	4655	206.26	44.75	204.35	203.76	35.62	35.24	460.57	425.33	1.03
	kurtosis										
X1			3.38	0.66							

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	2787	202.17	28.73	200.18	200.23	25.9	122.17	338.44	216.26	0.89
	kurtosis										
X1			2.07	0.54							
[1] "streams and album_type"											



Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	4655	17564613	7574277	14969377	16174595	4474952	8876988	80764045		
	kurtosis										
X1			71887057	2.14	6.14	111014.9					

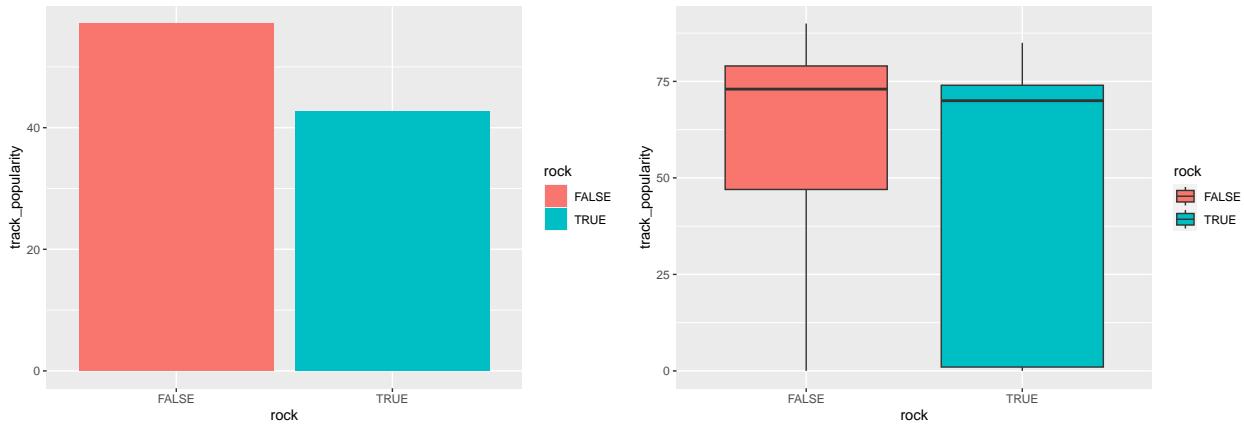
group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	2787	16944557	6844553	14908267	15817032	4630138	8454914	71467874

```

range skew kurtosis      se
X1 63012960 2.52     10.25 129651.2
[1] "track_popularity and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
X1     1 7255 57.14 31.83      73   60.85 11.86   0  90    90 -1.07    -0.65 0.37

```

```

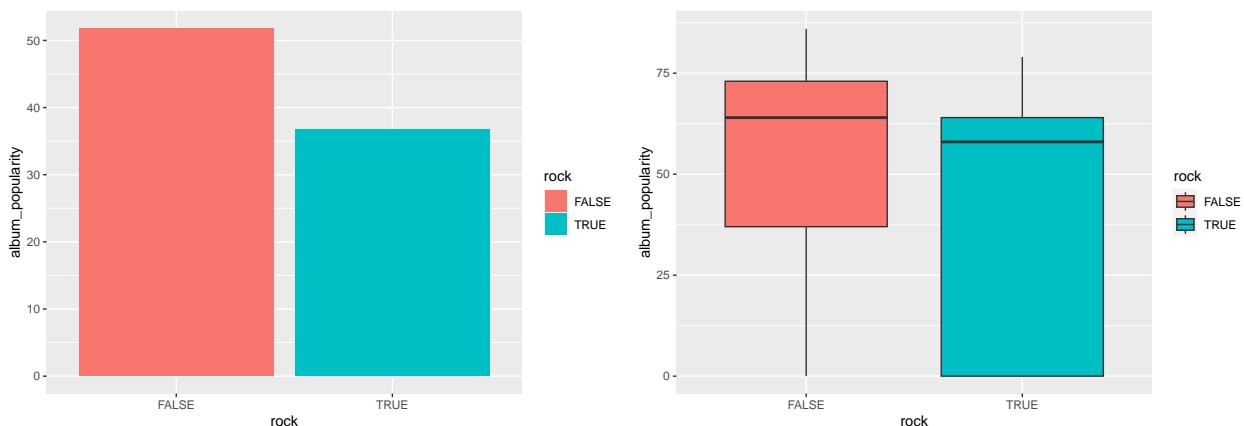
group: TRUE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
X1     1 187 42.76 36.99      70   43.23 16.31   0  85    85 -0.22    -1.9  2.7
[1] "album_popularity and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
X1     1 7255 51.74 30.21      64   54.25 16.31   0  86    86 -0.9    -0.81 0.35

```

```

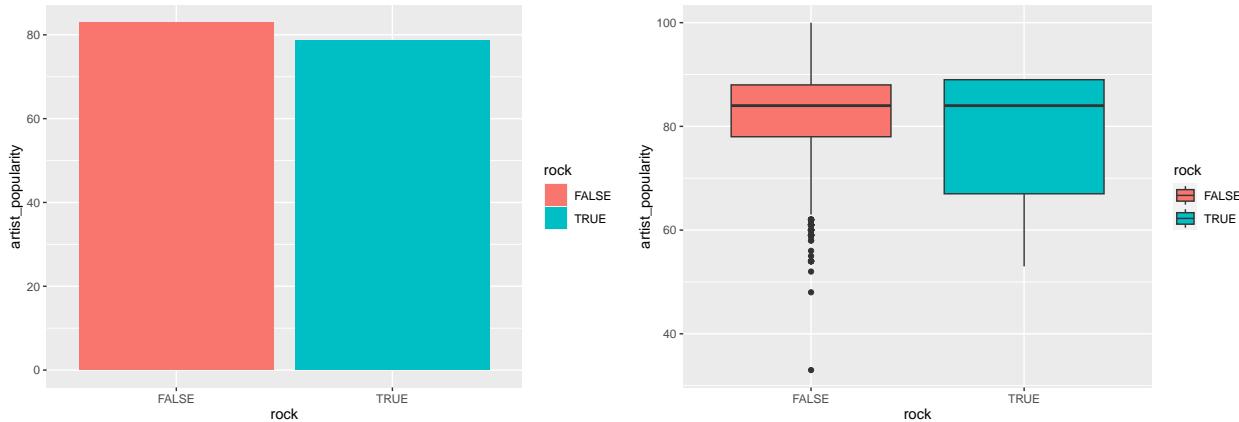
group: TRUE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
X1     1 187 36.74 32.56      58   36.56 23.72   0  79    79 -0.18    -1.88 2.38
[1] "artist_popularity and album_type"

```



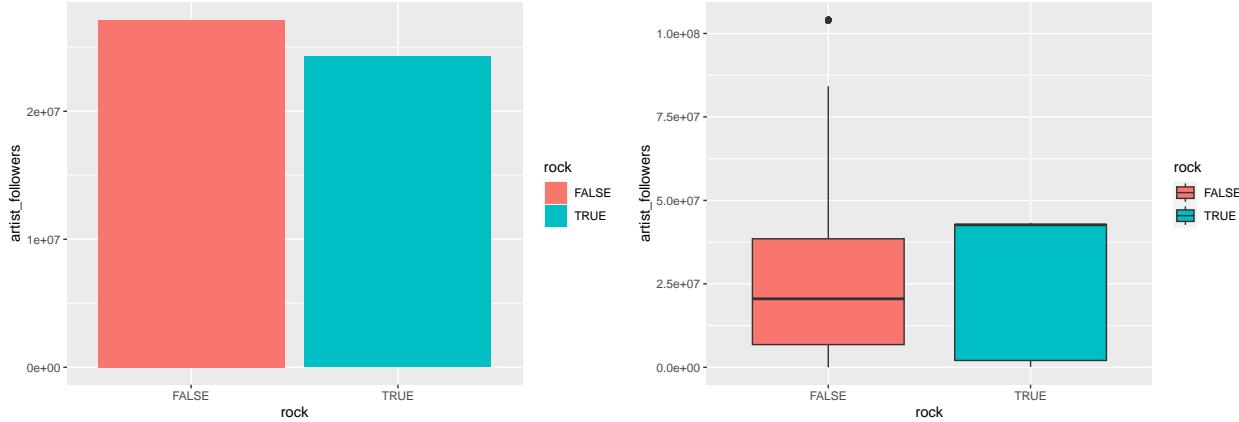
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min max range skew kurtosis   se
X1     1 7255 82.9 8.12      84   83.32 7.41   33 100     67 -0.54      0.41 0.1
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min max range skew kurtosis   se
X1     1 187 78.74 11.11      84   79.99 7.41   53  89     36 -0.68      -1.02 0.81
[1] "artist_followers and album_type"
```



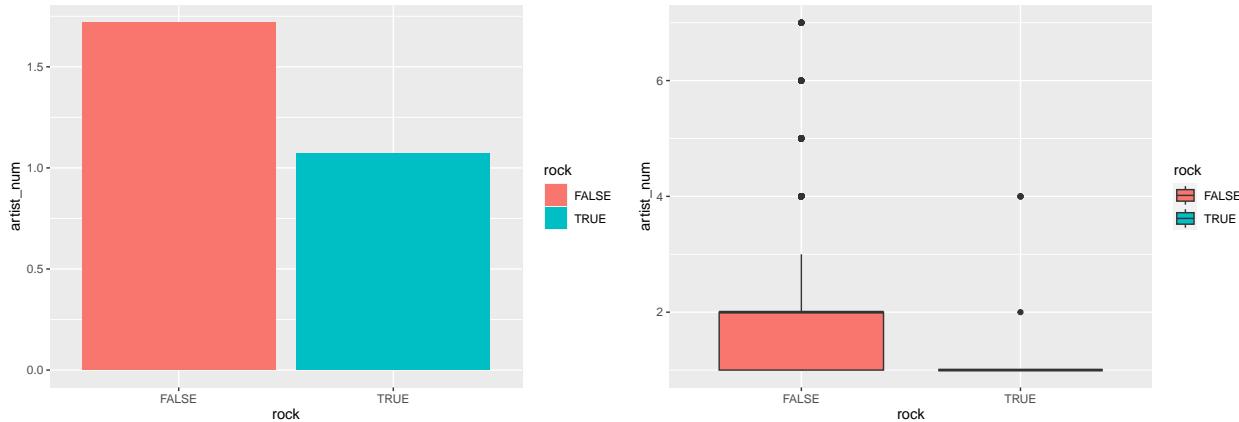
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min max range skew kurtosis   se
X1     1 7255 27137098 25186760 20531406 23622123 23106231 3805 104059839
          range skew kurtosis   se
X1 104056034 1.16      0.75 295701.5
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min max range skew kurtosis   se
X1     1 187 24278355 19238737 42700471 24870642 908500.2 118316 43313246
          range skew kurtosis   se
X1 43194930 -0.14     -1.88 1406876
[1] "artist_num and album_type"
```



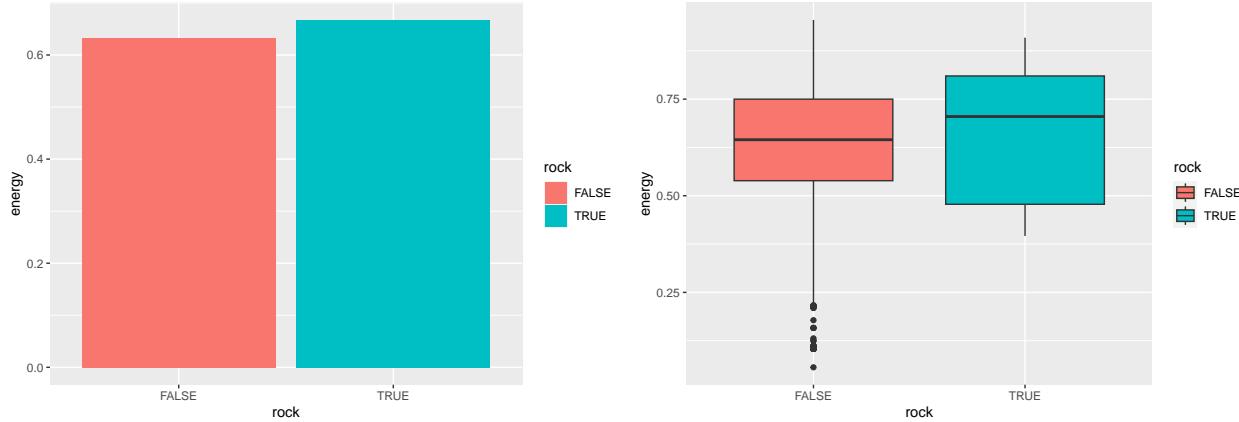
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed mad min max range skew kurtosis    se
X1     1 7255 1.72 0.9      2     1.56 1.48   1     7       6 1.84      5.13 0.01
```

group: TRUE

```
vars   n mean   sd median trimmed mad min max range skew kurtosis    se
X1     1 187 1.07 0.44     1      1   0     1     4       3 6.34      38.99 0.03
[1] "energy and album_type"
```



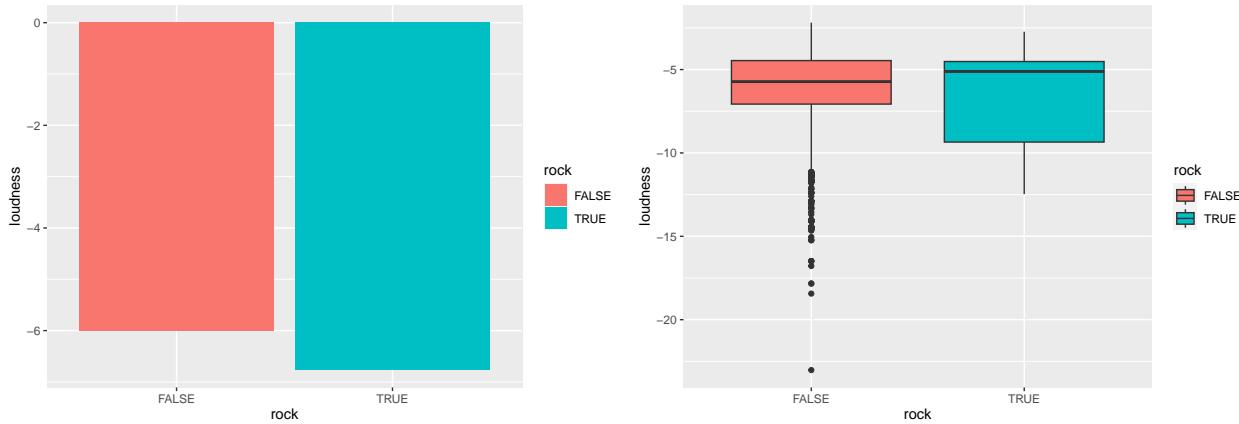
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed mad min max range skew kurtosis    se
X1     1 7255 0.63 0.15     0.64   0.64 0.16 0.06 0.96     0.9 -0.53      0.06 0
```

group: TRUE

```
vars   n mean   sd median trimmed mad min max range skew kurtosis    se
X1     1 187 0.67 0.17     0.7    0.67 0.16 0.4 0.91     0.51 -0.23     -1.46 0.01
[1] "loudness and album_type"
```



Descriptive statistics by group

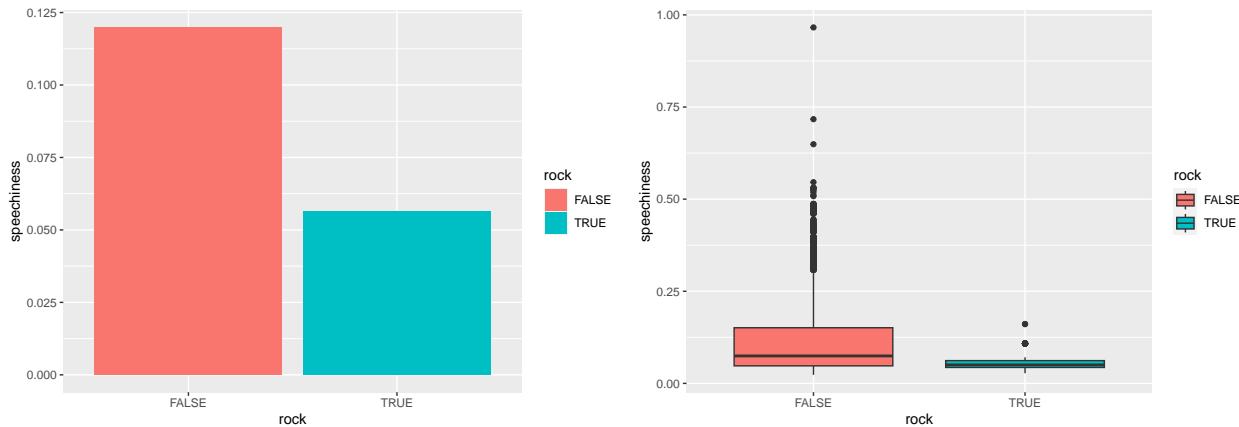
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	7255	-6.01	2.14	-5.72	-5.81	1.95	-23.02	-2.19	20.84	-1.25	3.01
	se											
X1	0.03											

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	187	-6.77	3.01	-5.12	-6.56	2.67	-12.47	-2.73	9.74	-0.56	-0.99
	se											
X1	0.22											

[1] "speechiness and album_type"



Descriptive statistics by group

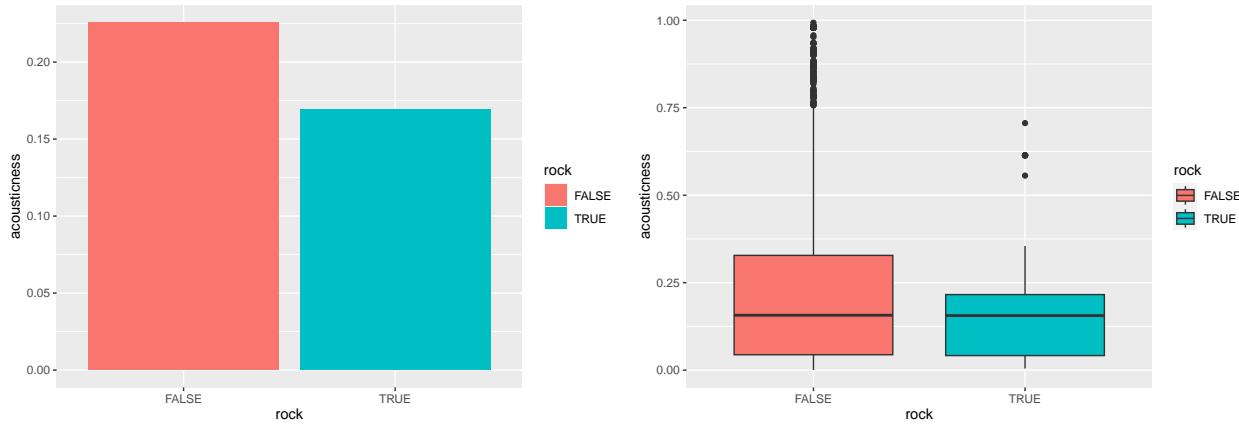
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7255	0.12	0.11	0.07	0.1	0.05	0.02	0.97	0.94	1.63	2.33	0
	se												

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	187	0.06	0.03	0.05	0.05	0.02	0.03	0.16	0.13	1.59	2.57	0
	se												

[1] "acousticness and album_type"



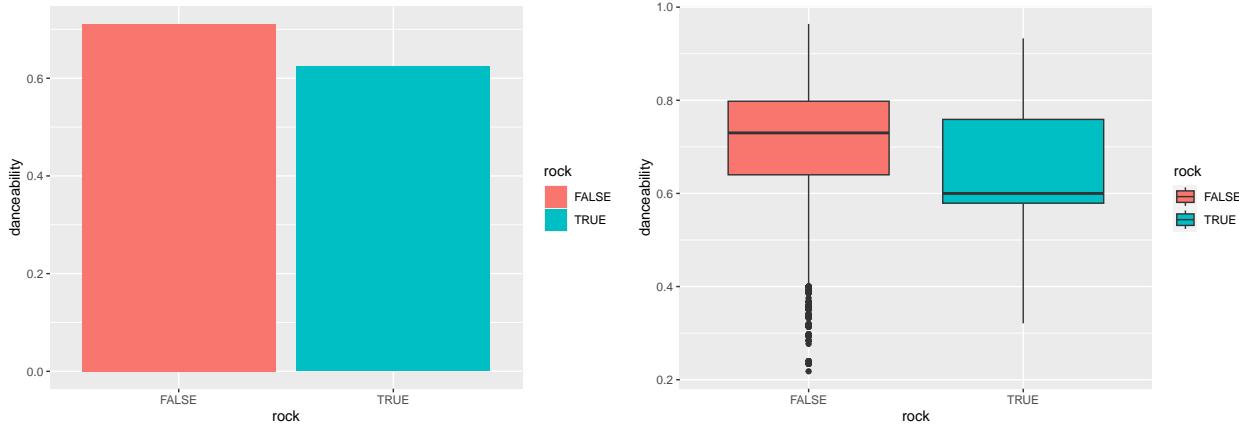
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 7255 0.23 0.23    0.16    0.19 0.18    0 0.99 0.99 1.28      0.89 0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 187 0.17 0.17    0.16    0.14 0.17    0 0.71 0.7 1.37      1.5 0.01
[1] "danceability and album_type"
```



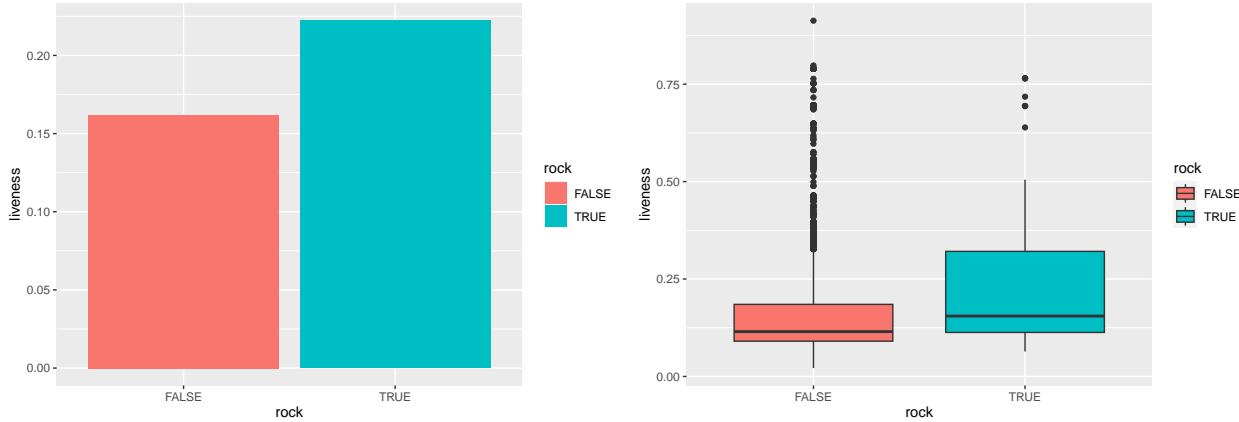
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 7255 0.71 0.13    0.73    0.72 0.11 0.22 0.96 0.75 -0.75      0.63 0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 187 0.62 0.14    0.6     0.63 0.2 0.32 0.93 0.61 -0.31    -0.81 0.01
[1] "liveness and album_type"
```



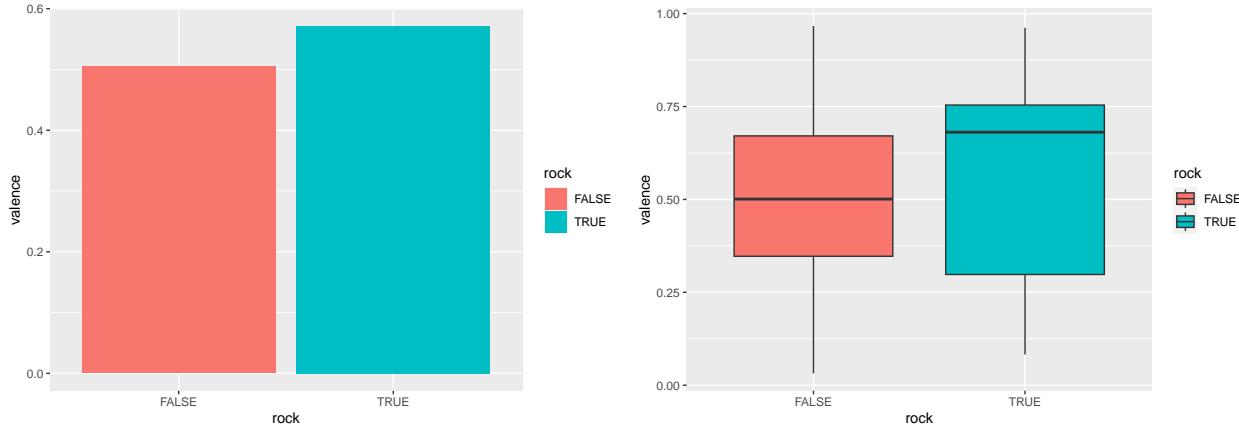
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed  mad min max range skew kurtosis se
X1     1 7255 0.16 0.12    0.12    0.14 0.05 0.02 0.91  0.89 2.41     7.15  0
```

group: TRUE

```
vars   n mean   sd median trimmed  mad min max range skew kurtosis se
X1     1 187 0.22 0.17    0.16    0.19 0.12 0.06 0.76   0.7 1.52     1.69 0.01
[1] "valence and album_type"
```



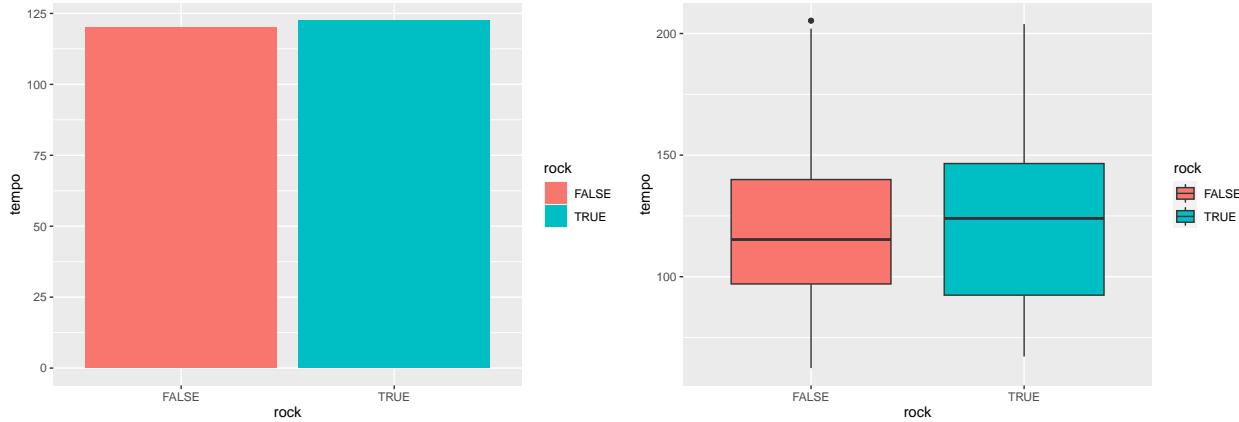
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed  mad min max range skew kurtosis se
X1     1 7255 0.51 0.21    0.5     0.5 0.24 0.03 0.97  0.93 0.05   -0.79  0
```

group: TRUE

```
vars   n mean   sd median trimmed  mad min max range skew kurtosis se
X1     1 187 0.57 0.27    0.68    0.57 0.39 0.08 0.96  0.88 -0.15   -1.51 0.02
[1] "tempo and album_type"
```



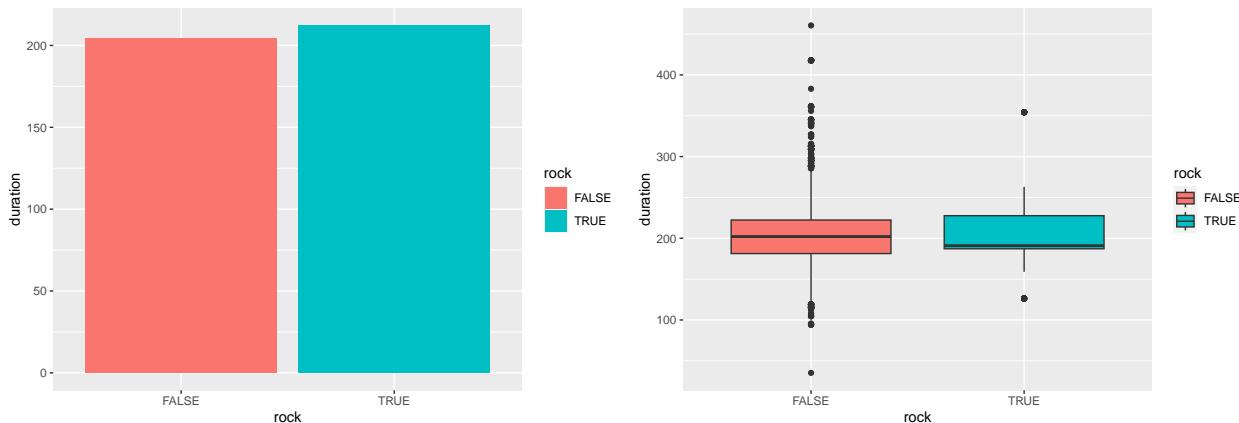
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	7255	120.08	28.08	115.28	117.67	29.42	62.45	205.27	142.83	0.62
	kurtosis										
X1		-0.43	0.33								

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	187	122.44	35.79	123.98	122.06	43.36	67.2	203.86	136.67	0.18	-1.09	
	X1	2.62											
	[1]	"duration and album_type"											



Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	7255	204.53	39.02	202.09	202.49	30.48	35.24	460.57	425.33	1.08
	kurtosis										
X1		4.26	0.46								

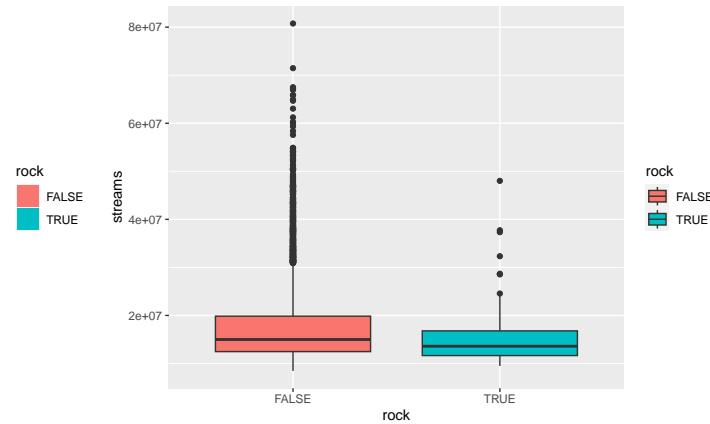
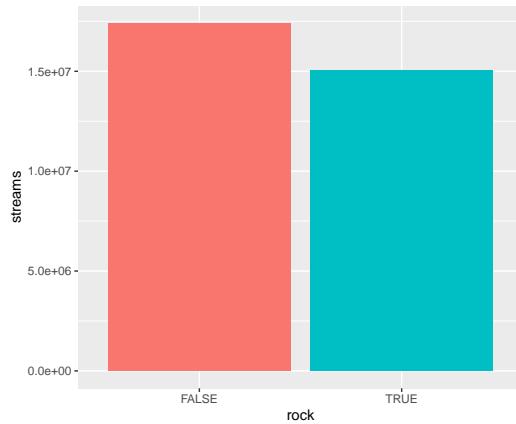
group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	187	212.22	56.56	190.95	205.28	19.87	125.83	354.32	228.49	1.18

```

kurtosis      se
X1       1.17 4.14
[1] "streams and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	7255	17392021	7353537	14991443	16079114	4553493	8454914	80764045
	range	skew	kurtosis	se					
X1	72309131	2.26	7.32	86333.14					

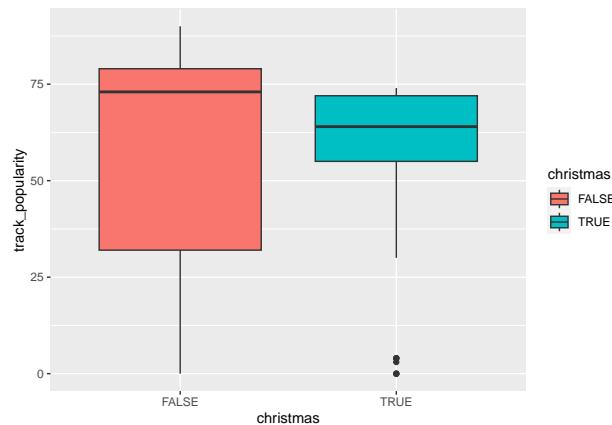
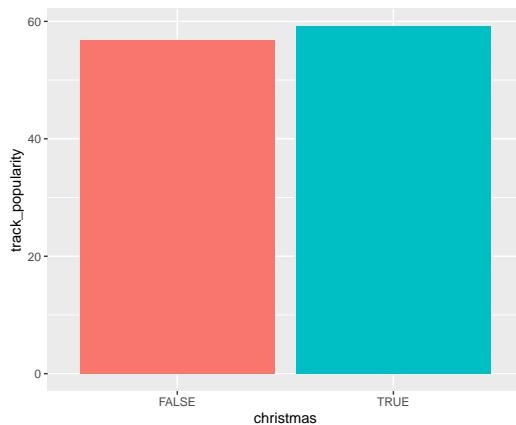
```

group: TRUE

```

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	187	15019490	5134928	13594807	14183678	3223110	9487799	48011162
	range	skew	kurtosis	se					
X1	38523363	2.81	11.74	375503.1					

```
[1] "track_popularity and album_type"
```



```

Descriptive statistics by group
group: FALSE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7334	56.74	32.2	73	60.36	11.86	0	90	90	-1.04	-0.73	0.38

```

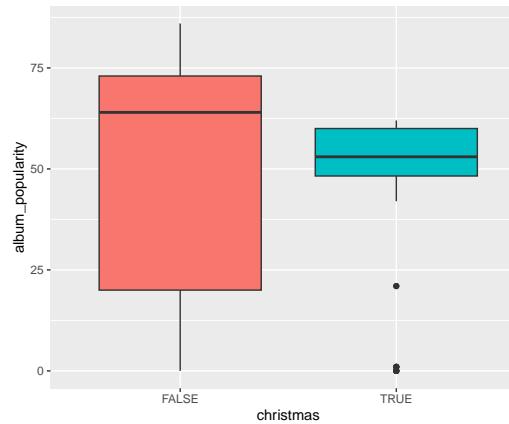
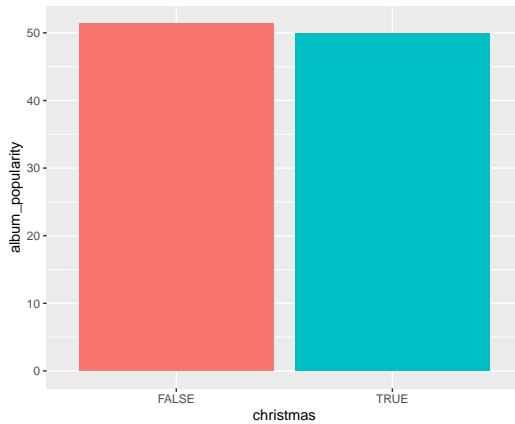
group: TRUE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 108 59.17 19.29      64   63.65 11.86    0   74    74 -2.09      3.62 1.86
[1] "album_popularity and album_type"

```



Descriptive statistics by group
group: FALSE

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 7334 51.39 30.52      64   53.81 16.31    0   86    86 -0.88      -0.88 0.36

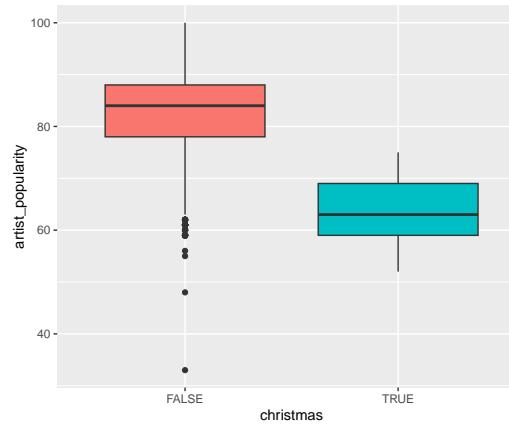
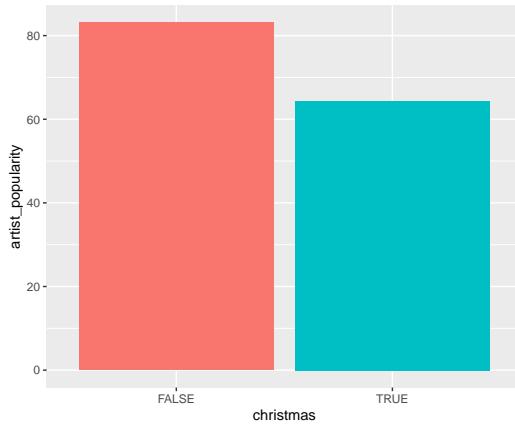
```

group: TRUE

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 108 49.89 16.75      53   53.9 10.38    0   62    62 -2.13      3.57 1.61
[1] "artist_popularity and album_type"

```



Descriptive statistics by group
group: FALSE

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 7334 83.07 7.94      84   83.47 7.41    33 100     67 -0.49      0.31 0.09

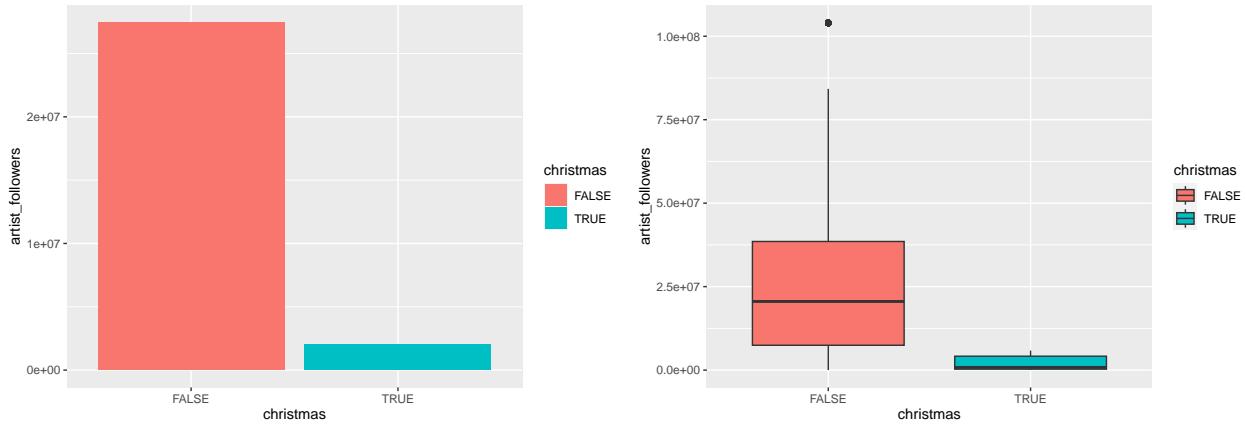
```

group: TRUE

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis    se
X1     1 108 64.34 6.96      63   64.36 5.93    52 75     23 0.16     -1.12 0.67
[1] "artist_followers and album_type"

```



Descriptive statistics by group

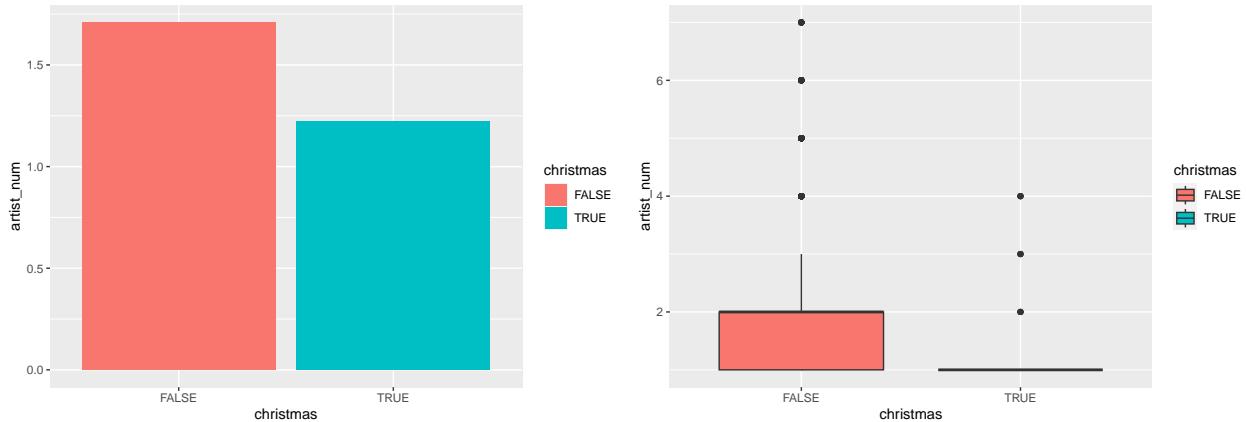
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	7334	27434098	25053715	20556562	24001343	23148599	3805	104059839
			range	skew	kurtosis	se			
X1		104056034	1.13	0.73	292551.1				

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	108	2018691	2127798	801459	1838914	1150751	25288	5844413	5819125	0.77
			kurtosis	se							
X1		-1.09	204747.5								

[1] "artist_num and album_type"



Descriptive statistics by group

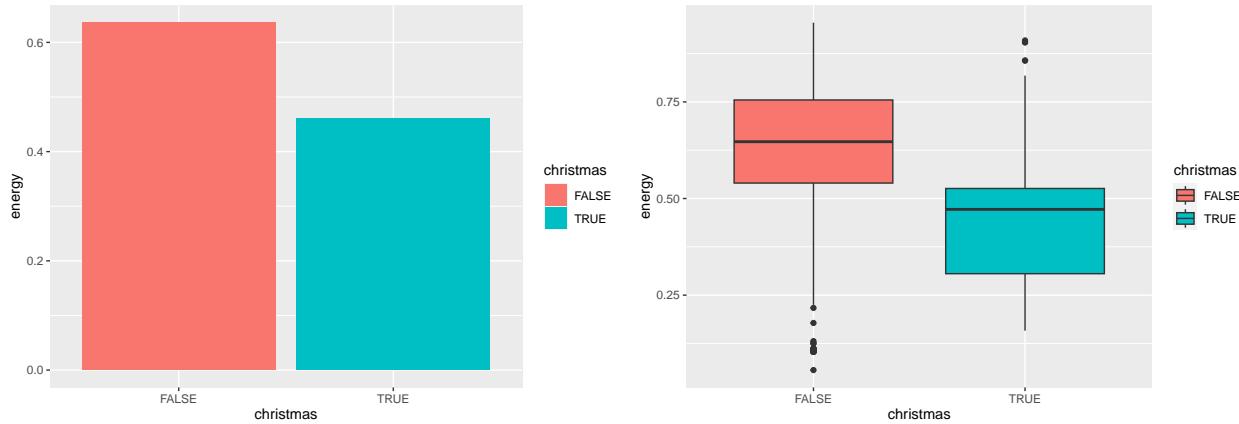
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7334	1.71	0.9	2	1.55	1.48	1	7	6	1.85	5.2	0.01

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	108	1.22	0.69	1	1.02	0	1	4	3	3.1	8.55	0.07

[1] "energy and album_type"



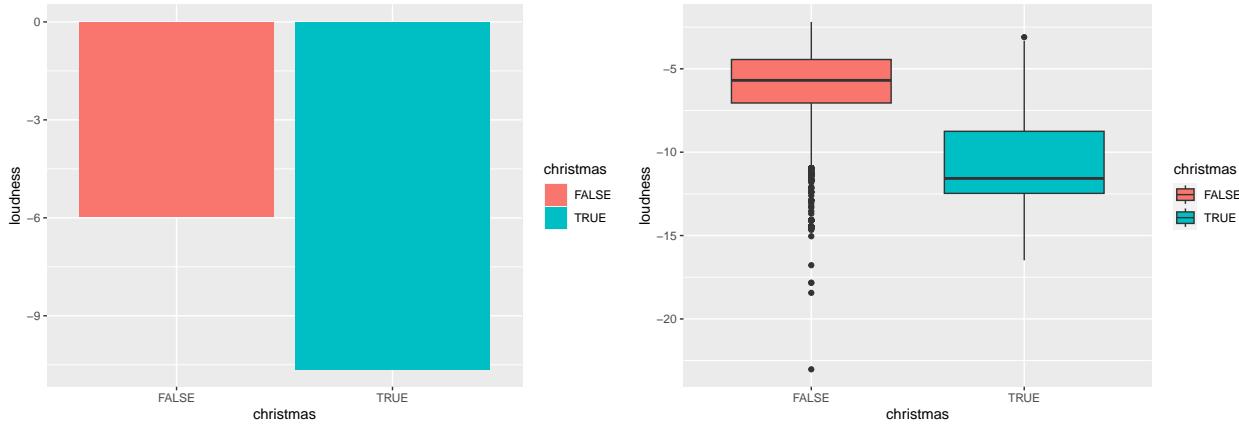
Descriptive statistics by group
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7334	0.64	0.15	0.65	0.64	0.16	0.06	0.96	0.9	-0.5	-0.01	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	108	0.46	0.19	0.47	0.45	0.12	0.16	0.91	0.75	0.34	-0.17	0.02

[1] "loudness and album_type"



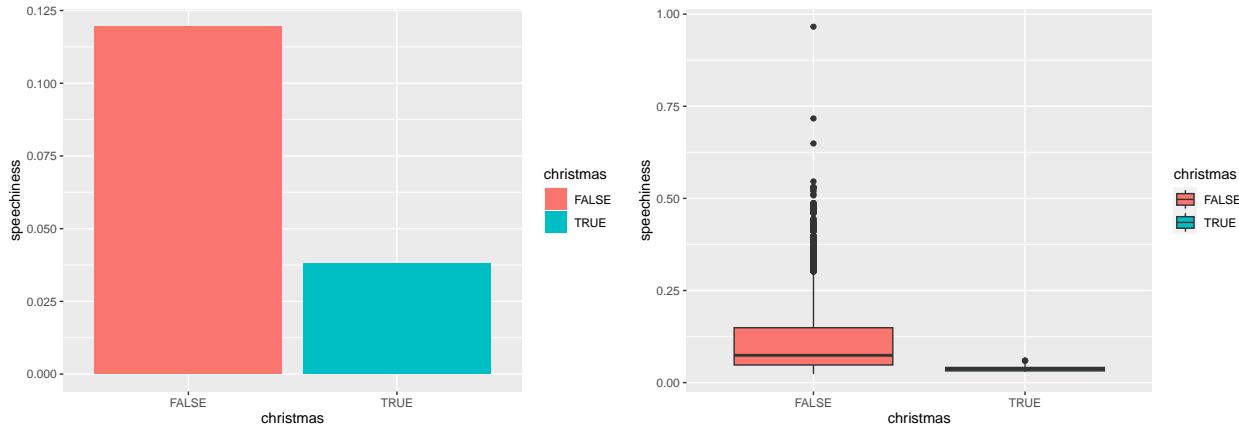
Descriptive statistics by group
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7334	-5.97	2.09	-5.69	-5.78	1.9	-23.02	-2.19	20.84	-1.2	2.91	X1 0.02

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	108	-10.64	2.61	-11.57	-10.62	2.86	-16.48	-3.1	13.38	0.2	0.47	X1 0.25

[1] "speechiness and album_type"



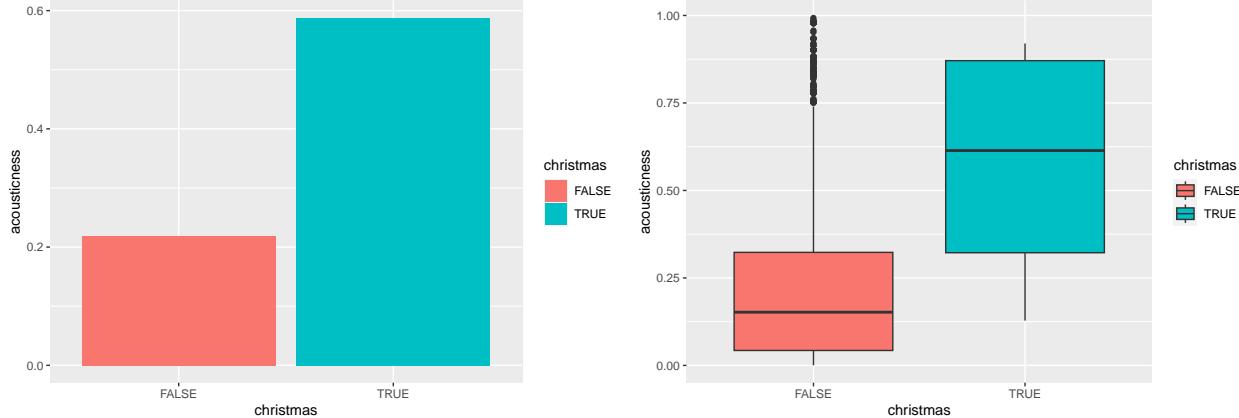
Descriptive statistics by group
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7334	0.12	0.1	0.07	0.1	0.05	0.02	0.97	0.94	1.65	2.39	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	108	0.04	0.01	0.04	0.04	0.01	0.03	0.06	0.03	0.89	0.3	0

[1] "acousticness and album_type"



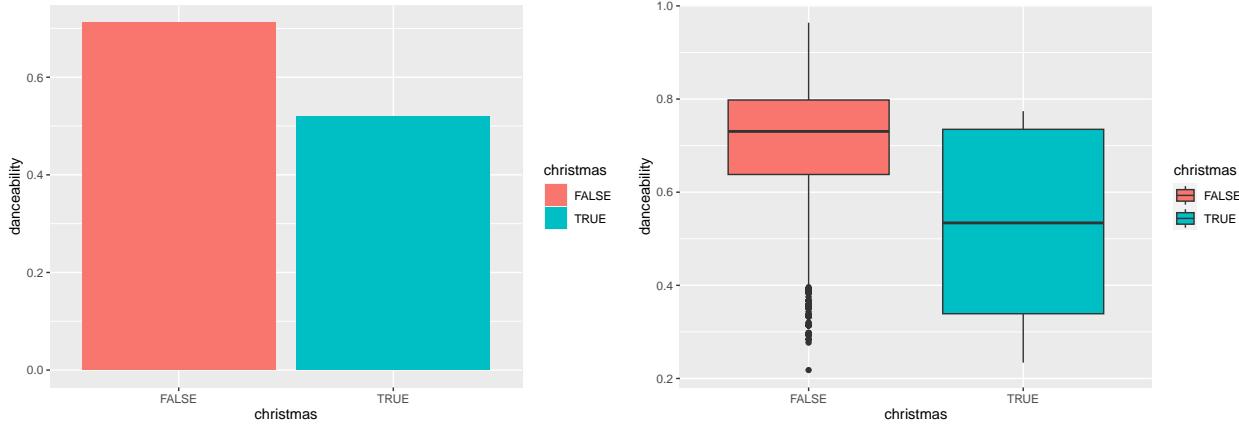
Descriptive statistics by group
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7334	0.22	0.22	0.15	0.18	0.18	0	0.99	0.99	1.3	1.03	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	108	0.59	0.27	0.61	0.6	0.39	0.13	0.92	0.79	-0.28	-1.38	0.03

[1] "danceability and album_type"



Descriptive statistics by group

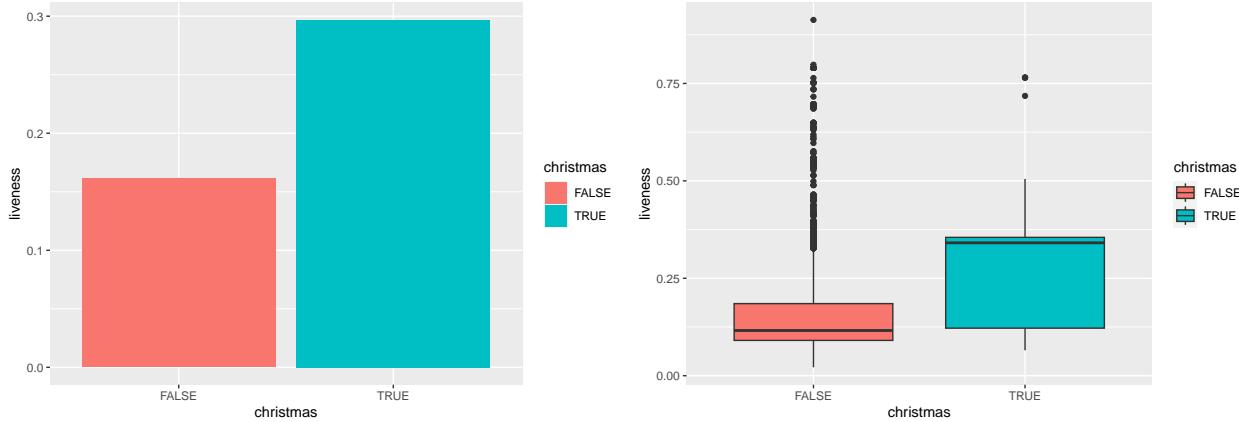
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7334	0.71	0.13	0.73	0.72	0.72	0.11	0.22	0.96	0.75	-0.67	0.39

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	108	0.52	0.19	0.53	0.53	0.29	0.23	0.77	0.54	-0.13	-1.48	0.02

[1] "liveness and album_type"



Descriptive statistics by group

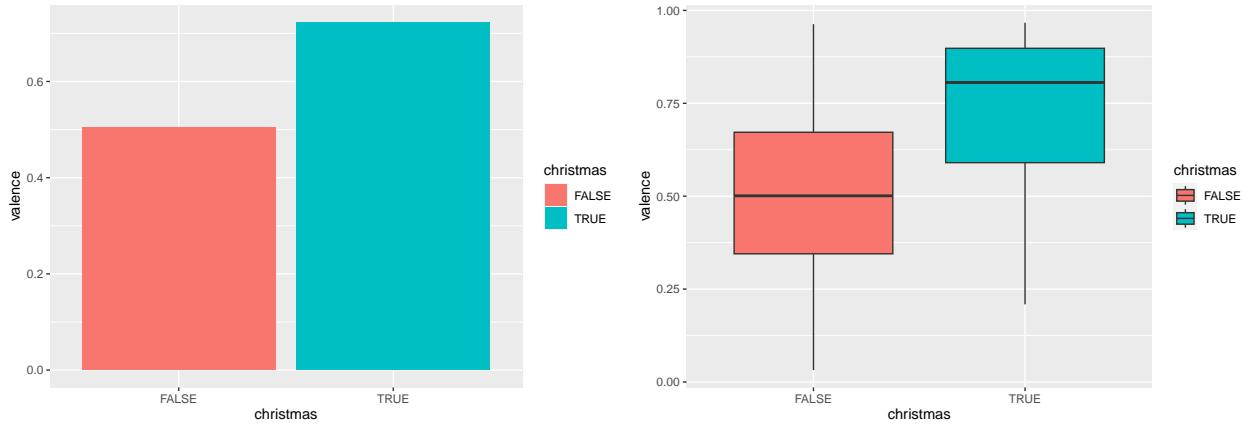
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7334	0.16	0.12	0.12	0.12	0.14	0.05	0.02	0.91	0.89	2.45	7.34

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	108	0.3	0.17	0.34	0.29	0.24	0.07	0.76	0.7	0.58	0.21	0.02

[1] "valence and album_type"



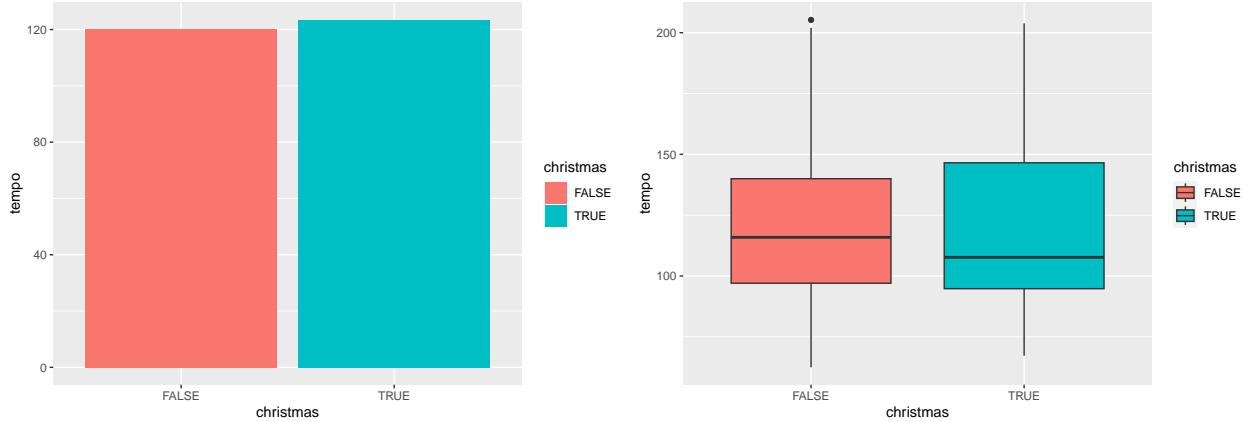
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 7334  0.5 0.21     0.5      0.5 0.24  0.03  0.96  0.93  0.05 -0.81  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 108  0.72 0.24     0.81      0.75 0.21  0.21  0.97  0.76 -0.83 -0.83  0.02
[1] "tempo and album_type"
```



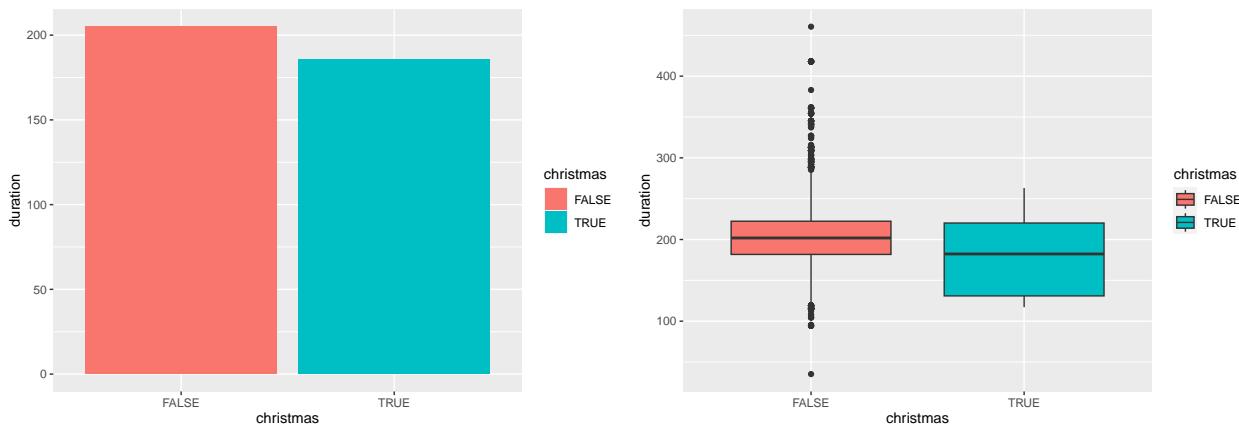
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew
X1    1 7334 120.09 28.06 115.88 117.78 29.78 62.45 205.27 142.83 0.59
      kurtosis   se
X1    -0.5  0.33
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis
X1    1 108 123.41 41.38 107.68 120.85 39.03 67.2 203.86 136.67 0.64 -0.57
      se
X1  3.98
[1] "duration and album_type"
```



Descriptive statistics by group

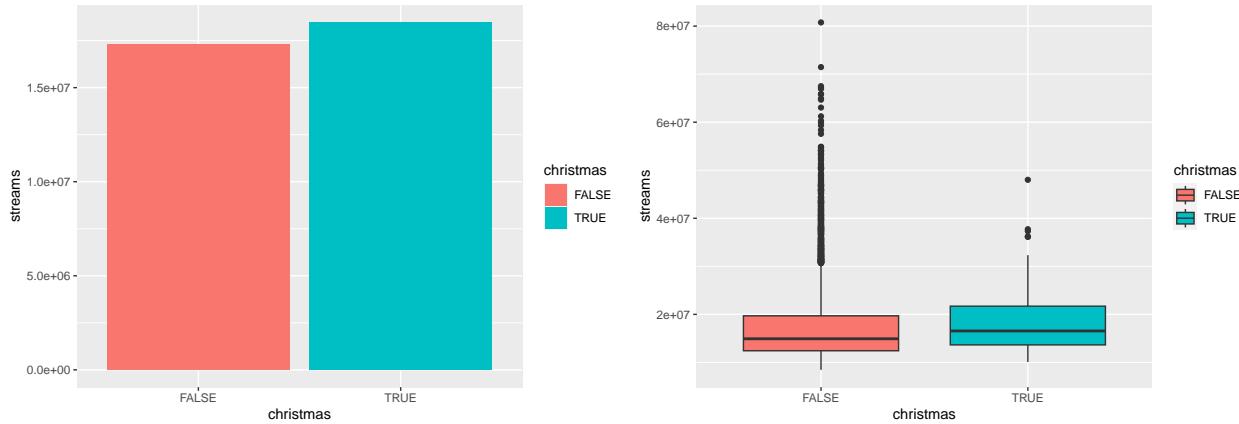
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	7334	205.01	39.34	201.88	202.68	29.96	35.24	460.57	425.33	1.16
	kurtosis										
X1			4.34	0.46							

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	108	185.43	49.53	182.31	183.89	67.23	117.15	262.96	145.81	0.22
	kurtosis										
X1			-1.3	4.77							

[1] "streams and album_type"



Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	
X1	1	7334	17315719	7323675	14924905	16000483	4509764	8454914	80764045	
	range									
	skew									
X1		72309131	2.28	7.46	85518.22					

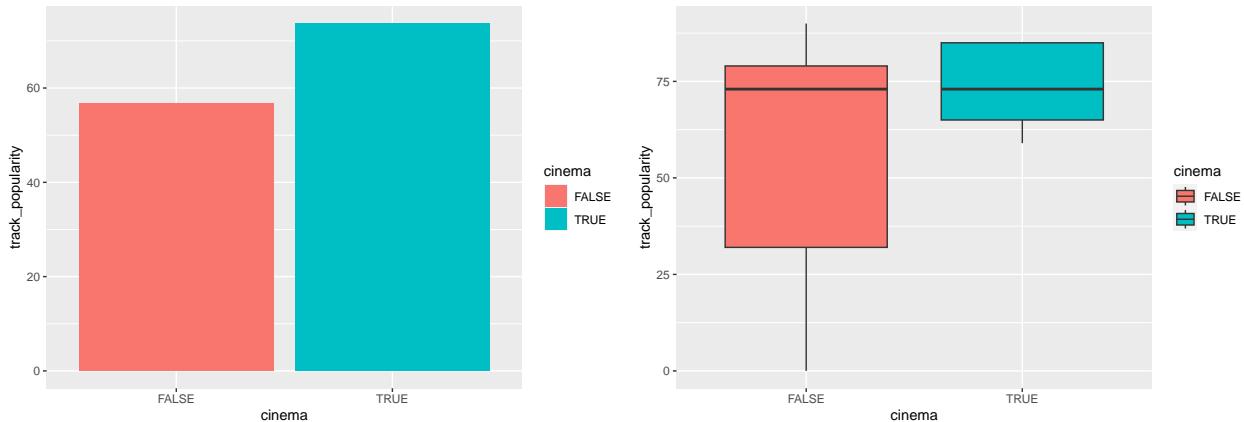
group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	108	18465479	6650007	16551428	17485741	5332538	10104650	48011162

```

range skew kurtosis      se
X1 37906512 1.65      3.54 639897.2
[1] "track_popularity and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7404	56.69	32.1	73	60.31	11.86	0	90	90	-1.04	-0.72	0.37

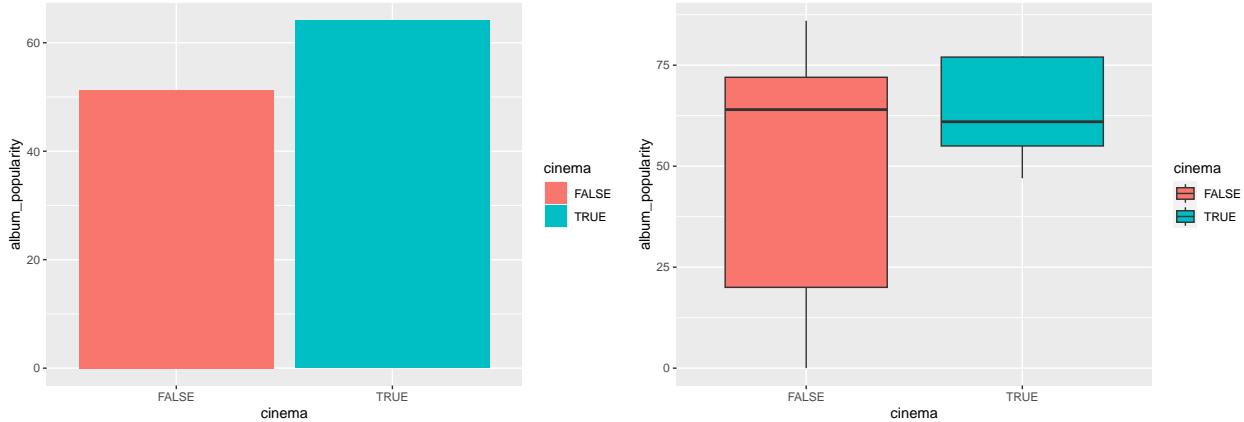
```

group: TRUE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	38	73.68	9.97	73	74	14.83	59	85	26	0.04	-1.68	1.62

```
[1] "album_popularity and album_type"
```



```

Descriptive statistics by group
group: FALSE

```

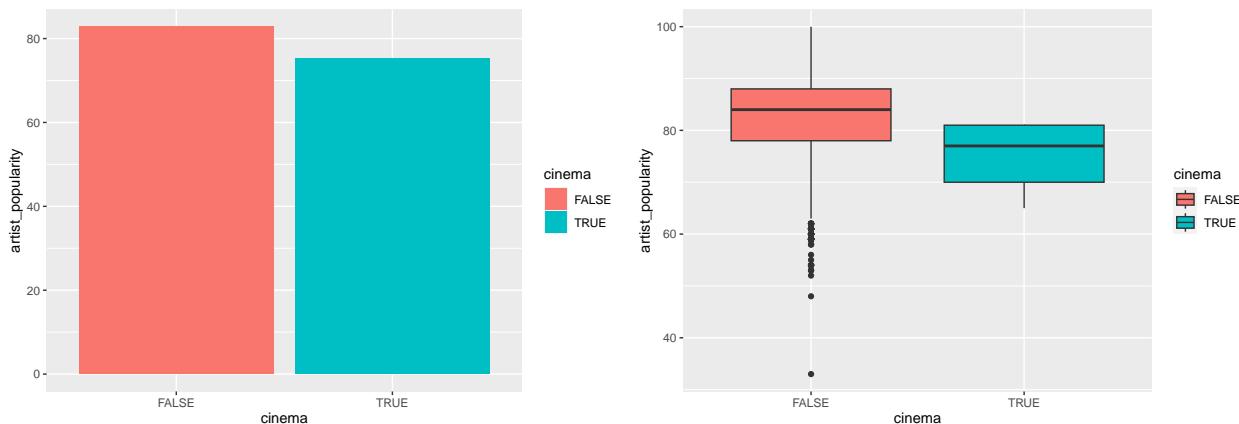
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7404	51.3	30.42	64	53.7	16.31	0	86	86	-0.88	-0.88	0.35

```

group: TRUE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	38	64.05	11.39	61	64.44	16.31	47	77	30	0.03	-1.64	1.85



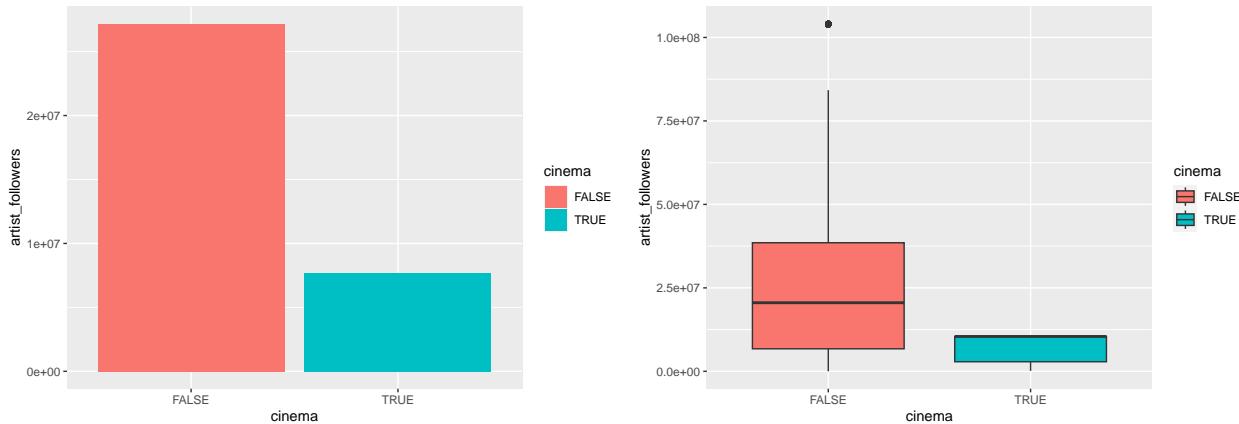
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min max range skew kurtosis   se
X1    1 7404 82.84 8.23      84    83.31 7.41   33 100     67 -0.58      0.46 0.1
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min max range skew kurtosis   se
X1    1  38 75.32 5.7       77    75.75 5.93   65  81     16 -0.45     -1.24 0.93
[1] "artist_followers and album_type"
```



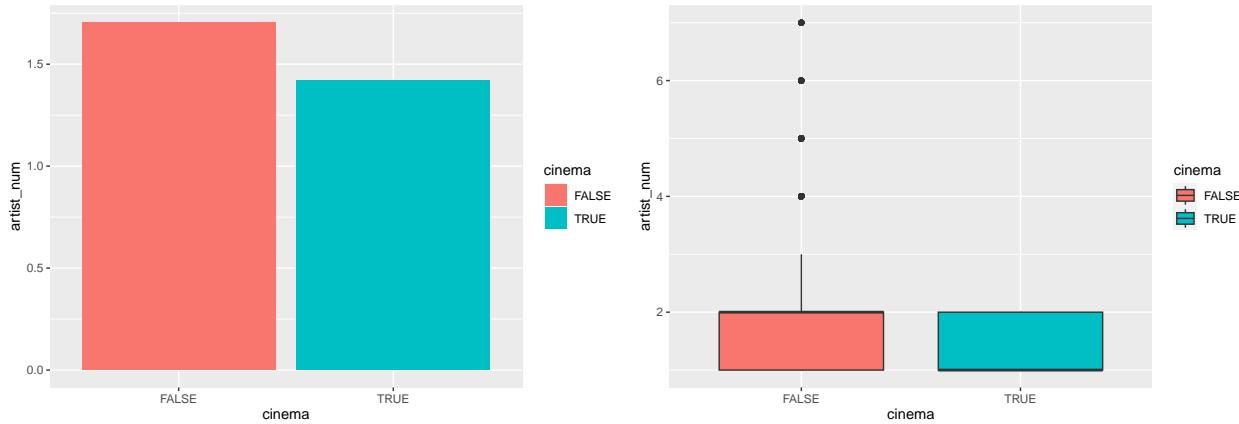
Descriptive statistics by group

group: FALSE

```
vars   n  mean      sd median trimmed      mad min      max
X1    1 7404 27164824 25081243 20546114 23692318 23331728 3805 104059839
      range skew kurtosis      se
X1 104056034 1.14      0.74 291484.8
```

group: TRUE

```
vars   n  mean      sd median trimmed      mad min      max      range
X1    1  38 7666710 4367189 10444361 8075197 572162 145948 10830279 10684331
      skew kurtosis      se
X1 -0.99     -0.97 708451.6
[1] "artist_num and album_type"
```



Descriptive statistics by group

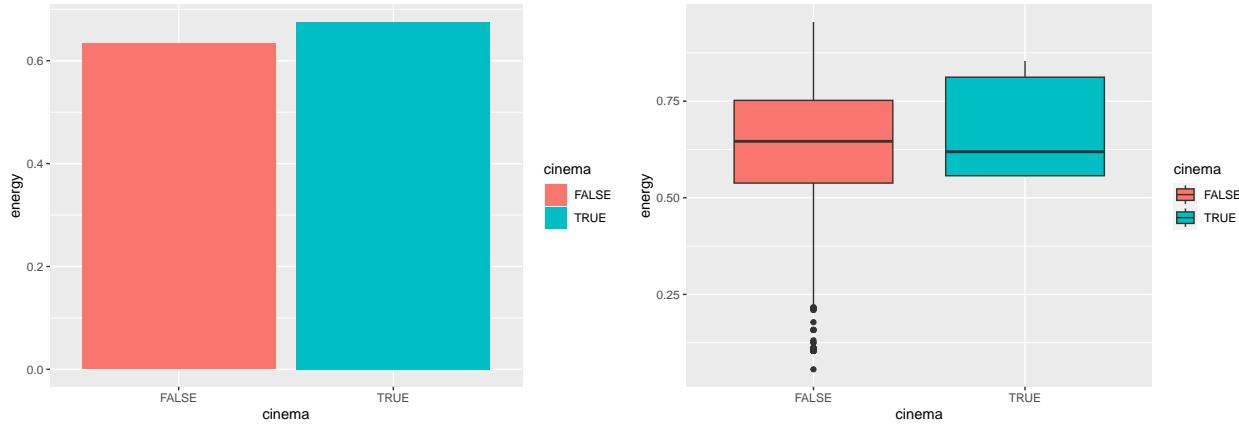
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1		1	7404	1.7	0.9	2	1.55	1.48	1	7	6	1.86	5.18	0.01

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1		1	38	1.42	0.5	1	1.41	0	1	2	1	0.31	-1.95	0.08

[1] "energy and album_type"



Descriptive statistics by group

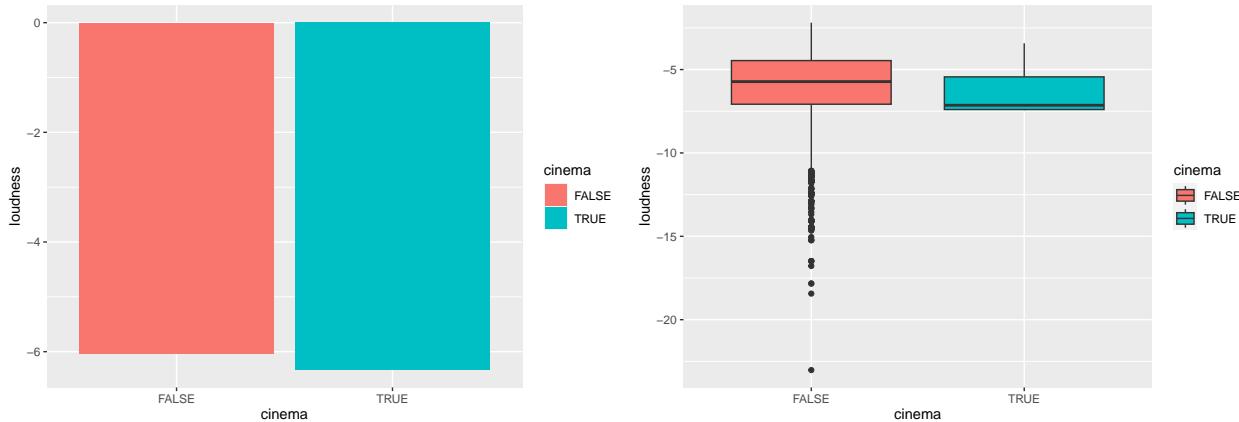
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1		1	7404	0.63	0.15	0.65	0.64	0.16	0.06	0.96	0.9	-0.52	0.01	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1		1	38	0.68	0.12	0.62	0.67	0.09	0.56	0.85	0.3	0.35	-1.67	0.02

[1] "loudness and album_type"



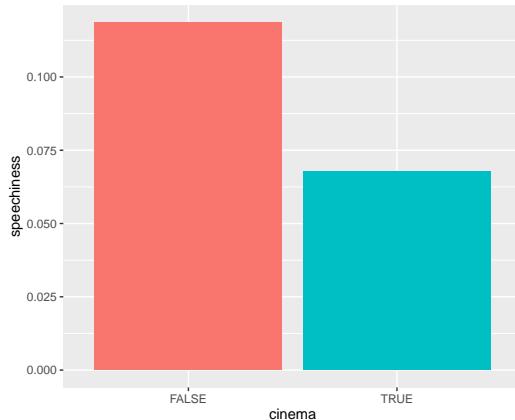
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7404	-6.03	2.17	-5.72	-5.82	1.95	-23.02	-2.19	20.84	-1.24	2.78	
	X1	0.03											

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	38	-6.34	1.46	-7.14	-6.51	0.38	-7.4	-3.42	3.97	1.08	-0.4	0.24
[1] "speechiness and album_type"													



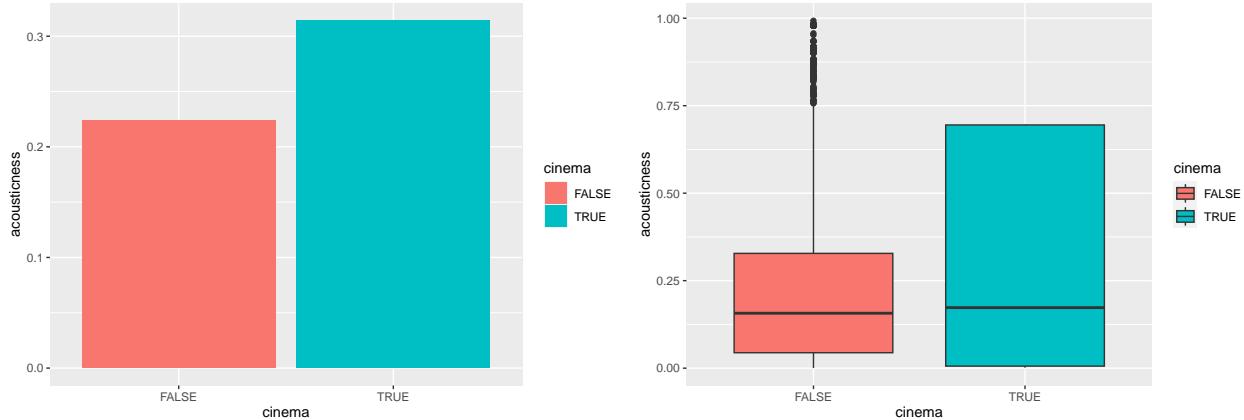
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7404	0.12	0.1	0.07	0.1	0.05	0.02	0.97	0.94	1.66	2.43	0
	X1	0.03											

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	38	0.07	0.04	0.06	0.06	0.01	0.04	0.19	0.15	2.33	3.84	0.01
[1] "acousticness and album_type"													



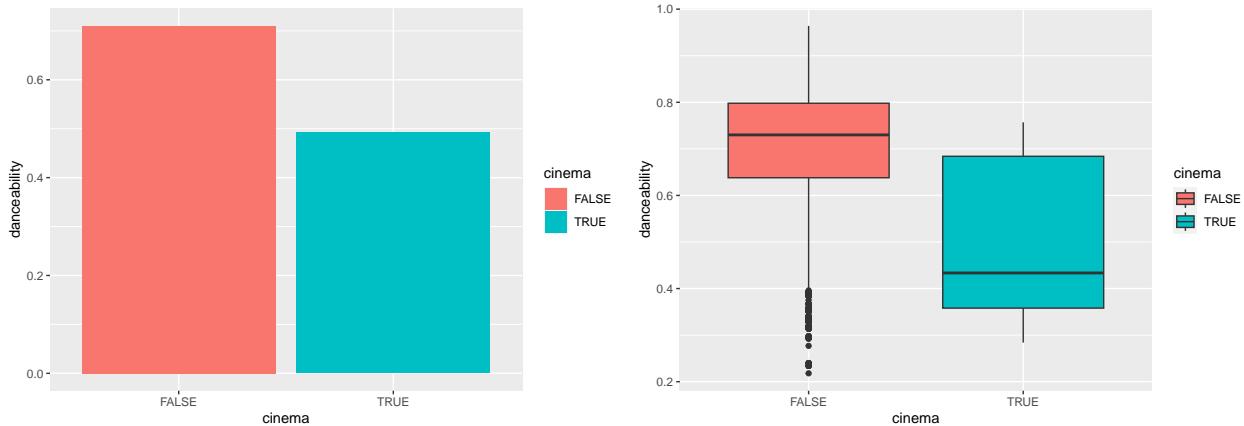
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed   mad min max range skew kurtosis se
X1    1 7404 0.22 0.23    0.16    0.19 0.18    0 0.99 0.99 1.29      0.97 0
```

group: TRUE

```
vars   n mean   sd median trimmed   mad min max range skew kurtosis se
X1    1 38 0.31 0.32    0.17    0.31 0.25    0 0.7 0.69 0.33 -1.84 0.05
[1] "danceability and album_type"
```



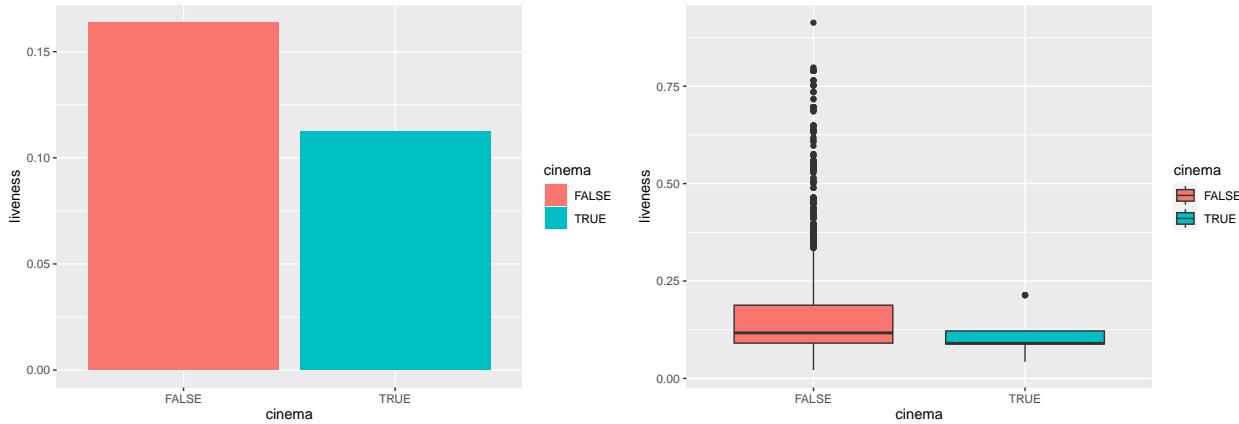
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed   mad min max range skew kurtosis se
X1    1 7404 0.71 0.13    0.73    0.72 0.11 0.22 0.96 0.75 -0.72      0.55 0
```

group: TRUE

```
vars   n mean   sd median trimmed   mad min max range skew kurtosis se
X1    1 38 0.49 0.17    0.43    0.49 0.11 0.28 0.76 0.47 0.42 -1.48 0.03
[1] "liveness and album_type"
```



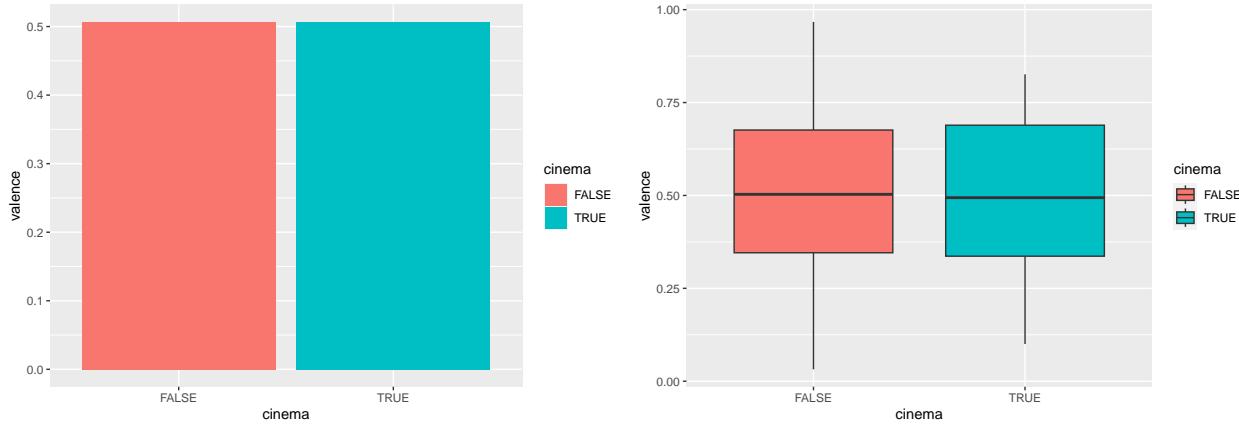
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 7404 0.16 0.12    0.12    0.14 0.05 0.02 0.91  0.89 2.38     6.88  0
```

group: TRUE

```
vars   n mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1  38 0.11 0.05    0.09    0.11 0.01 0.04 0.21  0.17 1.01    -0.17 0.01
[1] "valence and album_type"
```



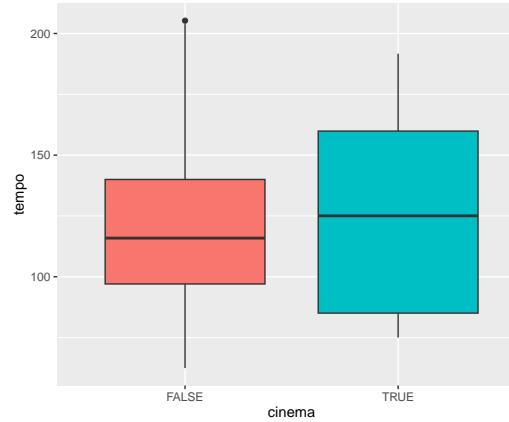
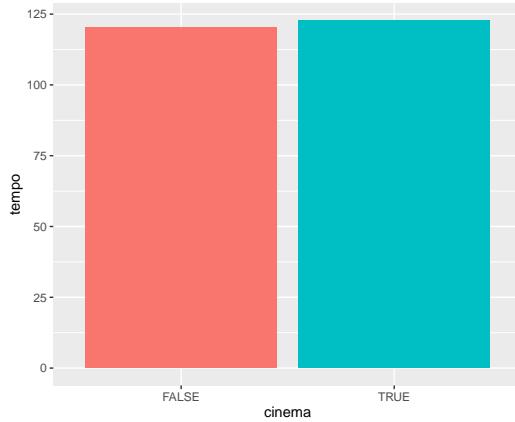
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 7404 0.51 0.22    0.5     0.51 0.24 0.03 0.97  0.93 0.06    -0.82  0
```

group: TRUE

```
vars   n mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1  38 0.51 0.22    0.49    0.51 0.29 0.1 0.83  0.73 -0.28    -0.85 0.04
[1] "tempo and album_type"
```



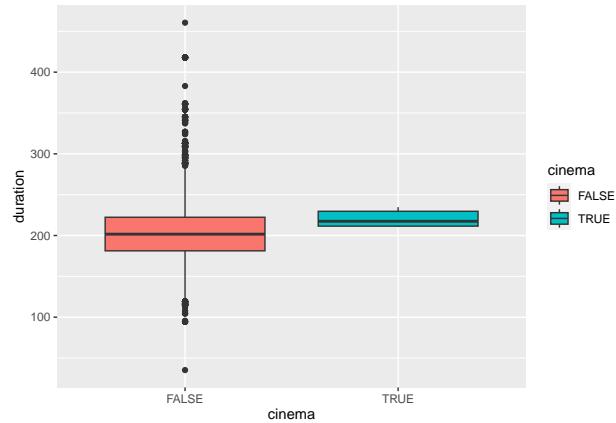
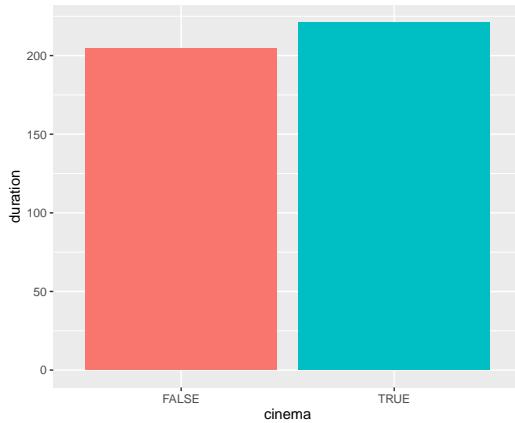
Descriptive statistics by group

group: FALSE

```
vars   n   mean    sd median trimmed   mad   min   max range skew
X1     1 7404 120.13 28.23 115.88 117.78 29.78 62.45 205.27 142.83 0.61
      kurtosis   se
X1     -0.44 0.33
```

group: TRUE

```
vars   n   mean    sd median trimmed   mad   min   max range skew   kurtosis   se
X1     1 38 122.68 39.44 125.05 120.37 59.31  75 191.7 116.7 0.32      -1.4 6.4
[1] "duration and album_type"
```



Descriptive statistics by group

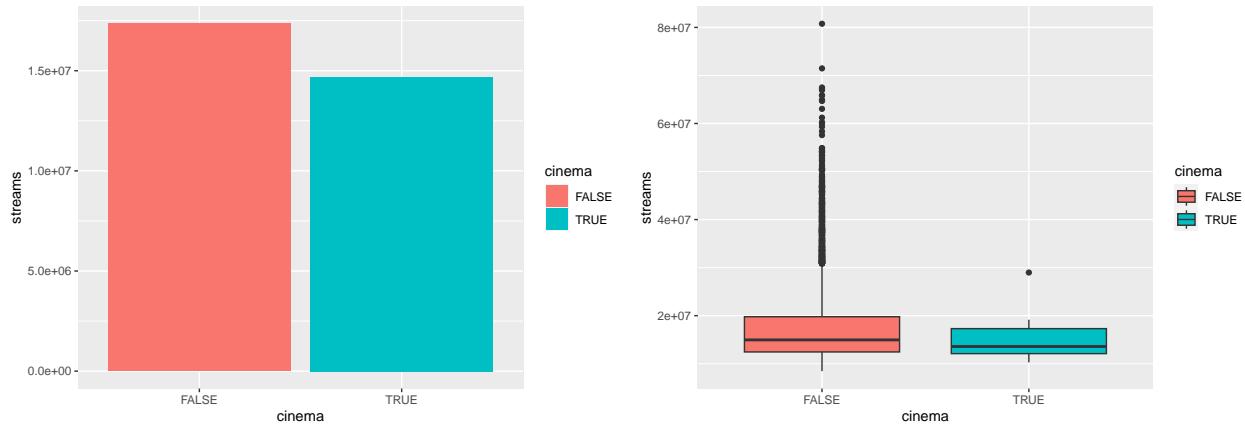
group: FALSE

```
vars   n   mean    sd median trimmed   mad   min   max range skew
X1     1 7404 204.64 39.65 201.66 202.38 30.24 35.24 460.57 425.33 1.12
      kurtosis   se
X1     4.17 0.46
```

group: TRUE

```
vars   n   mean    sd median trimmed   mad   min   max range skew   kurtosis   se
X1     1 38 220.93 9.11 217.44 220.52 8.86 211.47 234.71 23.24 0.18      -1.75
      se
X1     1.48
```

```
[1] "streams and album_type"
```



Descriptive statistics by group

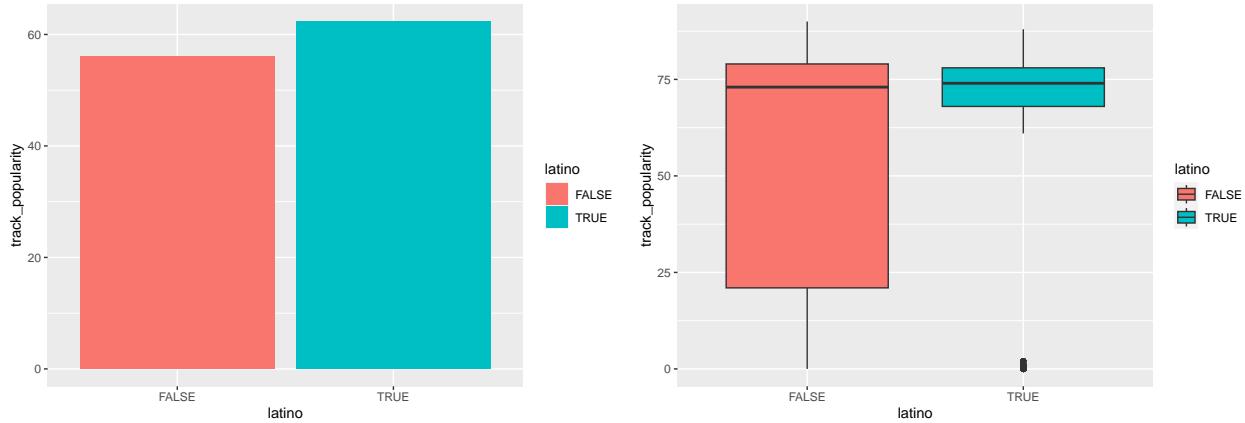
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	7404	17345987	7326908	14961663	16034382	4539120	8454914	80764045
	range	skew	kurtosis	se					
X1	72309131	2.27	7.38	85150.56					

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	38	14686024	3675858	13584252	14326290	3272794	10288625	28983124
	range	skew	kurtosis	se					
X1	18694499	1.57	3.56	596302.9					

```
[1] "track_popularity and album_type"
```



Descriptive statistics by group

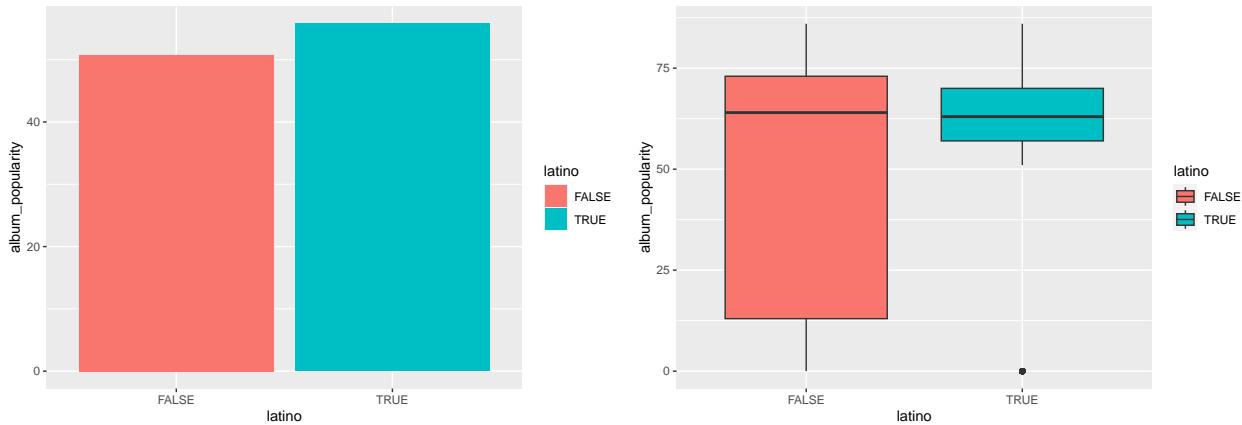
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6526	56	32.46	73	59.42	11.86	0	90	90	-0.98	-0.85	0.4

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	916	62.33	28.35	74	67.46	7.41	0	88	88	-1.65	0.92	0.94

```
[1] "album_popularity and album_type"
```



Descriptive statistics by group

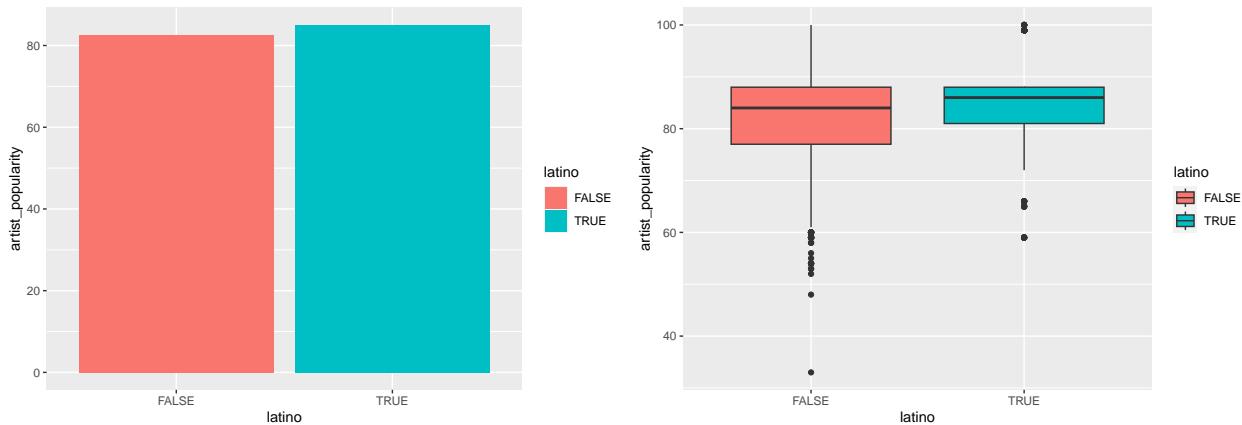
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6526	50.75	30.82	64	53.04	17.79	0	86	86	-0.83	-0.99	0.38

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	916	55.77	26.5	63	59.08	10.38	0	86	86	-1.36	0.53	0.88

```
[1] "artist_popularity and album_type"
```



Descriptive statistics by group

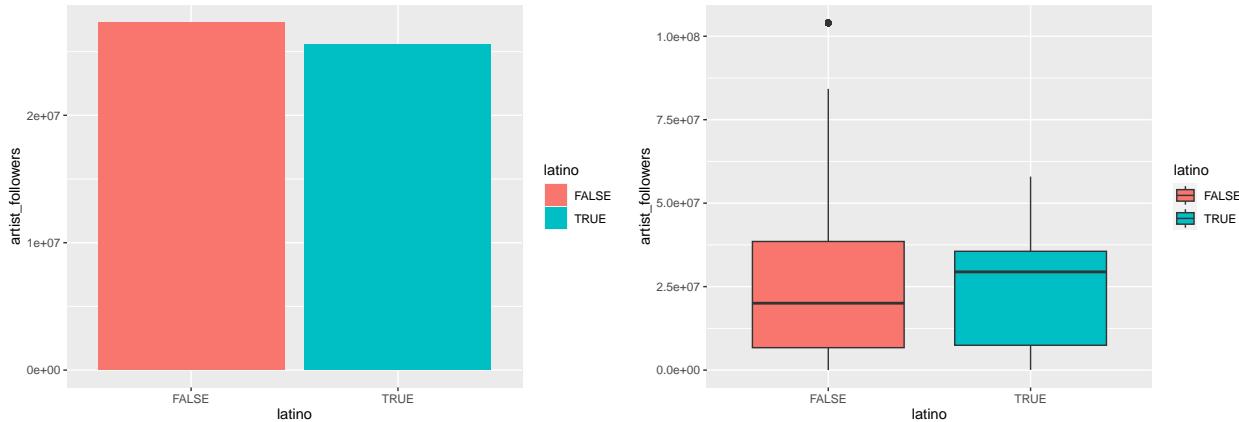
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6526	82.49	8.16	84	83.06	7.41	33	100	67	-0.66	0.36	0.1

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	916	85.02	8.4	86	85.18	5.93	59	100	41	-0.17	0.49	0.28

```
[1] "artist_followers and album_type"
```



Descriptive statistics by group

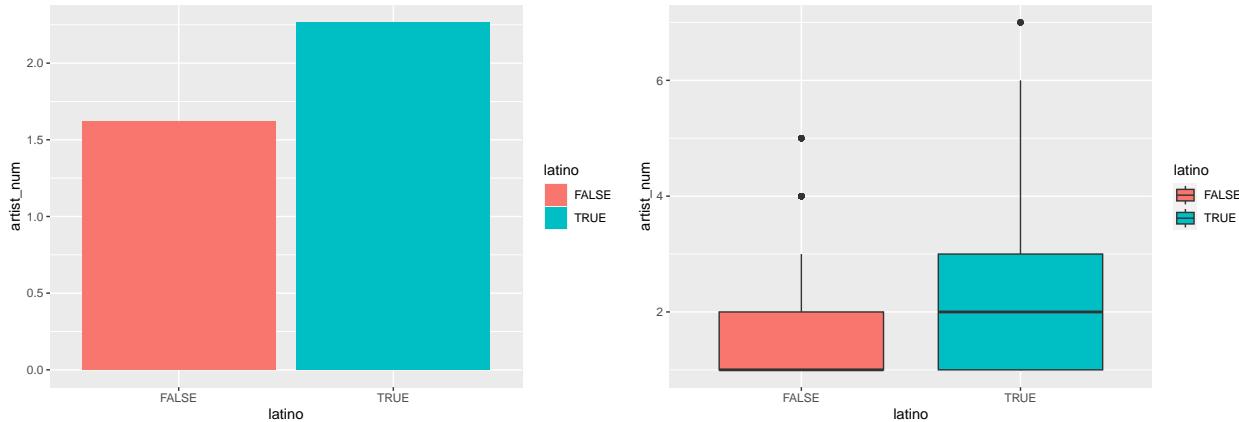
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	6526	27273028	25800422	20038402	23608170	23843816	3805	104059839
	range	skew	kurtosis	se					
X1	104056034	1.17	0.7	319376.7					

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	916	25585056	18885413	29419215	24619034	26895523	42127	57945768
	range	skew	kurtosis	se					
X1	57903641	0.36	-0.98	623991.6					

[1] "artist_num and album_type"



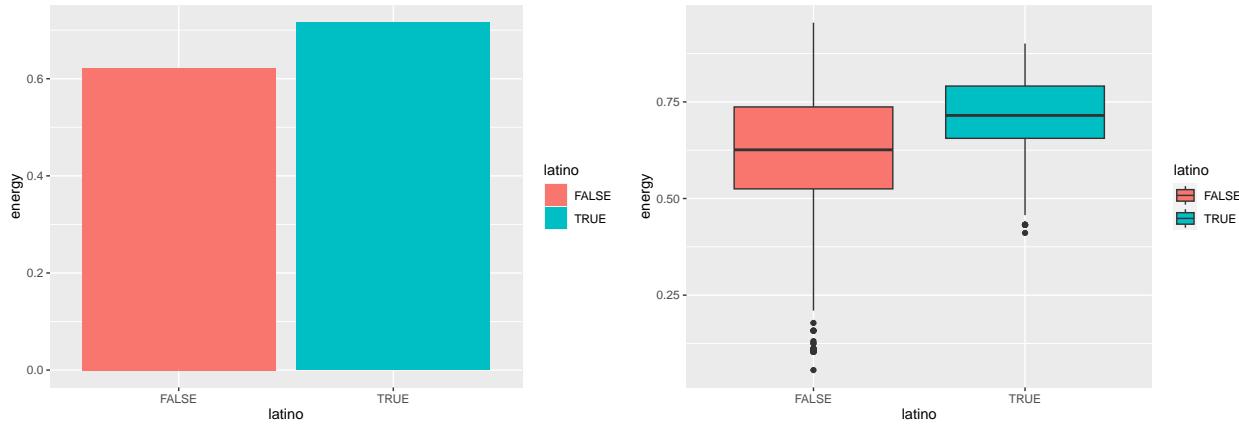
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6526	1.62	0.77	1	1.49	0	1	5	4	1.27	1.65	0.01

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	916	2.27	1.42	2	1.48	1	7	6	1.51	1.81	0.05	



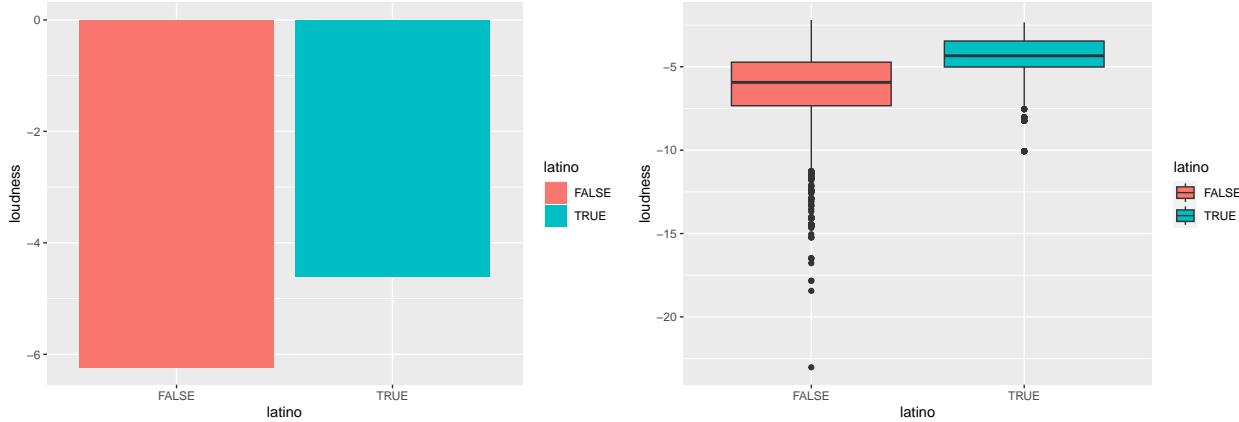
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 6526 0.62 0.15    0.63    0.63 0.15 0.06 0.96 0.9 -0.42   -0.09  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1  916 0.72 0.1    0.72    0.72 0.11 0.41 0.9  0.49 -0.55   -0.07  0
[1] "loudness and album_type"
```



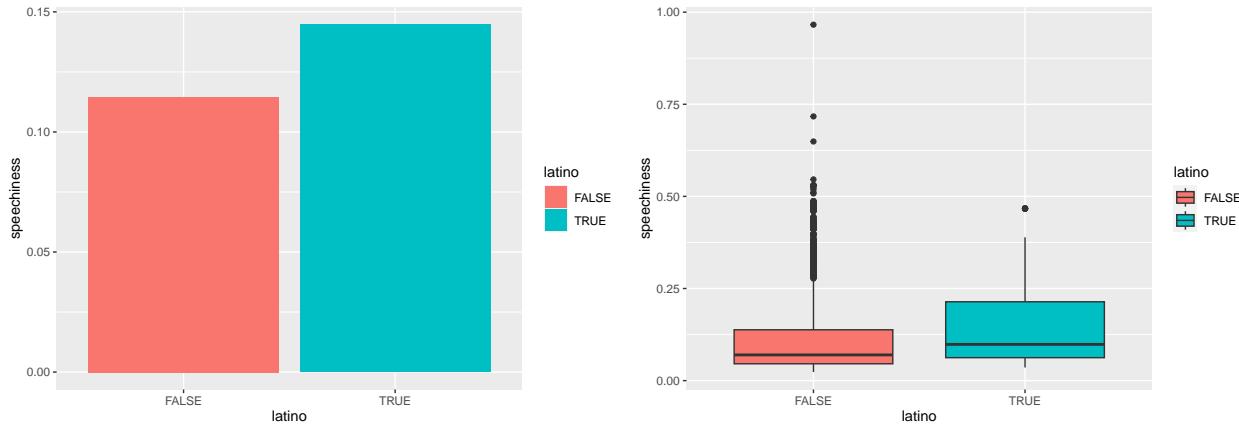
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 6526 -6.23 2.17   -5.93   -6.03 1.91 -23.02 -2.19 20.84 -1.23   2.86
      se
X1  0.03
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1  916 -4.6  1.53   -4.34   -4.4 1.22 -10.06 -2.33  7.73 -1.48   2.73
      se
X1  0.05
[1] "speechiness and album_type"
```



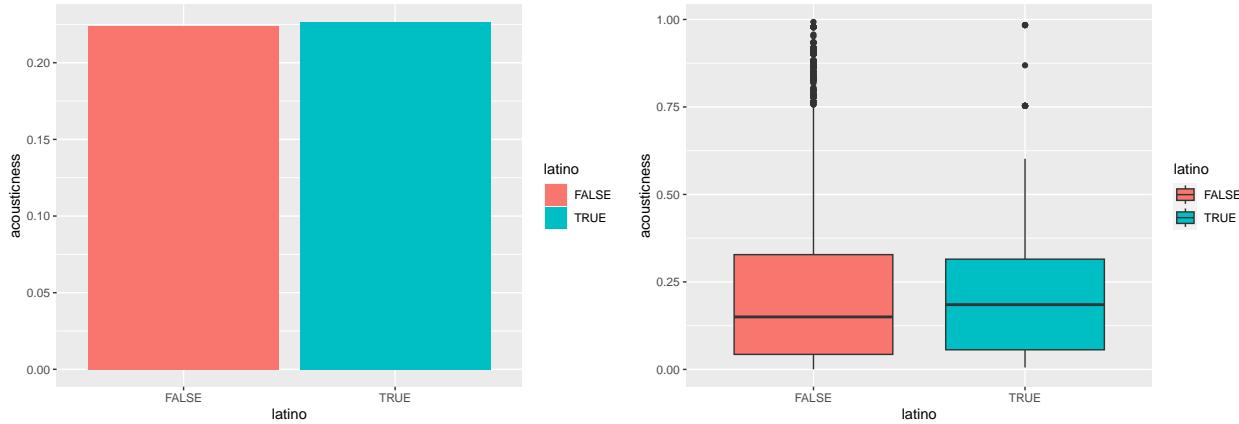
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 6526 0.11 0.1    0.07    0.09 0.04 0.02 0.97 0.94 1.77    2.96 0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 916 0.14 0.11    0.1    0.13 0.07 0.04 0.47 0.43 1.08    0.02 0
[1] "acousticness and album_type"
```



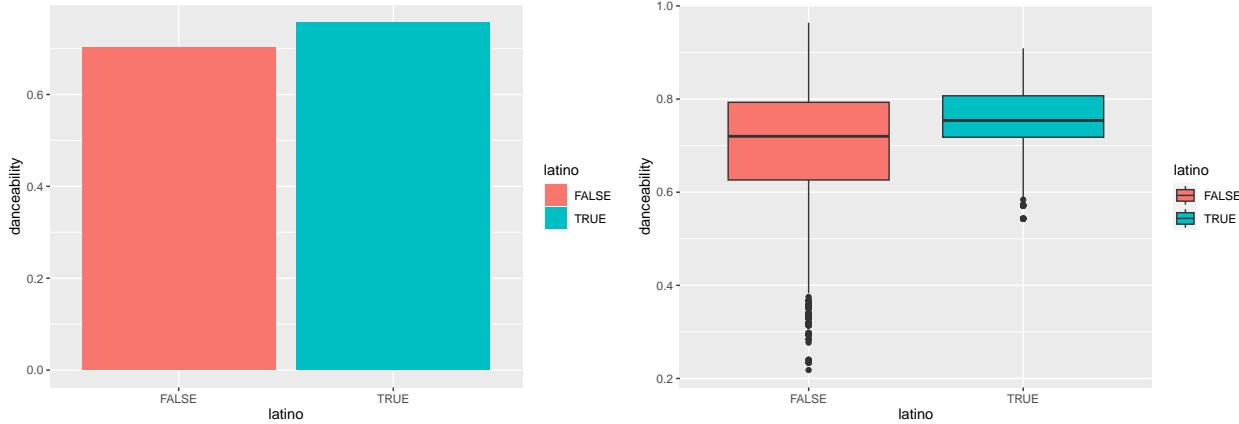
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 6526 0.22 0.23    0.15    0.19 0.17    0 0.99 0.99 1.29    0.87 0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 916 0.23 0.19    0.18    0.2 0.19 0.01 0.98 0.98 1.12    1.24 0.01
[1] "danceability and album_type"
```



Descriptive statistics by group

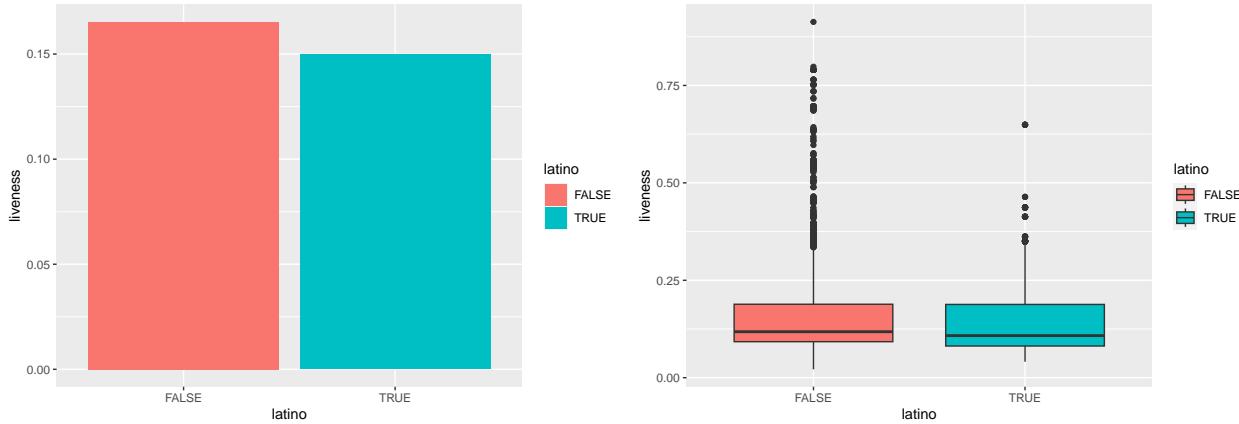
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6526	0.7	0.13	0.72	0.71	0.71	0.12	0.22	0.96	0.75	-0.67	0.4

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	916	0.76	0.09	0.75	0.76	0.76	0.08	0.54	0.91	0.37	-0.54	-0.02

[1] "liveness and album_type"



Descriptive statistics by group

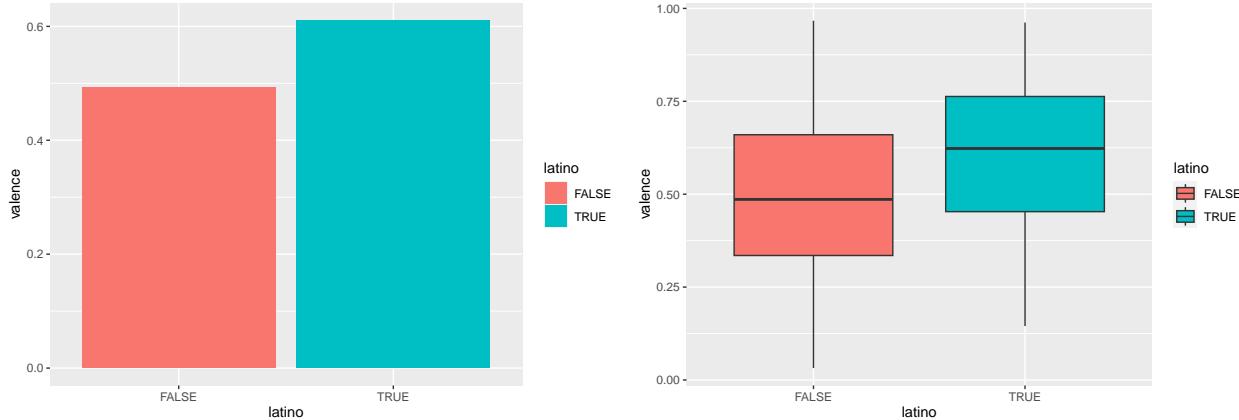
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6526	0.17	0.12	0.12	0.12	0.14	0.05	0.02	0.91	0.89	2.43	7.04

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	916	0.15	0.11	0.11	0.11	0.13	0.07	0.04	0.65	0.61	1.81	3.7

[1] "valence and album_type"



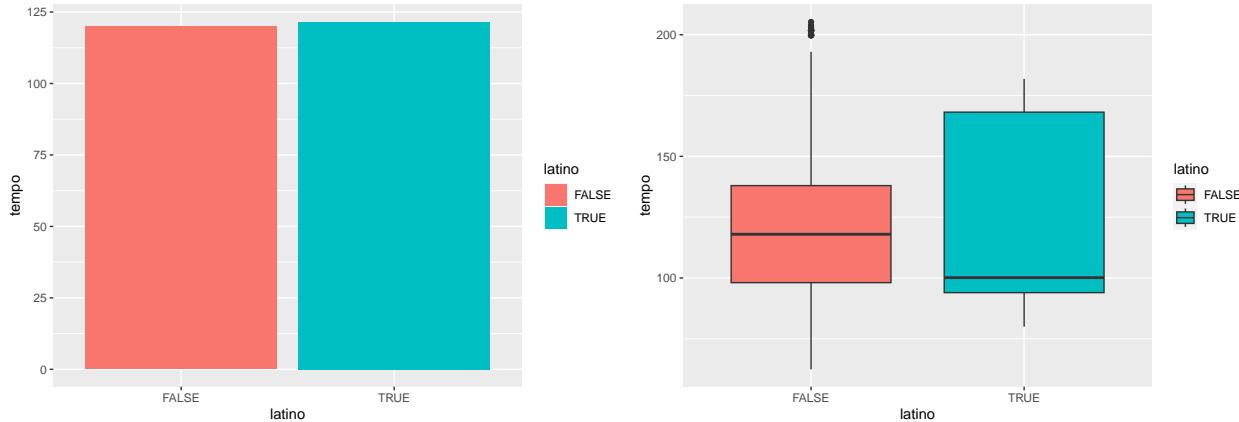
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 6526 0.49 0.22    0.49    0.49 0.23 0.03 0.97 0.93 0.13   -0.77  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1  916 0.61 0.19    0.62    0.62 0.23 0.14 0.96 0.82 -0.41   -0.48 0.01
[1] "tempo and album_type"
```



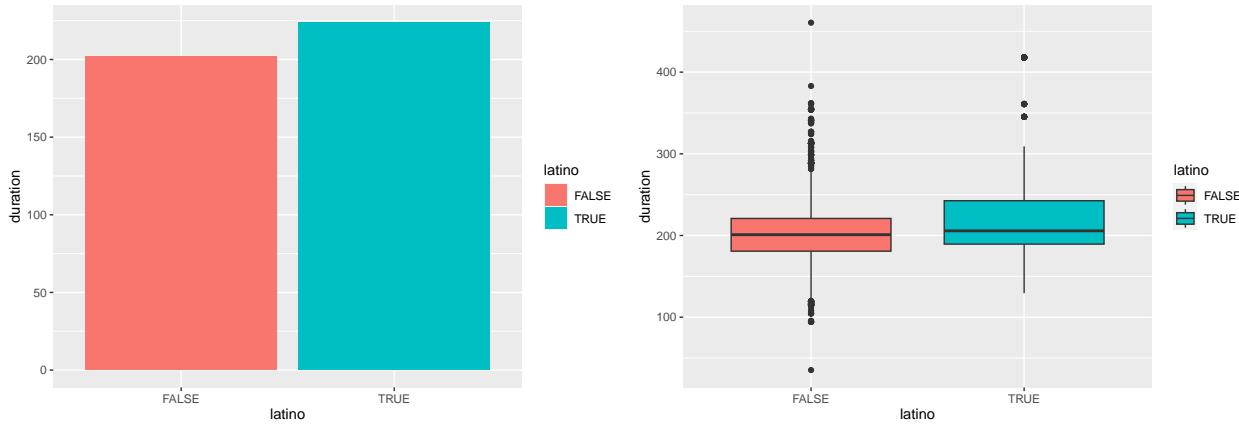
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 6526 119.94 26.88 117.97 118.03 29.59 62.45 205.27 142.83 0.56
      kurtosis   se
X1    -0.24 0.33
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1  916 121.54 36.84 100.14 119.07 12.11 79.99 181.88 101.89 0.63   -1.43
      se
X1  1.22
[1] "duration and album_type"
```



Descriptive statistics by group

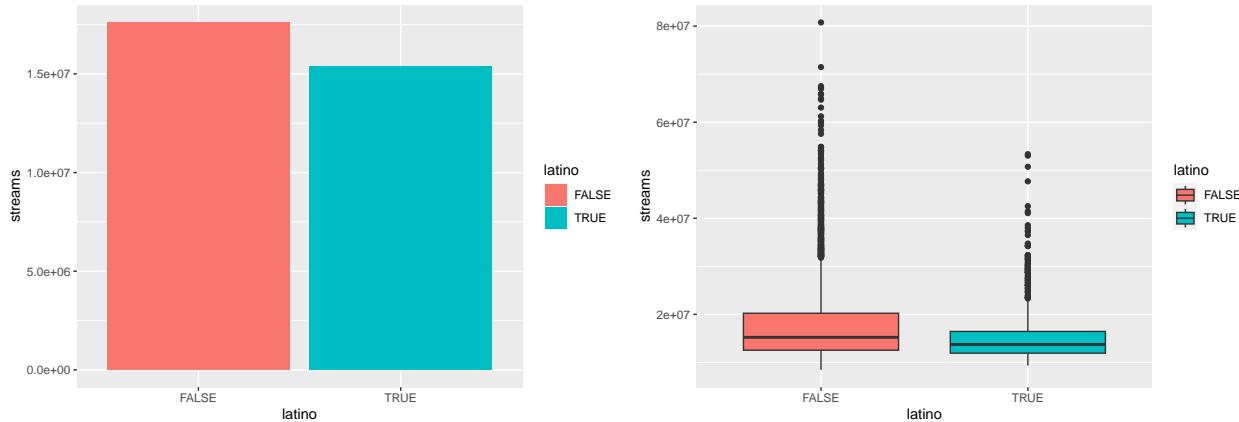
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	6526	202.06	36.18	201	200.98	29.76	35.24	460.57	425.33	0.57
	kurtosis										
X1		2.17	0.45								

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	916	223.72	54.67	205.71	215.87	35.78	129.37	417.92	288.55	1.63
	kurtosis										
X1		3.14	1.81								

[1] "streams and album_type"



Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	6526	17609052	7480297	15225050	16292207	4791124	8454914	80764045		
	kurtosis										
X1		72309131	2.21	7.07	92596.66						

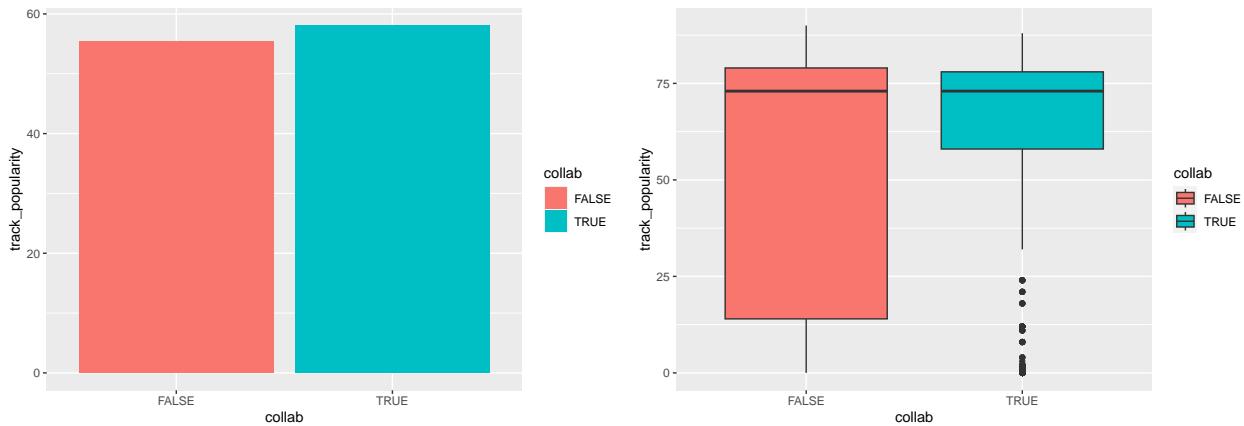
group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	916	15361442	5632041	13739342	14261525	2974658	9351079	53344093		

```

range skew kurtosis      se
X1 43993014 2.71      9.98 186087.9
[1] "track_popularity and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
X1     1 3681 55.46 32.92      73   58.64 13.34    0  90   90  90 -0.9   -0.98 0.54

```

```

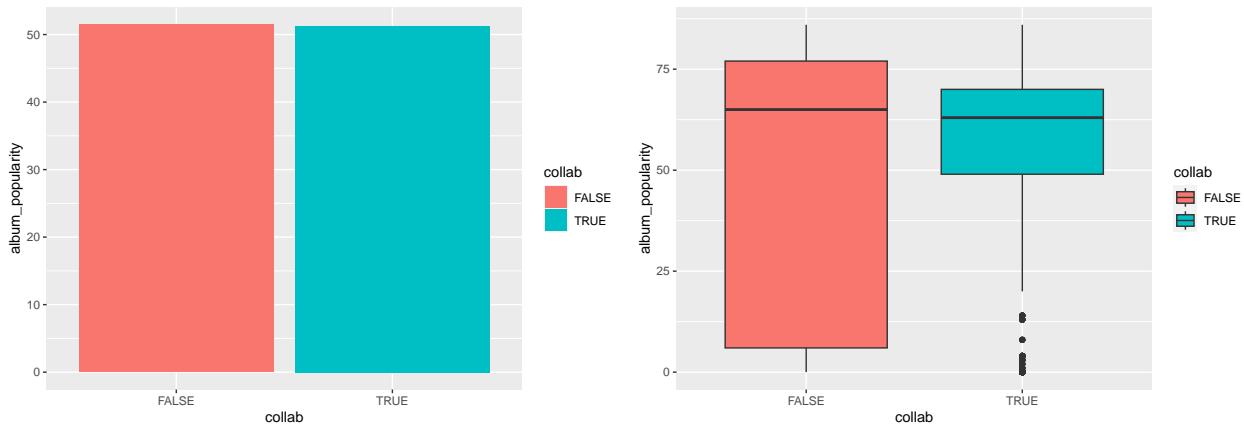
group: TRUE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
X1     1 3761 58.06 31.12      73   62.17  8.9    0  88   88  88 -1.2   -0.38 0.51
[1] "album_popularity and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
X1     1 3681 51.45 32.24      65   53.77 22.24    0  86   86  86 -0.74   -1.13 0.53

```

```

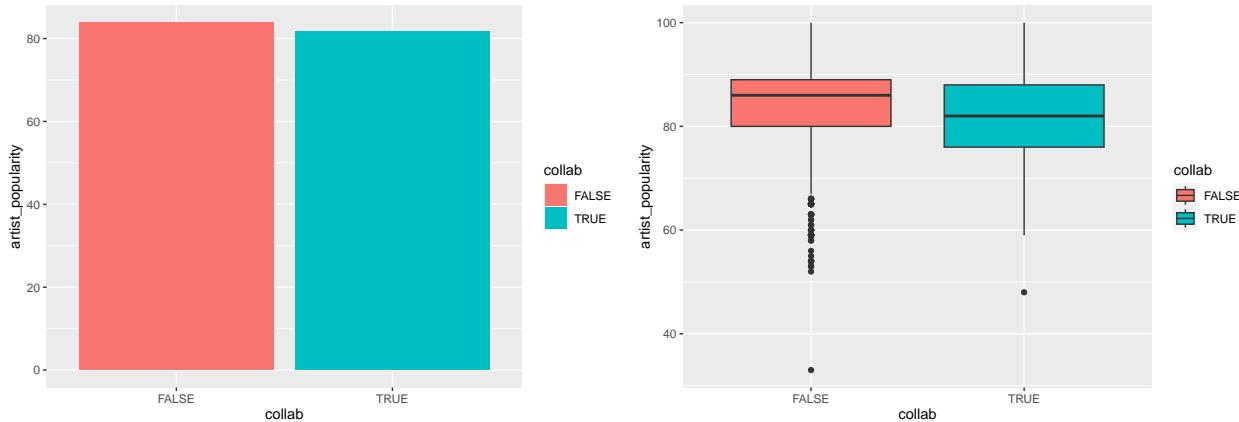
group: TRUE

```

```

vars   n  mean    sd median trimmed   mad min max range skew kurtosis   se
X1     1 3761 51.28 28.41      63   54.08 11.86    0  86   86  86 -1.07   -0.51 0.46
[1] "artist_popularity and album_type"

```



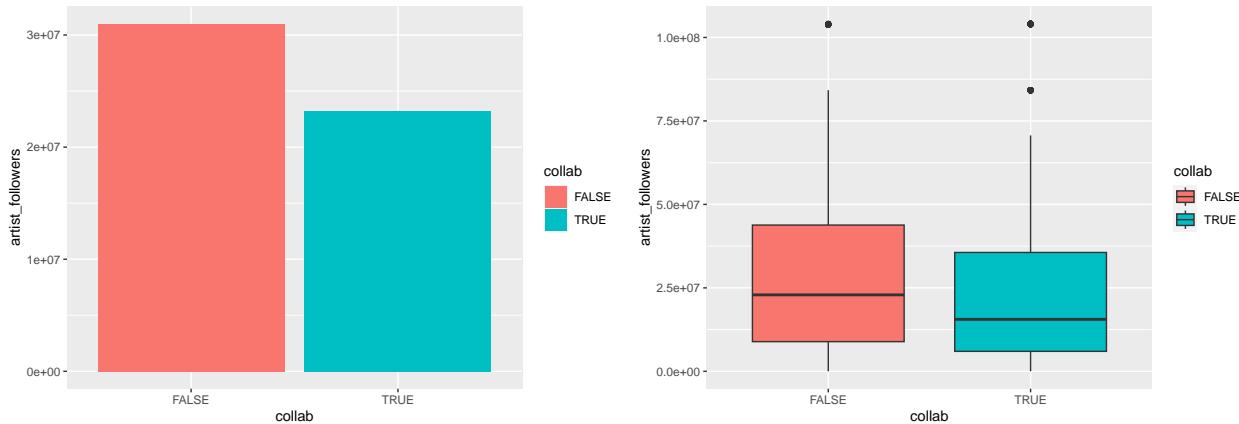
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed mad min max range skew kurtosis    se
X1     1 3681 83.83 8.5      86   84.54 5.93   33 100     67 -0.9      1.01 0.14
```

group: TRUE

```
vars   n  mean   sd median trimmed mad min max range skew kurtosis    se
X1     1 3761 81.79 7.84      82   82.07 8.9    48 100     52 -0.27      0.09 0.13
[1] "artist_followers and album_type"
```



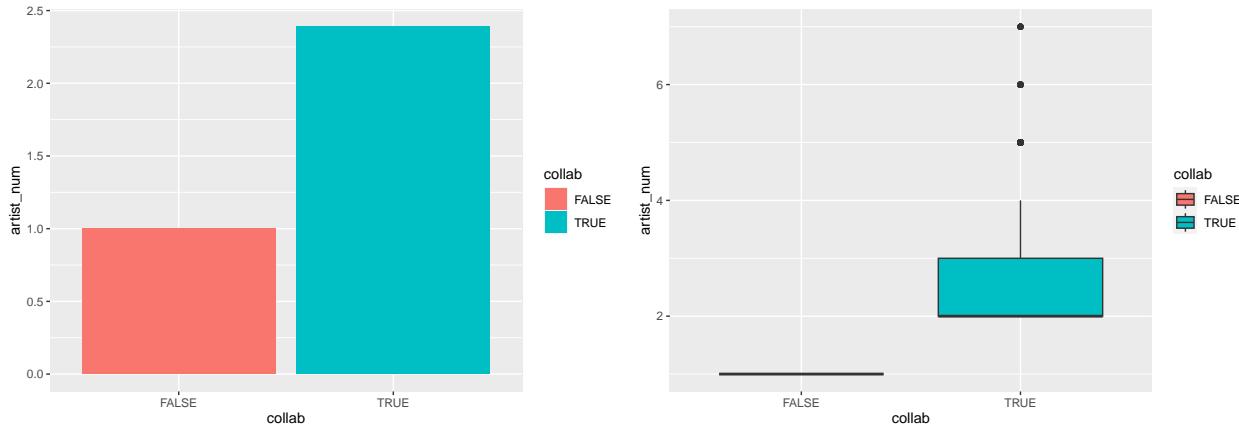
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed     mad min     max
X1     1 3681 30990343 26205510 22904843 28162630 23946961 3805 104059839
      range skew kurtosis    se
X1 104056034 0.85 -0.08 431926.4
```

group: TRUE

```
vars   n  mean   sd median trimmed     mad min     max
X1     1 3761 23223675 23251048 15576302 19386298 17696323 14787 104059839
      range skew kurtosis    se
X1 104045052 1.51    2.23 379132.4
[1] "artist_num and album_type"
```



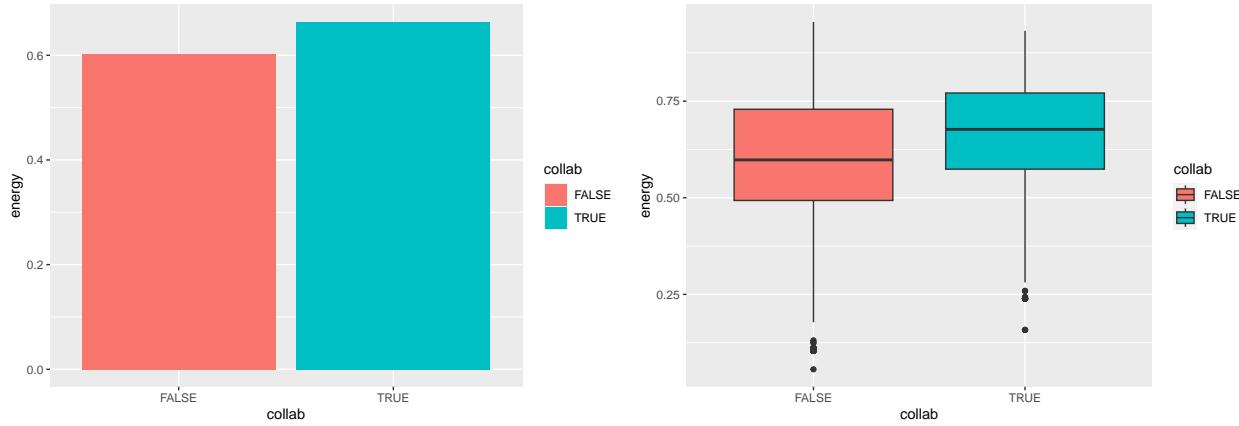
Descriptive statistics by group

group: FALSE

```
vars   n mean sd median trimmed mad min max range skew kurtosis se
X1     1 3681   1  0      1      1    0   1   1      0  NaN      NaN  0
```

group: TRUE

```
vars   n mean sd median trimmed mad min max range skew kurtosis se
X1     1 3761 2.39 0.8      2      2.2   0   2   7      5 2.64      8.01 0.01
[1] "energy and album_type"
```



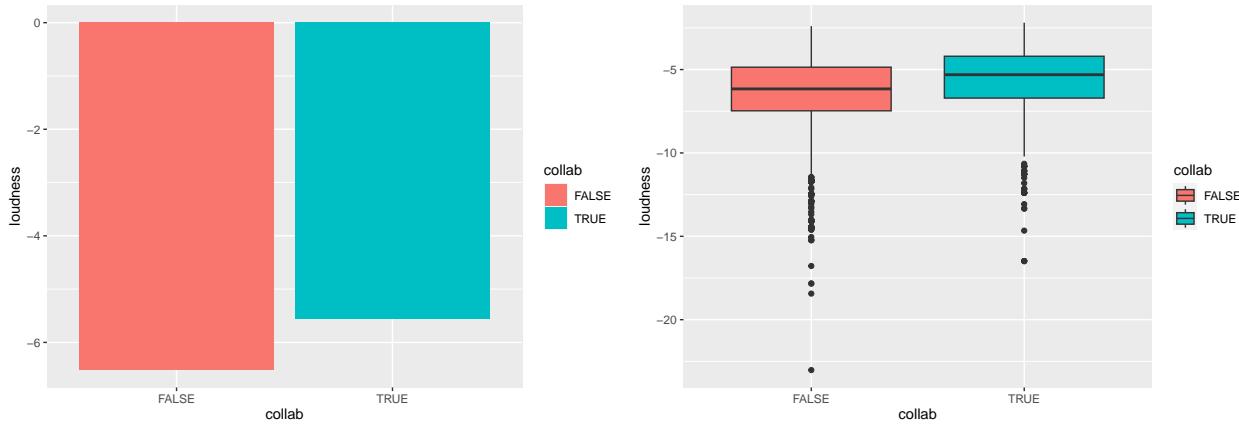
Descriptive statistics by group

group: FALSE

```
vars   n mean sd median trimmed mad min max range skew kurtosis se
X1     1 3681  0.6 0.16      0.6     0.61  0.17  0.06  0.96      0.9 -0.35    -0.12  0
```

group: TRUE

```
vars   n mean sd median trimmed mad min max range skew kurtosis se
X1     1 3761  0.66 0.13     0.68     0.67  0.14  0.16  0.93      0.77 -0.58     0.02  0
[1] "loudness and album_type"
```



Descriptive statistics by group

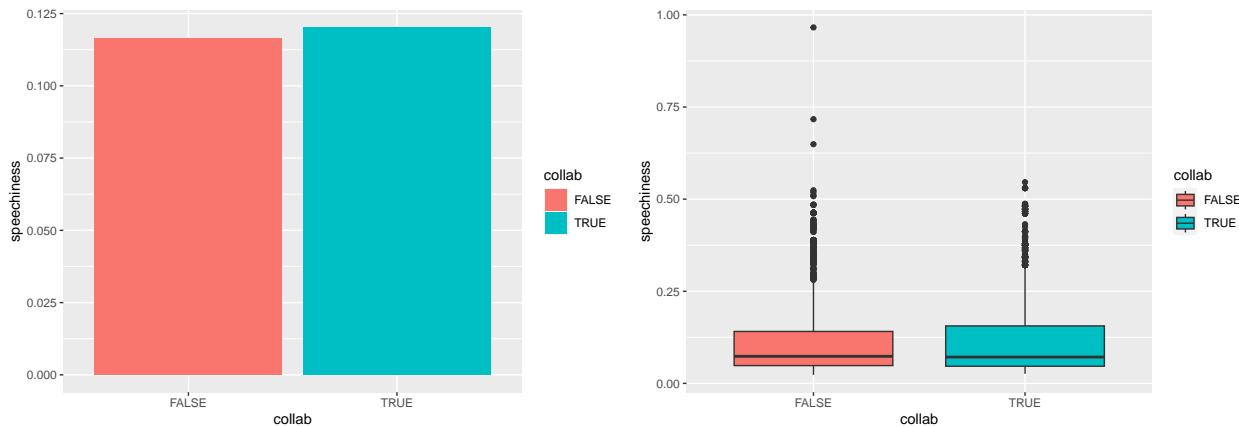
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	3681	-6.52	2.39	-6.16	-6.26	1.93	-23.02	-2.4	20.63	-1.24	2.29
	se											
X1	0.04											

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	3761	-5.56	1.81	-5.31	-5.45	1.75	-16.48	-2.19	14.3	-0.83	1.64
	se											
X1	0.03											

[1] "speechiness and album_type"



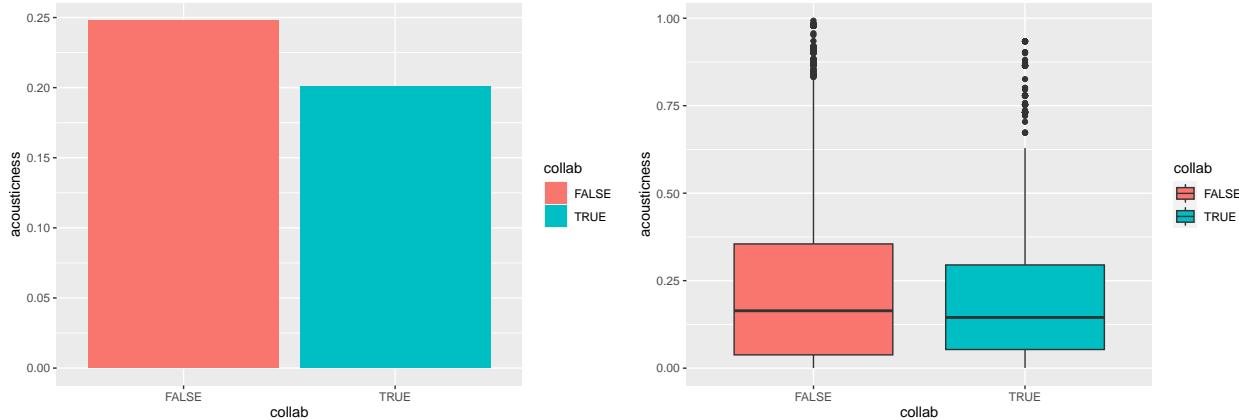
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3681	0.12	0.1	0.07	0.09	0.04	0.02	0.97	0.94	1.8	3.23	0
	se												

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3761	0.12	0.1	0.07	0.1	0.05	0.03	0.55	0.52	1.53	1.71	0
	se												



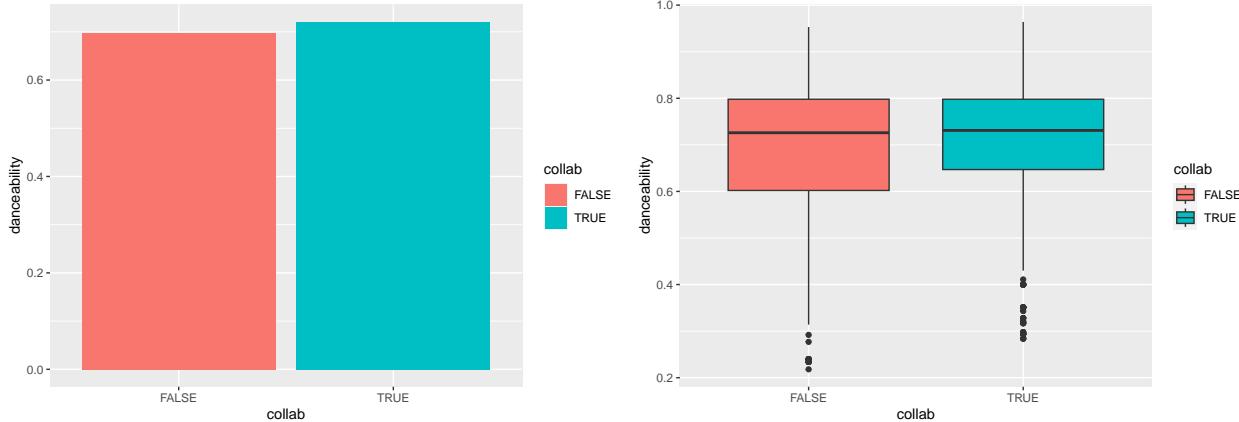
Descriptive statistics by group

group: FALSE

```
vars     n   mean    sd median trimmed   mad min   max range skew kurtosis se
X1      1 3681 0.25 0.26    0.16    0.21 0.21    0 0.99 0.99 1.12    0.23 0
```

group: TRUE

```
vars     n   mean    sd median trimmed   mad min   max range skew kurtosis se
X1      1 3761 0.2 0.19    0.14    0.17 0.15    0 0.93 0.93 1.31    1.29 0
[1] "danceability and album_type"
```



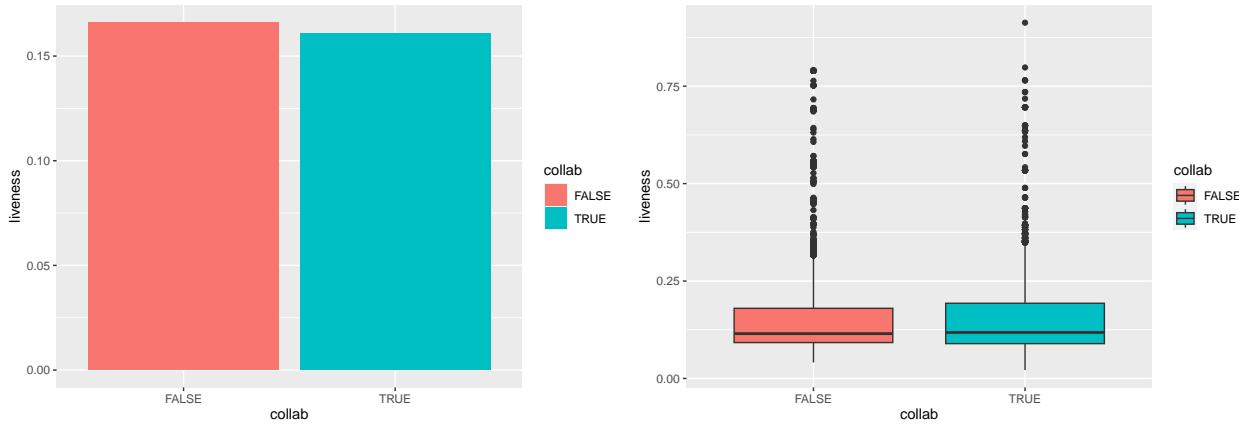
Descriptive statistics by group

group: FALSE

```
vars     n   mean    sd median trimmed   mad min   max range skew kurtosis se
X1      1 3681 0.7 0.14    0.73    0.71 0.14 0.22 0.95 0.74 -0.71    0.07 0
```

group: TRUE

```
vars     n   mean    sd median trimmed   mad min   max range skew kurtosis se
X1      1 3761 0.72 0.11    0.73    0.72 0.11 0.28 0.96 0.68 -0.56    0.77 0
[1] "liveness and album_type"
```



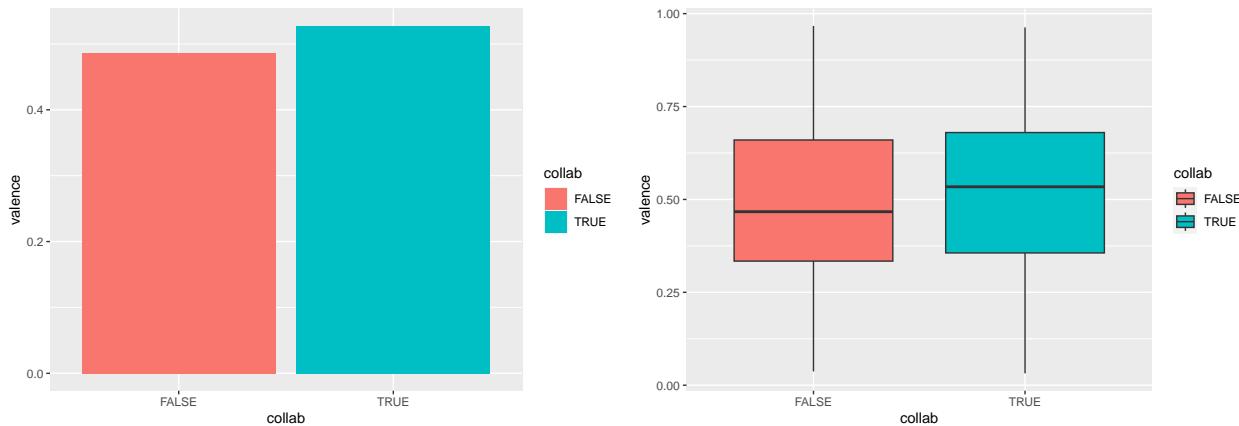
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 3681 0.17 0.13    0.12    0.14 0.05 0.04 0.79 0.75 2.44      6.91  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 3761 0.16 0.12    0.12    0.14 0.06 0.02 0.91 0.89 2.28      6.6  0
[1] "valence and album_type"
```



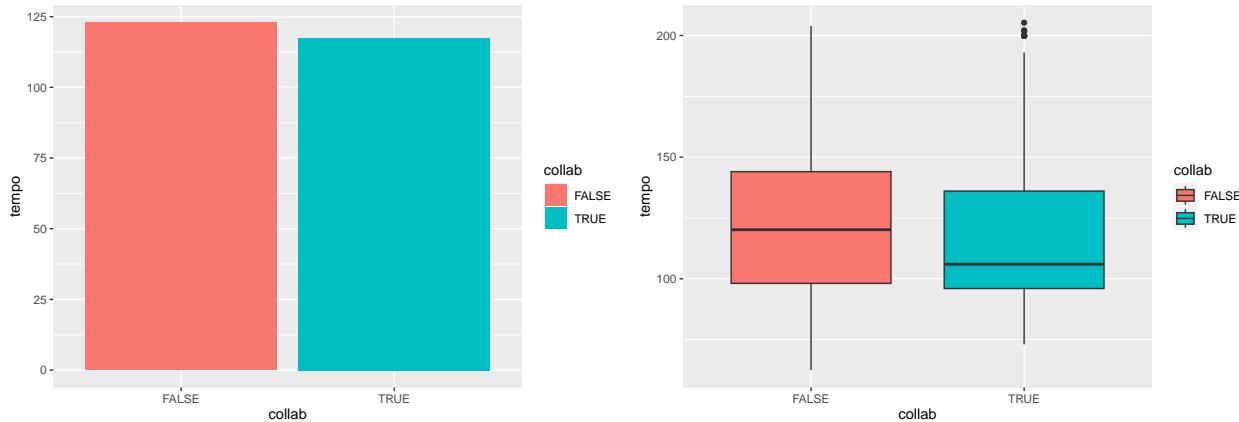
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 3681 0.49 0.22    0.47    0.48 0.25 0.04 0.97 0.93 0.17    -0.81  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1     1 3761 0.53 0.21    0.53    0.53 0.24 0.03 0.96 0.93 -0.05    -0.77  0
[1] "tempo and album_type"
```



Descriptive statistics by group

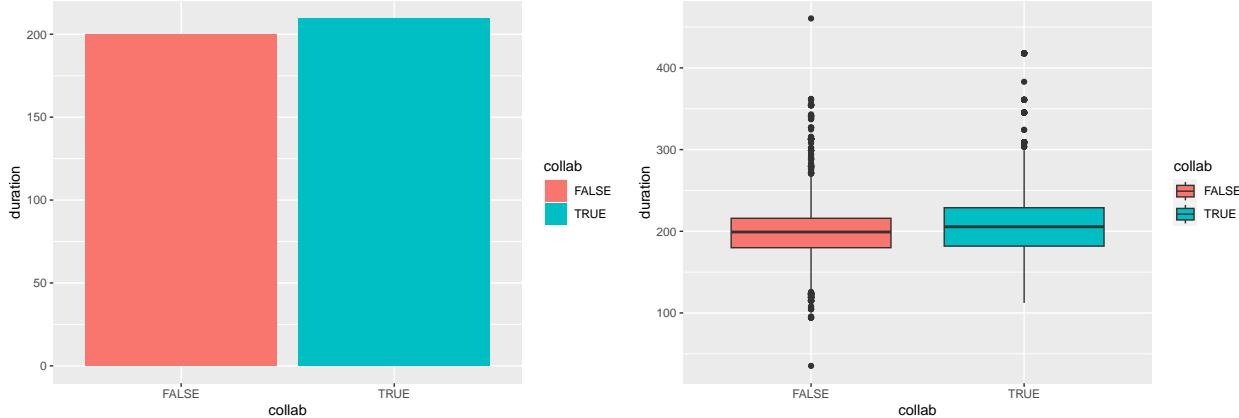
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	3681	122.87	28.79	120.15	121.55	33.18	62.45	203.86	141.42	0.35
	kurtosis										
X1		-0.62	0.47								

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	3761	117.47	27.55	105.97	114.17	23.71	72.99	205.27	132.28	0.88
	kurtosis										
X1		-0.09	0.45								

[1] "duration and album_type"



Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	kurtosis
X1	1	3681	199.8	38.96	199.11	198.22	27.21	35.24	460.57	425.33	0.78
	se										
X1		0.64									

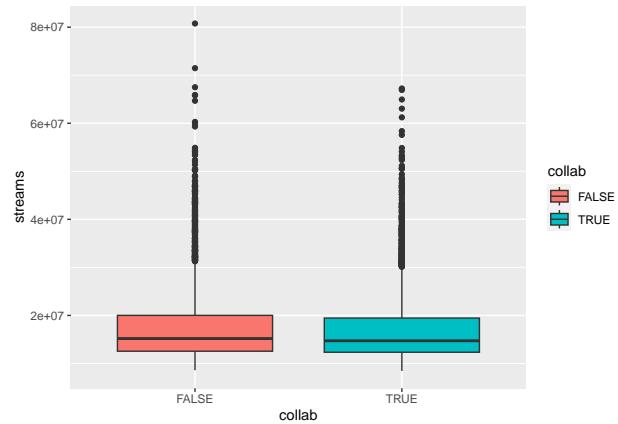
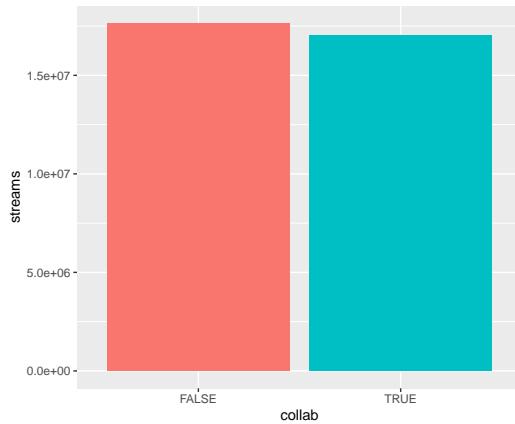
group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	3761	209.54	39.57	205.48	206.73	34.61	112.24	417.92	305.68	1.46

```

kurtosis      se
X1      5.36 0.65
[1] "streams and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	3681	17631138	7639792	15188082	16256650	4614957	8595924	80764045
		range	skew	kurtosis	se				
X1	72168121	2.29		7.48	125921.1				

```

group: TRUE

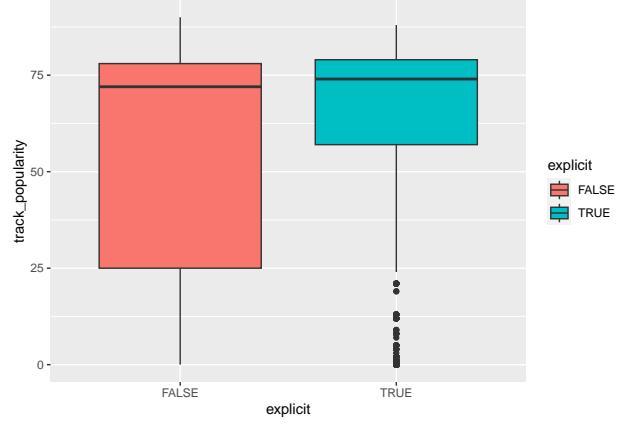
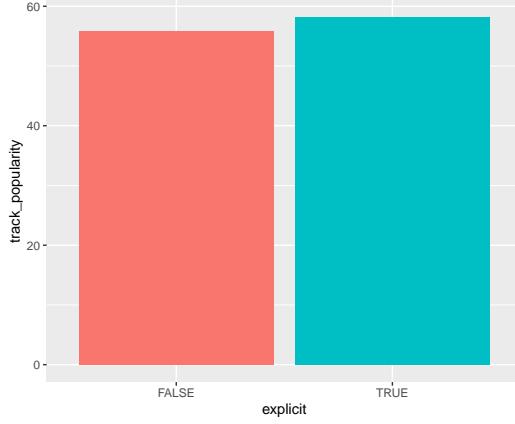
```

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	3761	17040025	6971609	14723927	15798733	4402425	8454914	67237638
		range	skew	kurtosis	se				
X1	58782724	2.21		7.02	113679.3				

```

[1] "track_popularity and album_type"

```



```

Descriptive statistics by group
group: FALSE

```

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4527	55.89	32.31	72	59.2	13.34	0	90	90	-0.98	-0.83	0.48

```

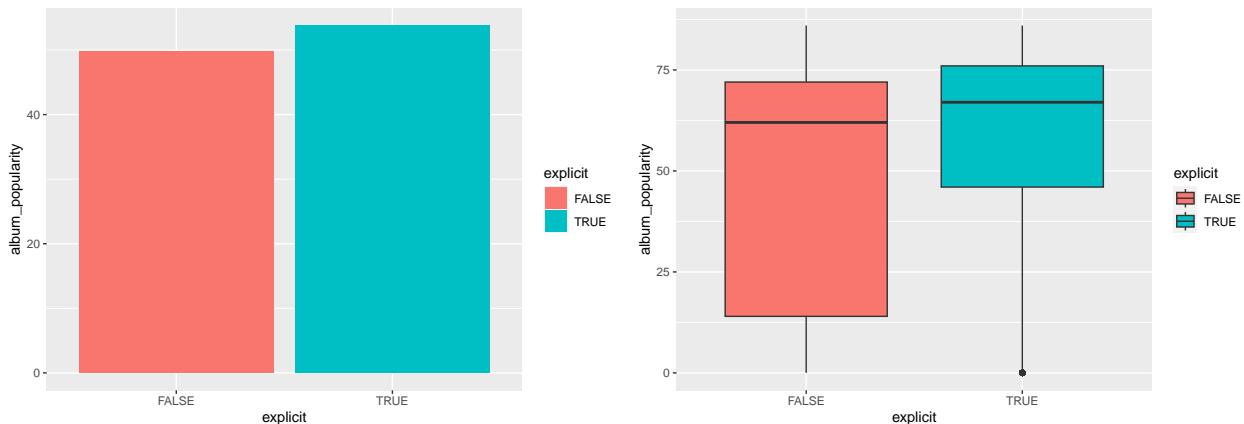
group: TRUE

```

```

vars      n  mean    sd median trimmed mad min max range skew kurtosis   se
X1       1 2915 58.16 31.6     74    62.3 8.9    0  88     88 -1.15      -0.5 0.59
[1] "album_popularity and album_type"

```



Descriptive statistics by group

group: FALSE

```

vars      n  mean    sd median trimmed mad min max range skew kurtosis   se
X1       1 4527 49.8 30.19     62    51.8 16.31    0  86     86 -0.82      -0.96 0.45

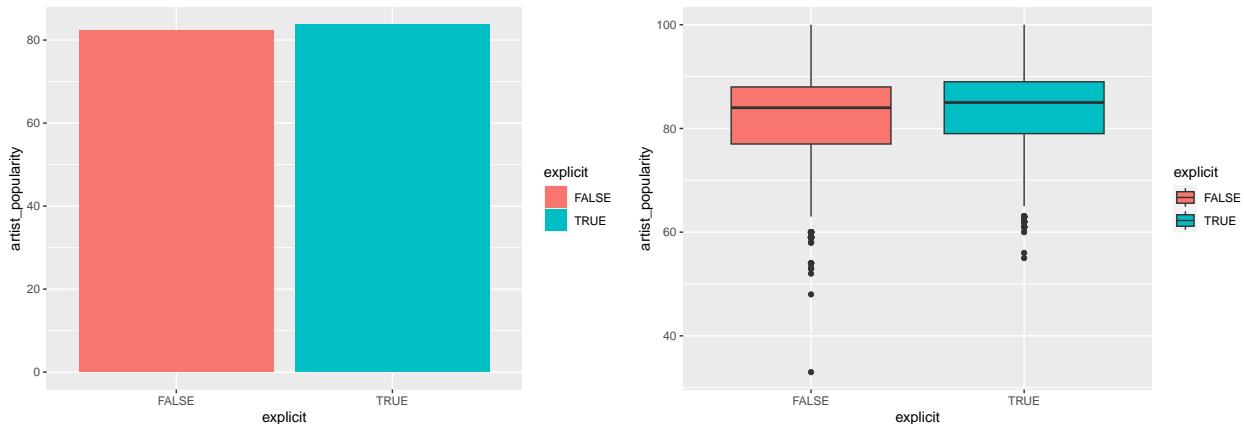
```

group: TRUE

```

vars      n  mean    sd median trimmed mad min max range skew kurtosis   se
X1       1 2915 53.79 30.48     67    56.87 16.31    0  86     86 -1      -0.68 0.56
[1] "artist_popularity and album_type"

```



Descriptive statistics by group

group: FALSE

```

vars      n  mean    sd median trimmed mad min max range skew kurtosis   se
X1       1 4527 82.23 8.22     84    82.76 7.41   33 100     67 -0.61      0.65 0.12

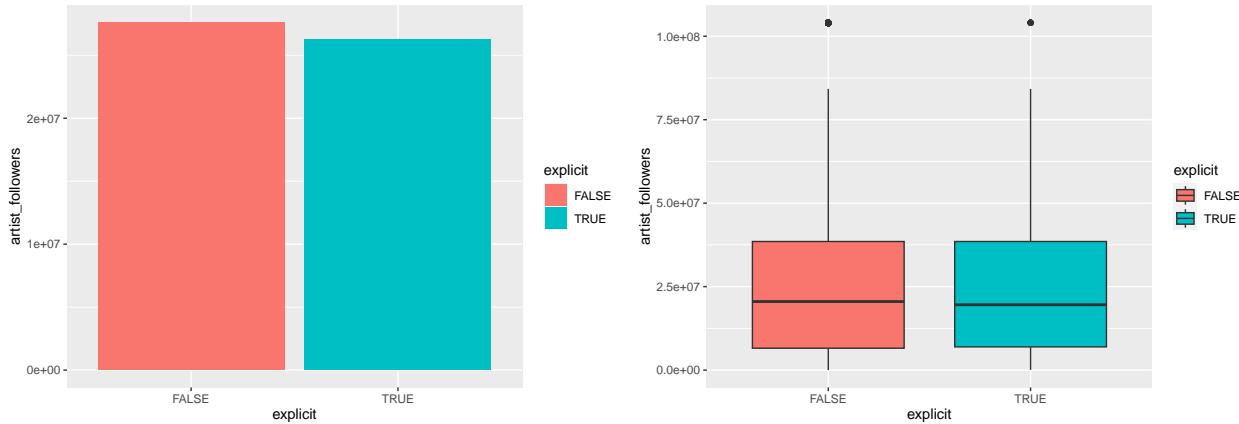
```

group: TRUE

```

vars      n  mean    sd median trimmed mad min max range skew kurtosis   se
X1       1 2915 83.69 8.18     85    84.13 5.93   55 100     45 -0.53      0.08 0.15
[1] "artist_followers and album_type"

```



Descriptive statistics by group

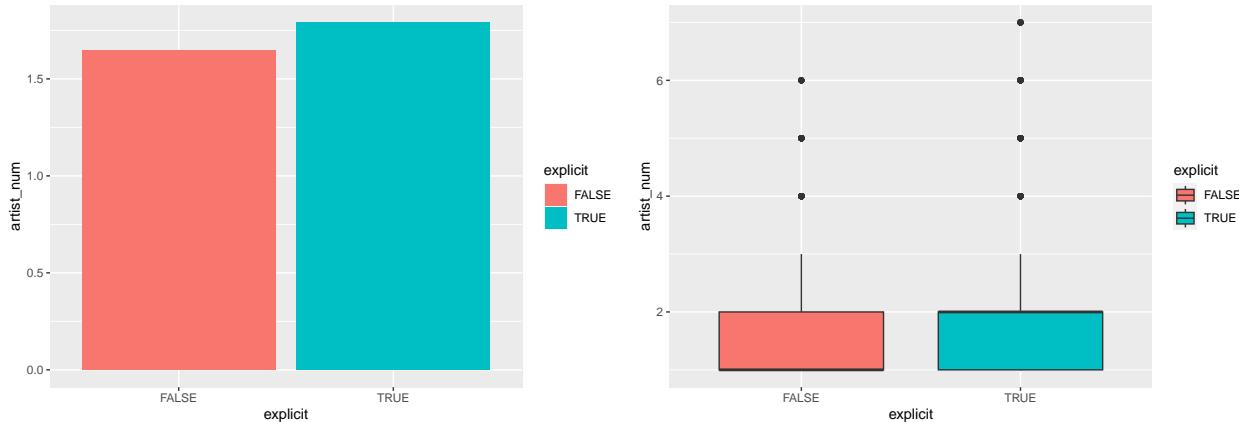
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	4527	27589929	25818860	20531406	23839814	23628924	3805	104059839
			range	skew	kurtosis	se			
X1		104056034	1.21	1.04	383735.4				

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	2915	26250458	23808607	19568883	23166337	21882885	54232	104059839
			range	skew	kurtosis	se			
X1		104005607	1.01	0	440975.8				

[1] "artist_num and album_type"



Descriptive statistics by group

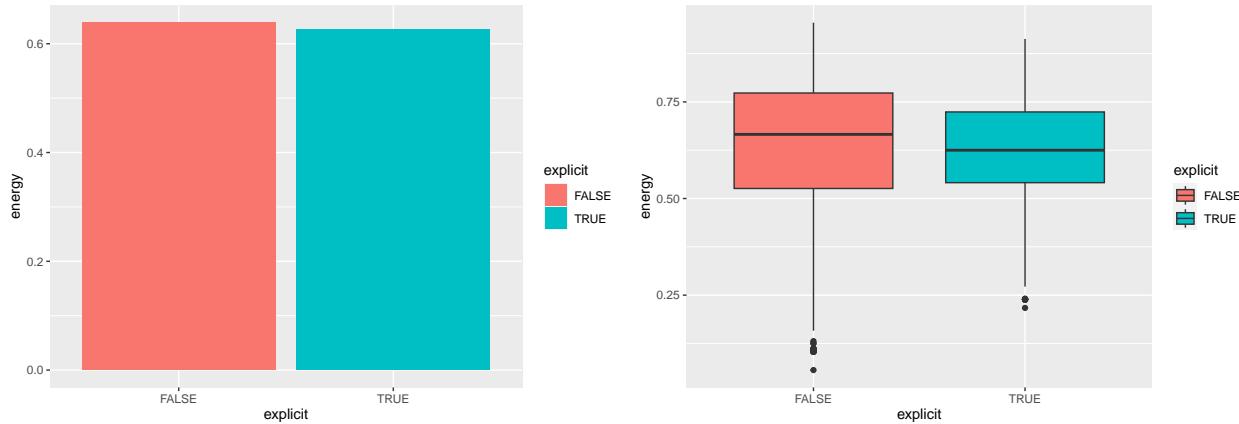
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4527	1.64	0.79	1	1.51	0	1	6	5	1.52	3.41	0.01

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2915	1.79	1.04	2	1.6	1.48	1	7	6	1.94	4.94	0.02

[1] "energy and album_type"



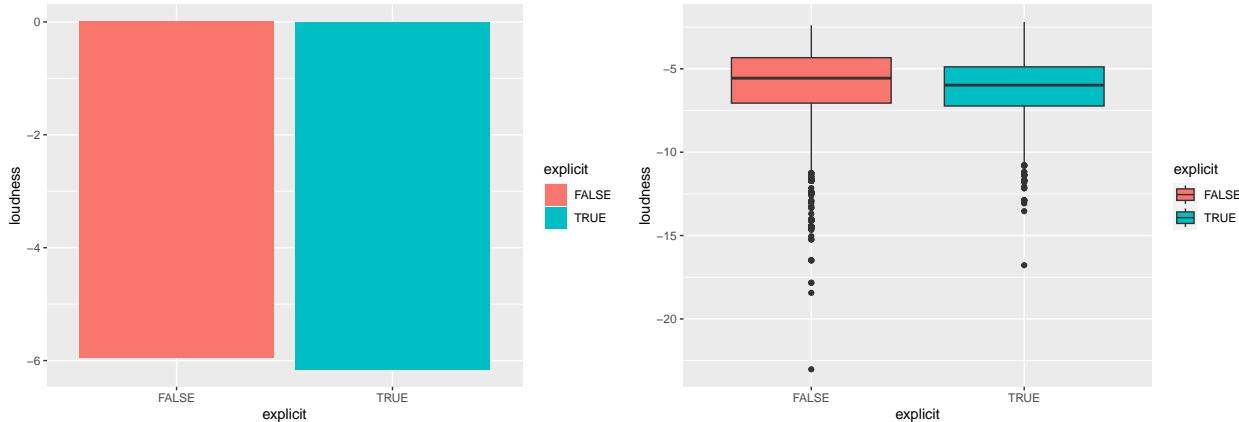
Descriptive statistics by group
group: FALSE

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1 4527	0.64	0.16	0.67	0.65	0.18	0.06	0.96	0.9	-0.63	-0.02	0

group: TRUE

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1 2915	0.63	0.13	0.62	0.63	0.13	0.22	0.91	0.7	-0.23	-0.19	0

[1] "loudness and album_type"



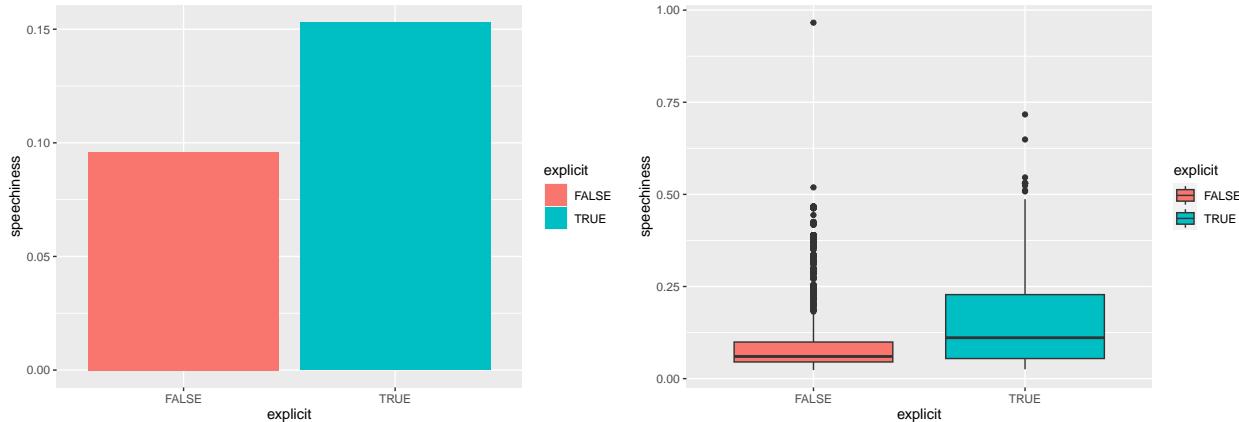
Descriptive statistics by group
group: FALSE

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1 4527	-5.95	2.36	-5.56	-5.67	1.88	-23.02	-2.4	20.63	-1.46	3.12	0.04

group: TRUE

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1 2915	-6.15	1.84	-5.98	-6.07	1.77	-16.78	-2.19	14.59	-0.55	0.7	0.03

[1] "speechiness and album_type"



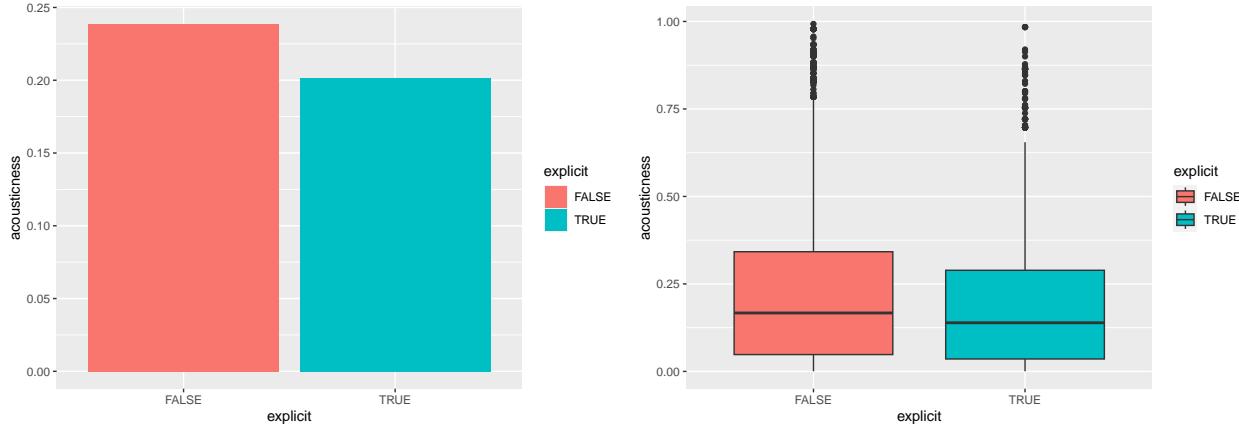
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis se
X1    1 4527 0.1 0.09   0.06    0.08 0.03 0.02 0.97 0.94 2.38     6.35 0
```

group: TRUE

```
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis se
X1    1 2915 0.15 0.12   0.11    0.14 0.1 0.03 0.72 0.69 1.03     0.35 0
[1] "acousticness and album_type"
```



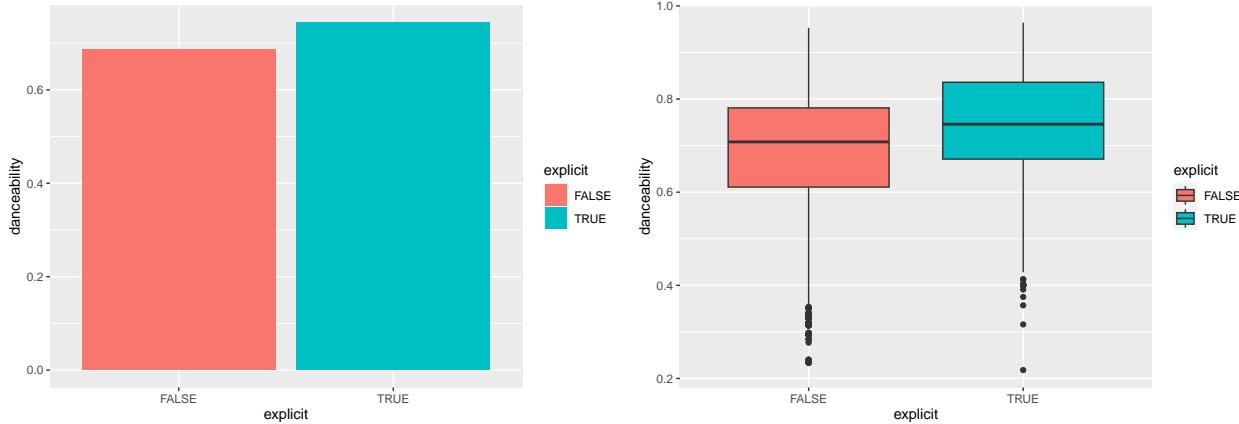
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis se
X1    1 4527 0.24 0.24   0.17    0.2 0.19  0 0.99 0.99 1.24     0.71 0
```

group: TRUE

```
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis se
X1    1 2915 0.2 0.2   0.14    0.17 0.16  0 0.98 0.98 1.27     0.99 0
[1] "danceability and album_type"
```



Descriptive statistics by group

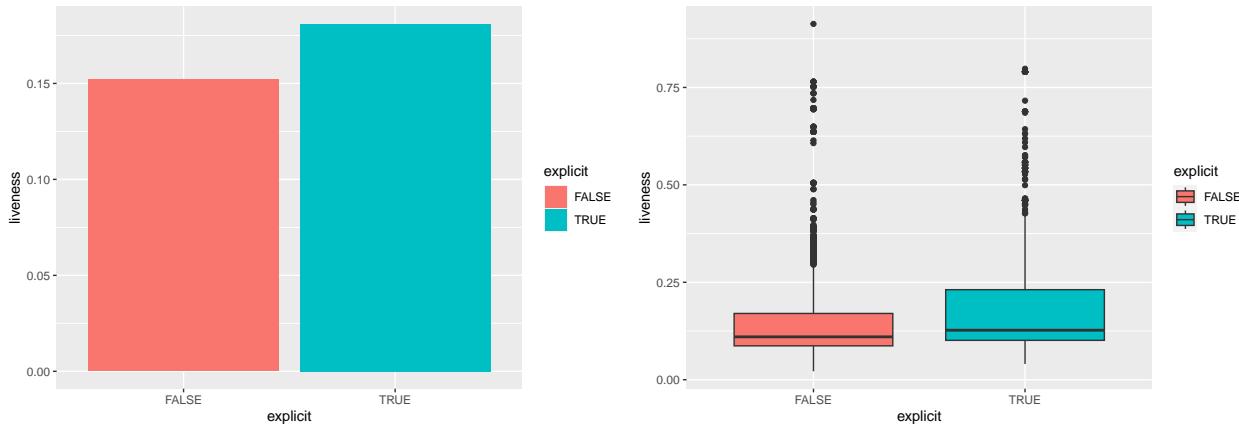
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4527	0.69	0.13	0.71	0.7	0.7	0.11	0.23	0.95	0.72	-0.88	0.58

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2915	0.74	0.12	0.75	0.75	0.75	0.13	0.22	0.96	0.75	-0.43	-0.21

[1] "liveness and album_type"



Descriptive statistics by group

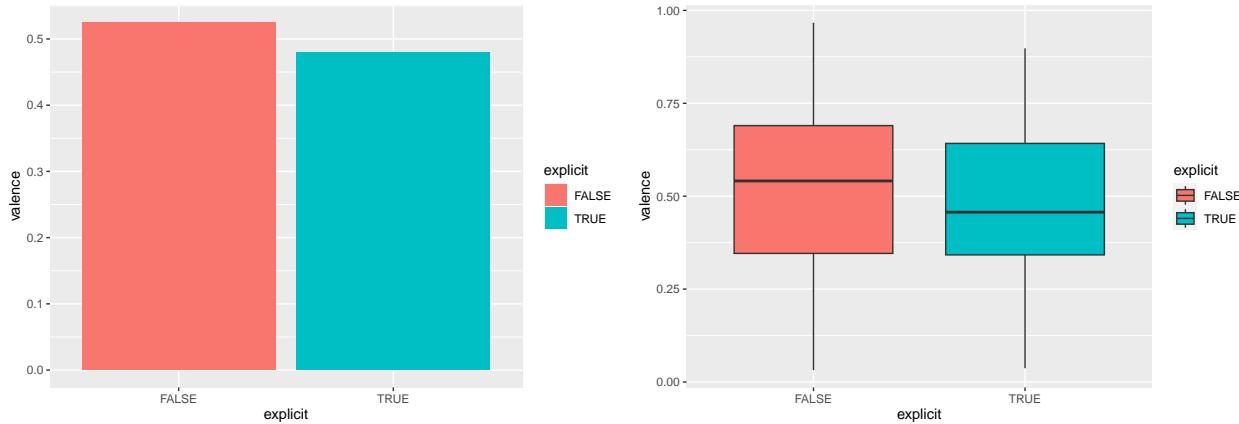
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4527	0.15	0.11	0.11	0.13	0.13	0.05	0.02	0.91	0.89	2.54	8.25

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	2915	0.18	0.13	0.13	0.16	0.16	0.05	0.04	0.8	0.76	2.18	5.36

[1] "valence and album_type"



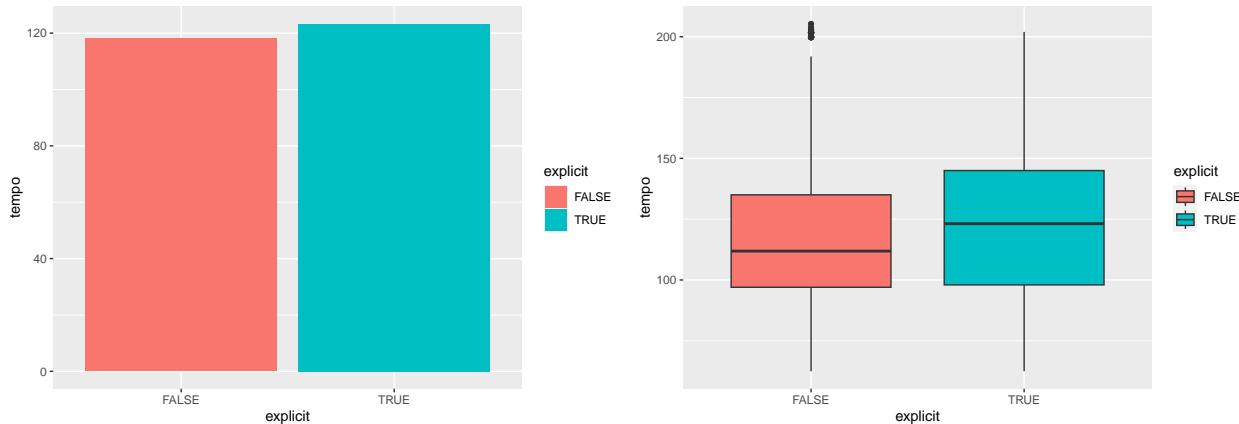
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 4527 0.52 0.22   0.54    0.52 0.26 0.03 0.97 0.93 -0.02   -0.87  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 2915 0.48 0.2   0.46    0.48 0.21 0.04 0.9  0.86 0.12   -0.71  0
[1] "tempo and album_type"
```



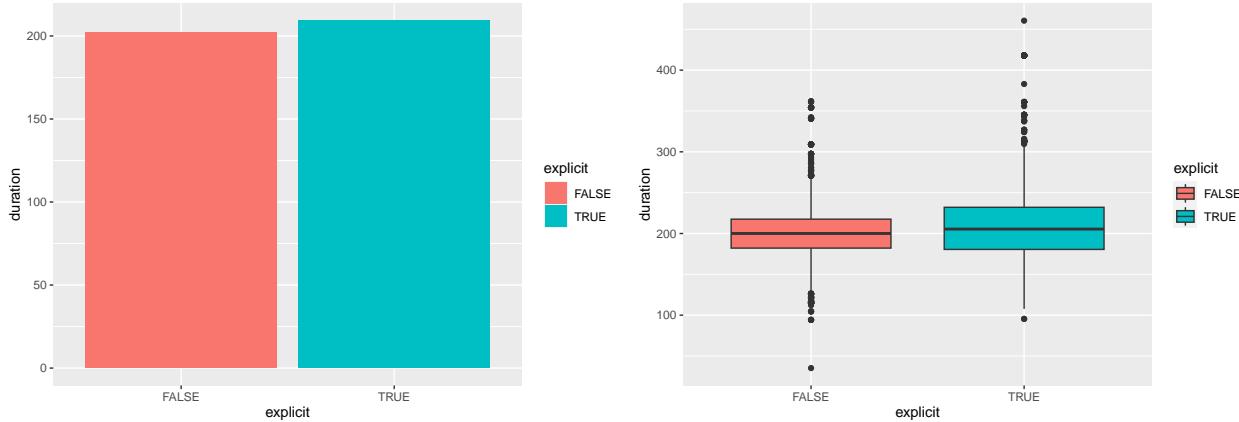
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew
X1    1 4527 118.13 27.59 111.88  115.06 24.95 62.45 205.27 142.83 0.87
      kurtosis   se
X1    0.02 0.41
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 2915 123.27 29.1 123.15  122.07 35.45 62.48 202.01 139.52 0.24   -0.85
      se
X1  0.54
[1] "duration and album_type"
```



Descriptive statistics by group

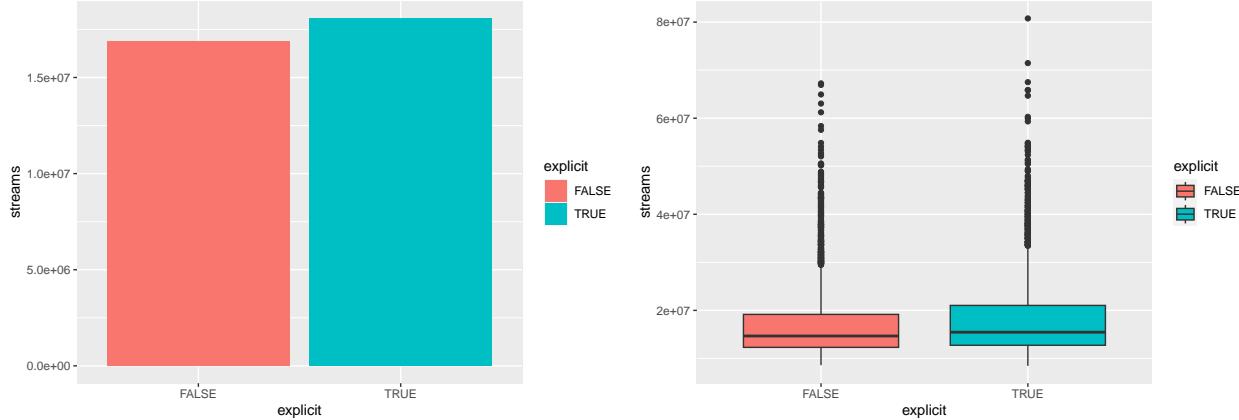
group: FALSE

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	4527	201.84	32.85	200.04	200.37	26.45	35.24	361.95	326.71
										kurtosis
X1										0.49
										se

group: TRUE

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	2915	209.2	47.85	205.43	206.08	38.31	95.47	460.57	365.11	1.1
											se
X1											0.89

[1] "streams and album_type"



Descriptive statistics by group

group: FALSE

vars	n	mean	sd	median	trimmed	mad	min	max		
X1	1	4527	16856124	6834190	14668198	15631081	4243588	8595924	67237638	
										range skew kurtosis
X1										2.28 7.38 101573.8
										se

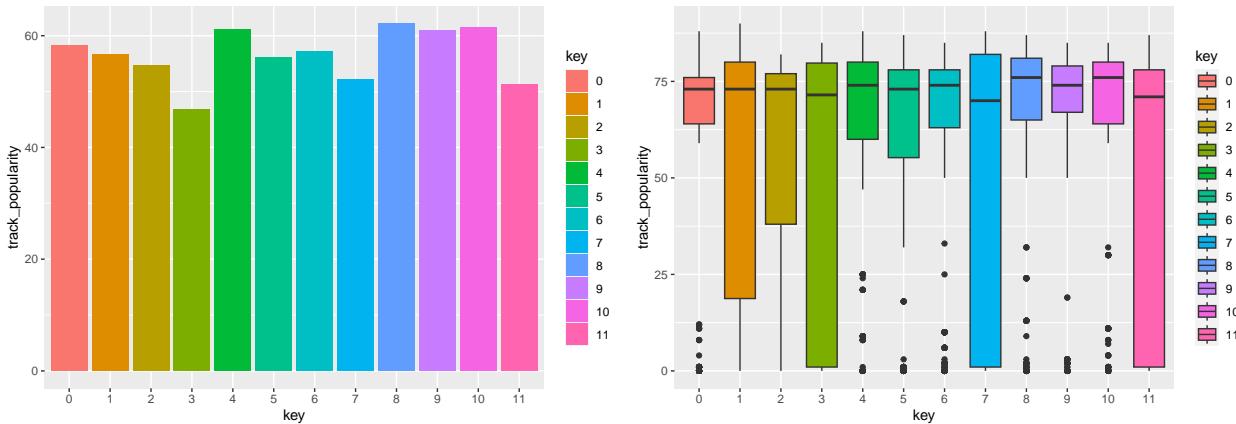
group: TRUE

vars	n	mean	sd	median	trimmed	mad	min	max	
X1	1	2915	18072069	7950024	15456637	16668748	4958273	8454914	80764045

```

range skew kurtosis      se
X1 72309131 2.19      6.9 147247.9
[1] "track_popularity and album_type"

```



Descriptive statistics by group

group: 0

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	722	58.27	30.55	73	62.24	7.41	0	88	88	-1.27	-0.21	1.14

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	938	56.6	32.87	73	59.75	13.34	0	90	90	-0.95	-0.88	1.07

group: 2

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	606	54.7	31.87	73	58.15	10.38	0	82	82	-0.96	-0.87	1.29

group: 3

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	186	46.89	37.57	71.5	48.17	17.05	0	85	85	-0.39	-1.8	2.75

group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	399	61.1	28.17	74	65.73	10.38	0	88	88	-1.35	0.22	1.41

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	634	56.12	32.05	73	59.6	13.34	0	87	87	-1.05	-0.7	1.27

group: 6

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	734	57.27	31.47	74	61.12	10.38	0	85	85	-1.13	-0.56	1.16

group: 7

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	638	52.18	35.34	70	54.49	19.27	0	88	88	-0.65	-1.42	1.4

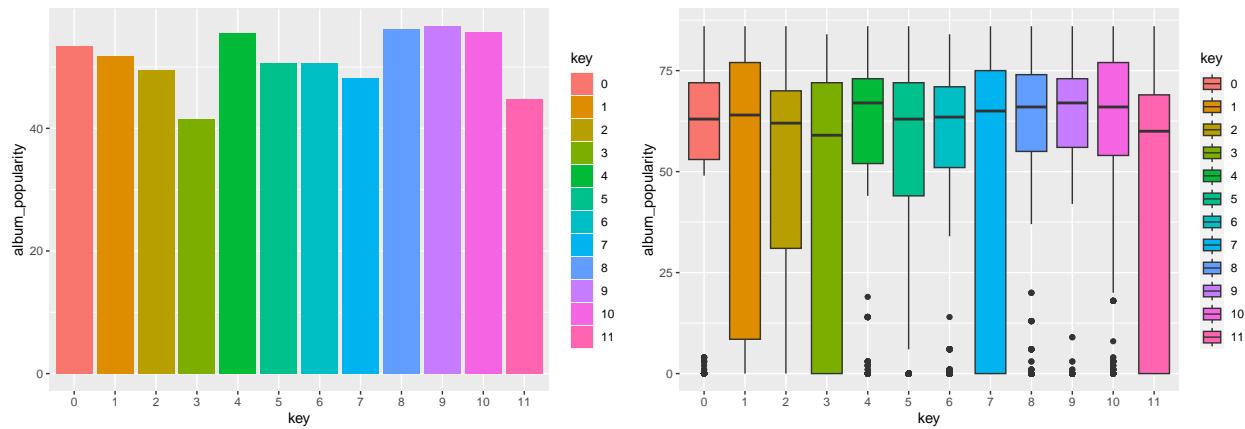
group: 8

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
--	------	---	------	----	--------	---------	-----	-----	-----	-------	------	----------	----

```

X1      1 774 62.18 29.96      76   67.04 8.9     0  87     87 -1.42      0.25 1.08
-----
group: 9
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 445 61.01 28.76      74   65.93 7.41     0  85     85 -1.52      0.51 1.36
-----
group: 10
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 471 61.47 29.8       76   66.4 7.41     0  85     85 -1.34      0.01 1.37
-----
group: 11
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 895 51.37 33.51      71   53.96 11.86    0  87     87 -0.73      -1.31 1.12
[1] "album_popularity and album_type"

```



```

Descriptive statistics by group
group: 0
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 722 53.5 29.36      63   56.35 13.34    0  86     86 -1.05      -0.44 1.09
-----
group: 1
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 938 51.87 31.68      64   54.18 19.27    0  86     86 -0.82      -1.02 1.03
-----
group: 2
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 606 49.58 30.17      62   51.44 17.79    0  86     86 -0.8      -0.97 1.23
-----
group: 3
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 186 41.46 33.91      59   42.04 20.76    0  84     84 -0.35      -1.78 2.49
-----
group: 4
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 399 55.56 27.55      67   58.93 16.31    0  86     86 -1.13      -0.17 1.38
-----
group: 5
  vars   n   mean    sd median trimmed   mad min max range skew kurtosis    se
X1      1 634 50.59 29.59      63   53.2 14.83    0  86     86 -0.95      -0.79 1.18

```

```

group: 6
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 734 50.71 28.93 63.5 53.31 14.08 0 84 84 -0.98 -0.69 1.07

group: 7
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 638 48.16 34.05 65 49.77 23.72 0 86 86 -0.55 -1.48 1.35

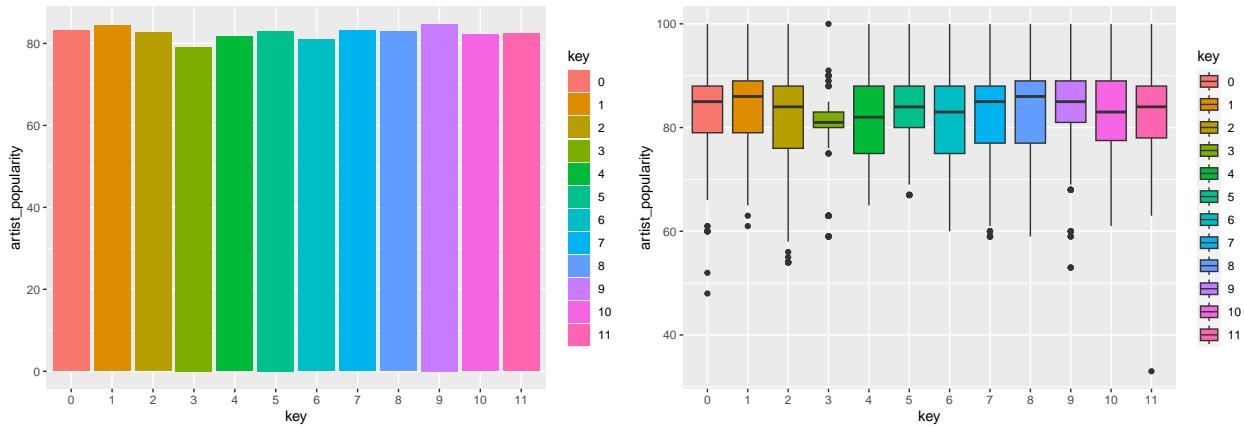
group: 8
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 774 56.18 28.46 66 59.67 14.83 0 86 86 -1.18 -0.1 1.02

group: 9
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 445 56.67 28.02 67 60.38 13.34 0 86 86 -1.29 0.15 1.33

group: 10
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 471 55.63 28.93 66 59.33 16.31 0 86 86 -1.14 -0.34 1.33

group: 11
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 895 44.84 30.7 60 45.93 20.76 0 86 86 -0.56 -1.37 1.03
[1] "artist_popularity and album_type"

```



```

Descriptive statistics by group
group: 0
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 722 83.12 8.06 85 83.42 7.41 48 100 52 -0.49 0.61 0.3

group: 1
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 938 84.42 7.7 86 84.88 8.9 61 100 39 -0.46 -0.32 0.25

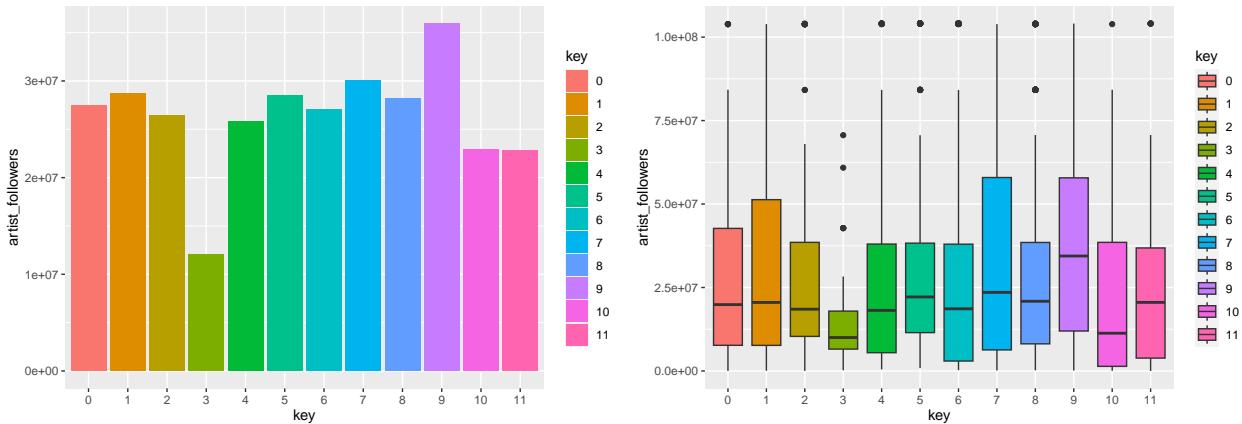
group: 2
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 606 82.67 9.84 84 83.1 8.9 54 100 46 -0.52 0.37 0.4

```

```

group: 3
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 186 79.09 8.11      81  80.15 2.97  59 100     41 -1.31      1.16 0.59
-----
group: 4
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 399 81.66 8.38      82  81.69 8.9   65 100     35  0.02     -0.24 0.42
-----
group: 5
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 634 83.08 6.11      84  83.66 5.93  67 100     33 -0.64      0.24 0.24
-----
group: 6
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 734 80.97 8.56      83  81.59 8.9   60 100     40 -0.51     -1.04 0.32
-----
group: 7
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 638 83.14 8.85      85  83.41 7.41  59 100     41 -0.34     -0.04 0.35
-----
group: 8
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 774 82.96 8.2       86  83.7  5.93  59 100     41 -0.84      0.12 0.29
-----
group: 9
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 445 84.78 7.62      85  85.15 5.93  53 100     47  -1       2.74 0.36
-----
group: 10
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 471 82.19 8.69      83  82.77 8.9   61 100     39 -0.65     -0.04 0.4
-----
group: 11
  vars   n  mean    sd median trimmed mad min max range skew kurtosis    se
X1     1 895 82.46 7.68      84  82.82 5.93  33 100     67 -0.61      1.88 0.26
[1] "artist_followers and album_type"

```



Descriptive statistics by group
group: 0

```

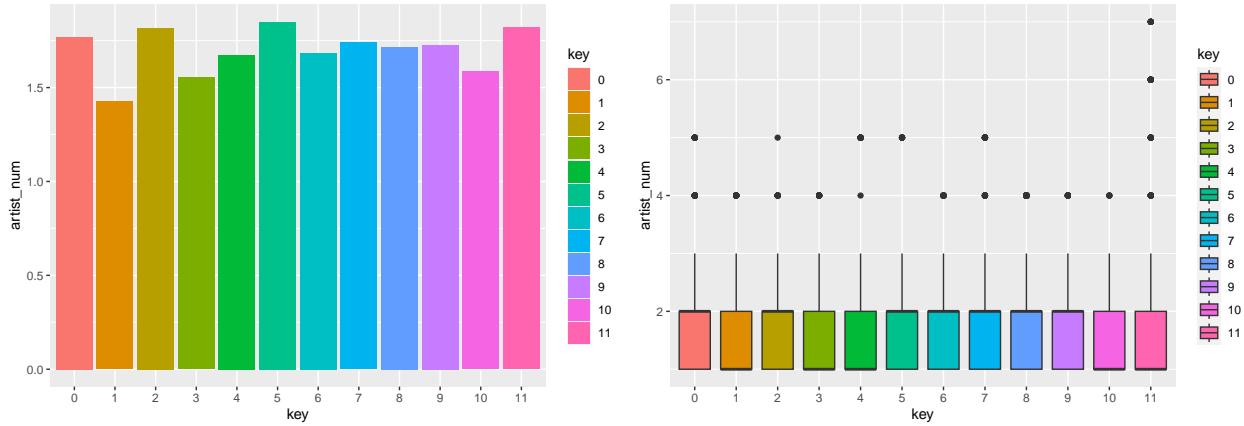
vars n mean sd median trimmed mad min max
X1 1 722 27440124 24106961 19878329 24363241 23469921 14787 103886909
    range skew kurtosis se
X1 103872122 0.93 0.02 897168.2
-----
group: 1
vars n mean sd median trimmed mad min max
X1 1 938 28690298 24454498 20531406 25848728 21317342 54232 103886909
    range skew kurtosis se
X1 103832677 0.9 -0.32 798467.7
-----
group: 2
vars n mean sd median trimmed mad min max
X1 1 606 26463563 22793841 18503013 23859509 19867577 25288 104059839
    range skew kurtosis se
X1 104034551 1.19 1.4 925936.5
-----
group: 3
vars n mean sd median trimmed mad min max
X1 1 186 12046787 9993020 10021342 11038713 11701969 210804 70620453
    range skew kurtosis se
X1 70409649 2.24 8.79 732723.8
-----
group: 4
vars n mean sd median trimmed mad min max
X1 1 399 25786770 25015911 18147704 22300316 22239467 460823 104059839
    range skew kurtosis se
X1 103599016 1.1 0.67 1252362
-----
group: 5
vars n mean sd median trimmed mad min max
X1 1 634 28478446 23375288 22169763 24615488 18193363 872081 104059839
    range skew kurtosis se
X1 103187758 1.74 3.29 928351.3
-----
group: 6
vars n mean sd median trimmed mad min max
X1 1 734 27091034 27513678 18621583 22686501 23188370 246792 104059839
    range skew kurtosis se
X1 103813047 1.24 0.97 1015548
-----
group: 7
vars n mean sd median trimmed mad min max
X1 1 638 30096217 27168018 23543519 27825304 26269099 155010 103886909
    range skew kurtosis se
X1 103731899 0.66 -0.88 1075592
-----
group: 8
vars n mean sd median trimmed mad min max
X1 1 774 28166492 28928504 20878511 23241130 18905008 188111 104059839
    range skew kurtosis se
X1 103871728 1.33 0.81 1039814
-----
group: 9

```

```

vars   n      mean       sd   median   trimmed     mad   min      max
X1    1 445 35938798 27374883 34432798 33227211 34717204 118316 104059839
      range skew kurtosis      se
X1 103941523 0.79      0.05 1297694
-----
group: 10
vars   n      mean       sd   median   trimmed     mad   min      max
X1    1 471 22931079 24187938 11306719 19631511 15699527 42127 103886909
      range skew kurtosis      se
X1 103844782 0.94     -0.28 1114521
-----
group: 11
vars   n      mean       sd   median   trimmed     mad   min      max
X1    1 895 22786789 20409227 20546114 19970724 24170258 3805 104059839
      range skew kurtosis      se
X1 104056034 1      0.69 682205.2
[1] "artist_num and album_type"

```



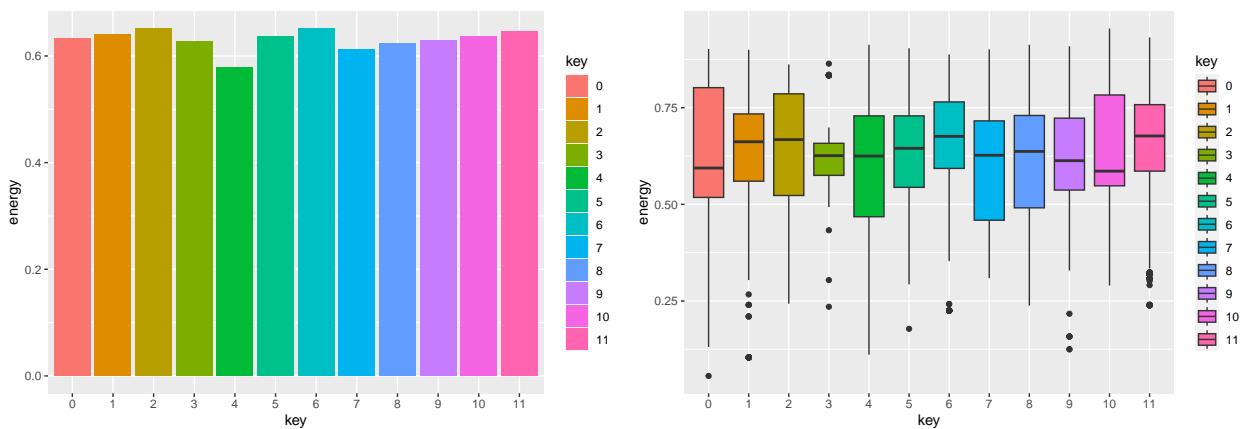
```

Descriptive statistics by group
group: 0
vars   n mean   sd median   trimmed   mad   min   max range skew kurtosis   se
X1    1 722 1.77 0.92      2     1.61 1.48   1     5      4 1.39      1.93 0.03
-----
group: 1
vars   n mean   sd median   trimmed   mad   min   max range skew kurtosis   se
X1    1 938 1.43 0.71      1     1.27 0     1     4      3 1.67      2.2 0.02
-----
group: 2
vars   n mean   sd median   trimmed   mad   min   max range skew kurtosis   se
X1    1 606 1.82 0.71      2     1.75 0     1     5      4 0.69      0.79 0.03
-----
group: 3
vars   n mean   sd median   trimmed   mad   min   max range skew kurtosis   se
X1    1 186 1.55 0.92      1     1.34 0     1     4      3 1.64      1.58 0.07
-----
group: 4
vars   n mean   sd median   trimmed   mad   min   max range skew kurtosis   se
X1    1 399 1.67 0.95      1     1.49 0     1     5      4 1.89      3.91 0.05
-----
```

```

group: 5
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 634 1.85 0.82      2    1.77 1.48   1   5     4  1.1      2.13 0.03
-----
group: 6
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 734 1.69 0.78      2    1.57 1.48   1   4     3  0.96      0.35 0.03
-----
group: 7
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 638 1.74 0.92      2    1.57 1.48   1   5     4  1.64      3.07 0.04
-----
group: 8
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 774 1.72 0.79      2    1.58 1.48   1   4     3  1.27      1.66 0.03
-----
group: 9
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 445 1.73 0.78      2    1.61 1.48   1   4     3  0.97      0.58 0.04
-----
group: 10
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 471 1.59 0.7      1    1.47   0     1   4     3  0.92      0.13 0.03
-----
group: 11
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 895 1.82 1.33      1    1.5     0     1   7     6  2.27      4.95 0.04
[1] "energy and album_type"

```



```

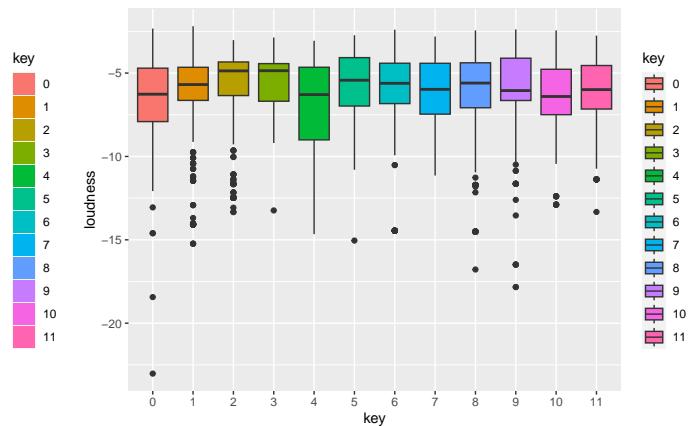
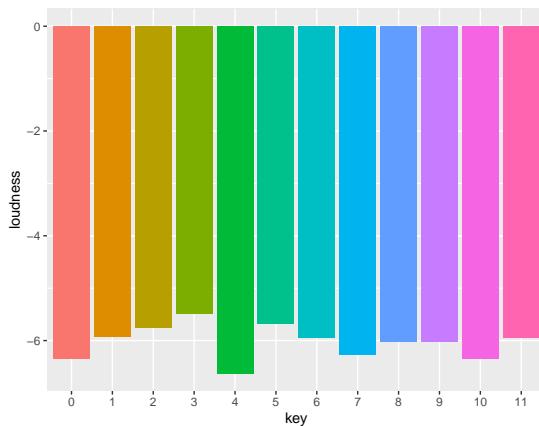
Descriptive statistics by group
group: 0
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 722 0.63 0.16      0.59    0.64 0.25 0.06 0.9   0.85 -0.14      -1.05 0.01
-----
group: 1
  vars   n mean   sd median trimmed   mad min max range skew kurtosis   se
X1     1 938 0.64 0.15      0.66    0.65 0.14 0.1 0.9   0.8 -1.09      1.85 0
-----
group: 2

```

```

vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 606 0.65 0.14    0.67    0.66 0.21 0.24 0.86  0.62 -0.31    -0.91 0.01
-----
group: 3
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 186 0.63 0.1    0.63    0.62 0.08 0.23 0.86  0.63 0.24    1.88 0.01
-----
group: 4
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 399 0.58 0.19    0.62    0.6 0.19 0.11 0.91   0.8 -0.66    -0.43 0.01
-----
group: 5
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 634 0.64 0.14    0.64    0.64 0.15 0.18 0.9   0.73 -0.2    -0.38 0.01
-----
group: 6
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 734 0.65 0.13    0.68    0.66 0.13 0.22 0.89  0.66 -1.11    1.86 0
-----
group: 7
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 638 0.61 0.15    0.63    0.61 0.14 0.31 0.9   0.59 0.07    -0.82 0.01
-----
group: 8
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 774 0.62 0.16    0.64    0.62 0.17 0.24 0.91  0.68 -0.17    -0.98 0.01
-----
group: 9
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 445 0.63 0.15    0.61    0.63 0.13 0.12 0.91  0.78 -0.15    0.15 0.01
-----
group: 10
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 471 0.64 0.14    0.59    0.64 0.23 0.29 0.96  0.66 -0.04    -0.84 0.01
-----
group: 11
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 895 0.65 0.15    0.68    0.67 0.13 0.24 0.93  0.69 -1        0.4 0
[1] "loudness and album_type"

```



Descriptive statistics by group

group: 0

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	722	-6.35	2.27	-6.27	-6.23	2.42	-23.02	-2.33	20.69	-1.04	4.21
			se									
X1		0.08										

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	938	-5.92	2.12	-5.69	-5.66	1.43	-15.23	-2.19	13.04	-1.74	4.39
			se									
X1		0.07										

group: 2

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	606	-5.75	2.23	-4.87	-5.4	1.1	-13.34	-3.02	10.31	-1.55	2.11
			se									
X1		0.09										

group: 3

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	186	-5.48	1.64	-4.86	-5.42	1.4	-13.24	-2.87	10.37	-0.82	1.46
			se									
X1		0.12										

group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	399	-6.63	2.79	-6.29	-6.4	3.33	-14.66	-3.06	11.6	-0.7	-0.21
			se									
X1		0.14										

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	634	-5.68	1.86	-5.43	-5.65	2.12	-15.04	-2.73	12.32	-0.35	0.18
			se									
X1		0.07										

group: 6

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	734	-5.94	2.1	-5.61	-5.72	1.78	-14.45	-2.4	12.06	-1.95	6.04	0.08

group: 7

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	638	-6.27	2.31	-5.97	-6.08	2.21	-11.14	-2.81	8.34	-0.63	-0.49
			se									
X1		0.09										

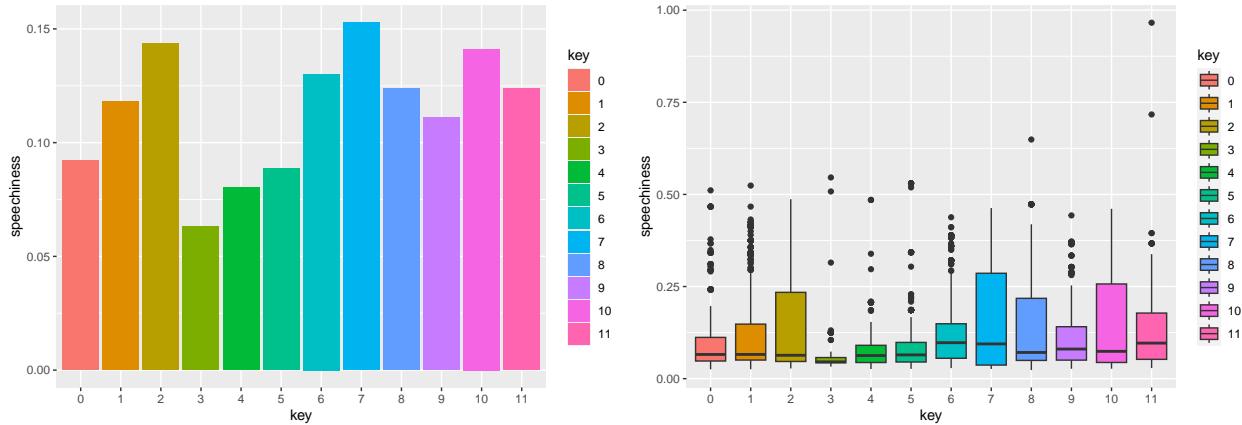
group: 8

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	774	-6.02	2.35	-5.6	-5.78	2.07	-16.78	-2.44	14.34	-1.41	3.03
			se									
X1		0.08										

```

group: 9
  vars   n  mean    sd median trimmed   mad   min   max range skew kurtosis
X1     1 445 -6.03 2.42  -6.05   -5.81 1.72 -17.83 -2.38 15.45 -1.47      4.51
       se
X1 0.11
-----
group: 10
  vars   n  mean    sd median trimmed   mad   min   max range skew kurtosis
X1     1 471 -6.35 1.95  -6.4   -6.26 2.37 -12.89 -2.44 10.45 -0.73      0.84
       se
X1 0.09
-----
group: 11
  vars   n  mean    sd median trimmed   mad   min   max range skew kurtosis
X1     1 895 -5.94 1.69  -5.99   -5.86 2.09 -13.33 -2.75 10.58 -0.59      0.43
       se
X1 0.06
[1] "speechiness and album_type"

```



```

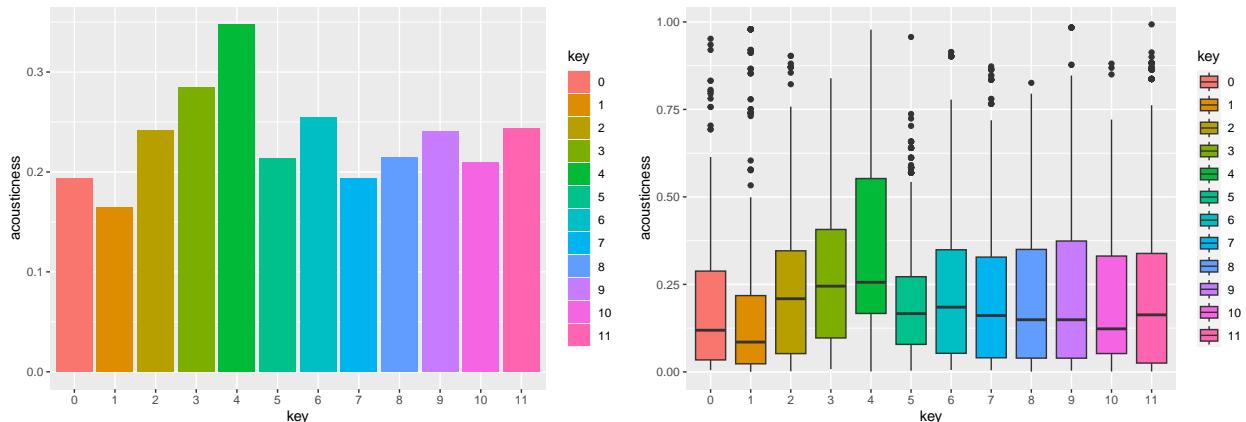
Descriptive statistics by group
group: 0
  vars   n  mean    sd median trimmed   mad   min   max range skew kurtosis se
X1     1 722 0.09 0.08  0.07   0.07 0.03 0.03 0.51  0.49 2.66      7.87  0
-----
group: 1
  vars   n  mean    sd median trimmed   mad   min   max range skew kurtosis se
X1     1 938 0.12 0.11  0.07   0.1 0.04 0.03 0.52  0.5 1.56      1.21  0
-----
group: 2
  vars   n  mean    sd median trimmed   mad   min   max range skew kurtosis se
X1     1 606 0.14 0.13  0.06   0.12 0.05 0.03 0.49  0.46 1.15      0.05 0.01
-----
group: 3
  vars   n  mean    sd median trimmed   mad   min   max range skew kurtosis se
X1     1 186 0.06 0.06  0.05   0.05 0.01 0.03 0.55  0.51 6.26      45.6   0
-----
group: 4
  vars   n  mean    sd median trimmed   mad   min   max range skew kurtosis se
X1     1 399 0.08 0.06  0.06   0.07 0.04 0.03 0.48  0.46 3.29      17    0

```

```

-----
group: 5
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 634 0.09 0.08    0.06    0.07 0.03 0.03 0.53   0.5 3.41    14.59  0
-----
group: 6
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 734 0.13 0.1     0.1     0.11 0.06 0.03 0.44   0.41 1.41    0.98  0
-----
group: 7
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 638 0.15 0.14    0.09    0.14 0.09 0.03 0.46   0.44 0.84   -0.74 0.01
-----
group: 8
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 774 0.12 0.11    0.07    0.11 0.05 0.02 0.65   0.63 1.41    1.67  0
-----
group: 9
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 445 0.11 0.09    0.08    0.09 0.06 0.03 0.44   0.42 1.49    1.23  0
-----
group: 10
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 471 0.14 0.12    0.07    0.12 0.05 0.03 0.46   0.43 0.98   -0.47 0.01
-----
group: 11
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 895 0.12 0.09    0.1     0.11 0.08 0.03 0.97   0.94 1.98    10.92  0
[1] "acousticness and album_type"

```



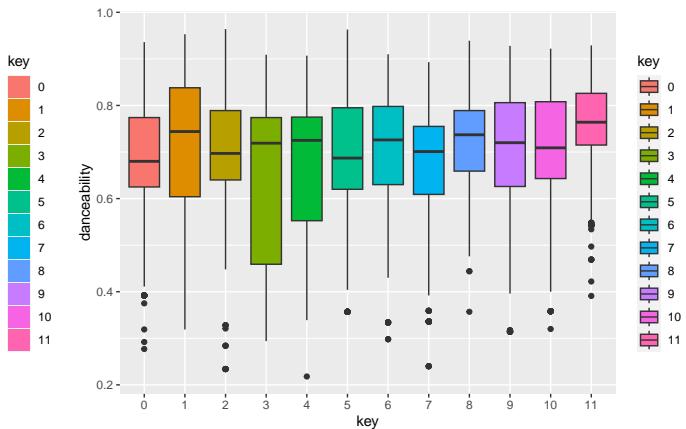
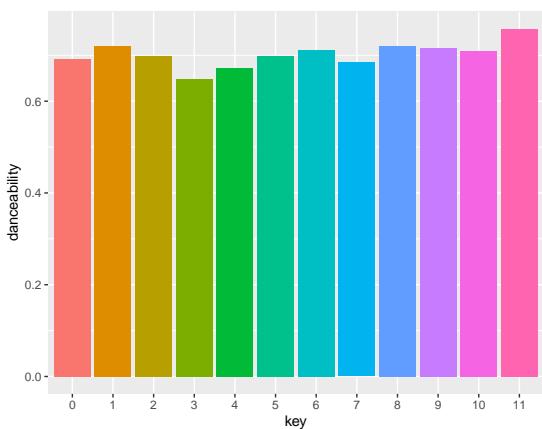
```

Descriptive statistics by group
group: 0
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 722 0.19 0.2     0.12    0.16 0.13   0 0.95 0.95 1.19    0.57 0.01
-----
group: 1
  vars   n mean   sd median trimmed   mad   min   max range skew kurtosis se
X1     1 938 0.16 0.21    0.09    0.12 0.11   0 0.98 0.98 2.06    4.38 0.01
-----
```

```

group: 2
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 606 0.24 0.22    0.21    0.22 0.23    0 0.9  0.9 0.83   -0.19 0.01
-----
group: 3
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 186 0.28 0.22    0.24    0.28 0.22 0.01 0.84  0.83 0.47   -1.17 0.02
-----
group: 4
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 399 0.35 0.29    0.26    0.32 0.21    0 0.98 0.98 0.83   -0.42 0.01
-----
group: 5
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 634 0.21 0.18    0.17    0.19 0.13    0 0.96 0.95 1.26   0.68 0.01
-----
group: 6
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 734 0.25 0.24    0.18    0.22 0.2  0.01 0.91  0.91 1.07   0.1 0.01
-----
group: 7
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 638 0.19 0.18    0.16    0.17 0.19    0 0.87 0.87 1.59   2.98 0.01
-----
group: 8
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 774 0.21 0.22    0.15    0.18 0.17    0 0.83 0.83 1.2   0.28 0.01
-----
group: 9
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 445 0.24 0.24    0.15    0.21 0.18    0 0.98 0.98 1.17   0.7 0.01
-----
group: 10
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 471 0.21 0.22    0.12    0.17 0.11    0 0.88 0.88 1.29   0.38 0.01
-----
group: 11
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 895 0.24 0.25    0.16    0.2 0.21    0 0.99 0.99 1.17   0.36 0.01
[1] "danceability and album_type"

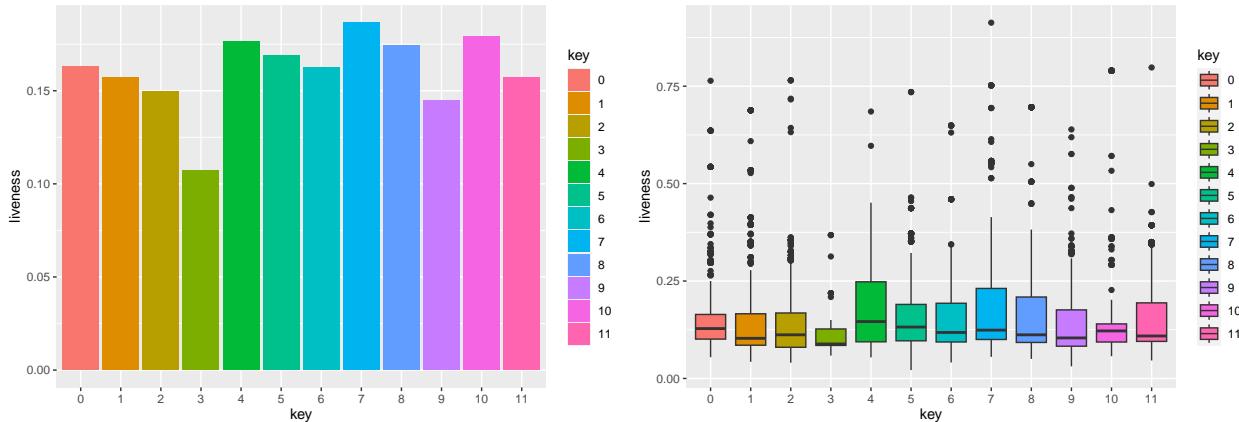
```



```

Descriptive statistics by group
group: 0
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 722 0.69 0.12    0.68     0.7 0.12 0.28 0.94  0.66 -0.37     0.04  0
-----
group: 1
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 938 0.72 0.15    0.74     0.73 0.15 0.32 0.95  0.63 -0.58     -0.6  0
-----
group: 2
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 606 0.7  0.13    0.7      0.71 0.1 0.23 0.96  0.73 -1.06     1.87 0.01
-----
group: 3
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 186 0.65 0.16    0.72     0.65 0.12 0.29 0.91  0.62 -0.46     -0.88 0.01
-----
group: 4
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 399 0.67 0.15    0.72     0.69 0.11 0.22 0.91  0.69 -0.8     -0.19 0.01
-----
group: 5
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 634 0.7  0.12    0.69     0.7 0.15 0.36 0.96  0.61 -0.35     0.28  0
-----
group: 6
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 734 0.71 0.11    0.73     0.72 0.14 0.3 0.91  0.61 -0.76     0.91  0
-----
group: 7
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 638 0.68 0.12    0.7      0.7 0.09 0.24 0.89  0.65 -1.25     1.8  0
-----
group: 8
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 774 0.72 0.11    0.74     0.72 0.09 0.36 0.94  0.58 -0.37     -0.5  0
-----
group: 9
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 445 0.72 0.14    0.72     0.73 0.13 0.31 0.93  0.61 -0.8     0.77 0.01
-----
group: 10
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 471 0.71 0.14    0.71     0.72 0.14 0.32 0.92  0.6 -0.63     0.06 0.01
-----
group: 11
  vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1     1 895 0.76 0.1    0.76     0.76 0.09 0.39 0.93  0.54 -0.57     0.21  0
[1] "liveness and album_type"

```



Descriptive statistics by group

group: 0

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	722	0.16	0.11	0.13	0.14	0.04	0.05	0.76	0.71	2.31	5.79	0

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	938	0.16	0.12	0.1	0.13	0.05	0.04	0.69	0.65	2.15	4.83	0

group: 2

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	606	0.15	0.11	0.11	0.13	0.06	0.04	0.76	0.72	2.45	9.24	0

group: 3

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	186	0.11	0.05	0.09	0.1	0.01	0.06	0.37	0.31	3.25	12.69	0

group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	399	0.18	0.1	0.15	0.17	0.08	0.05	0.69	0.63	1.16	1.49	0.01

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	634	0.17	0.11	0.13	0.15	0.06	0.02	0.74	0.71	1.72	3.68	0

group: 6

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	734	0.16	0.11	0.12	0.14	0.06	0.04	0.65	0.61	2.13	5.11	0

group: 7

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	638	0.19	0.15	0.12	0.15	0.06	0.06	0.91	0.86	2.13	4.32	0.01

group: 8

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	774	0.17	0.15	0.11	0.14	0.05	0.05	0.7	0.65	2.21	4.75	0.01

group: 9

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
--	------	---	------	----	--------	---------	-----	-----	-----	-------	------	----------	----

```
X1      1 445 0.14 0.1      0.1      0.13 0.04 0.03 0.64  0.61 1.92      3.91  0
```

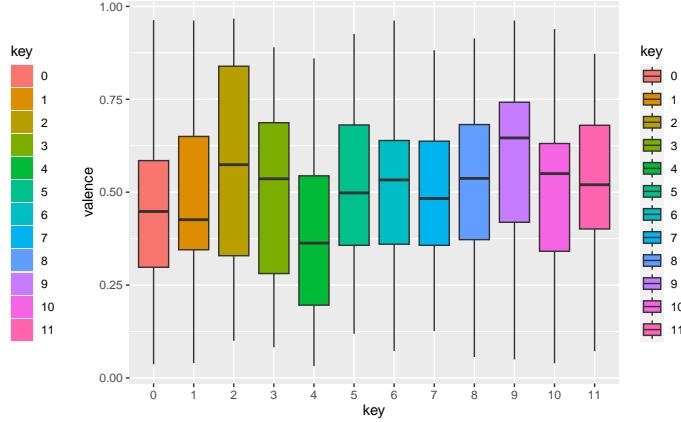
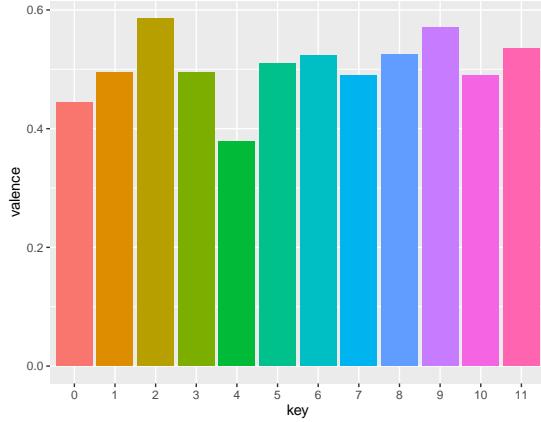
group: 10

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	471	0.18	0.18	0.12	0.13	0.04	0.06	0.79	0.73	2.75	6.53 0.01

group: 11

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	895	0.16	0.1	0.11	0.14	0.04	0.05	0.8	0.75	1.37	1.9 0

[1] "valence and album_type"



Descriptive statistics by group

group: 0

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	722	0.44	0.2	0.45	0.44	0.22	0.04	0.96	0.93	0.18	-0.56 0.01

group: 1

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	938	0.49	0.22	0.43	0.49	0.23	0.04	0.96	0.92	0.41	-0.7 0.01

group: 2

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	606	0.59	0.26	0.57	0.59	0.37	0.1	0.97	0.87	-0.13	-1.39 0.01

group: 3

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	186	0.49	0.24	0.54	0.49	0.36	0.08	0.89	0.81	-0.08	-1.45 0.02

group: 4

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	399	0.38	0.22	0.36	0.37	0.27	0.03	0.86	0.83	0.37	-0.98 0.01

group: 5

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	634	0.51	0.22	0.5	0.51	0.26	0.12	0.93	0.81	-0.06	-1.01 0.01

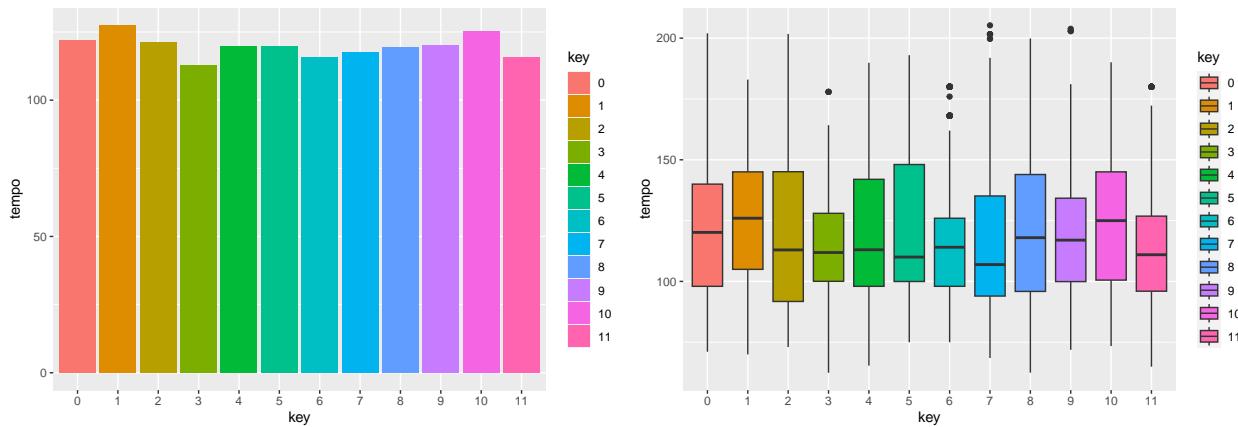
group: 6

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	734	0.52	0.2	0.53	0.52	0.24	0.07	0.96	0.89	0.11	-0.52 0.01

```

group: 7
  vars   n  mean    sd median trimmed mad  min  max range skew kurtosis    se
X1     1 638 0.49 0.18    0.48    0.49 0.2 0.13 0.88  0.76  0.1    -0.77 0.01
-----
group: 8
  vars   n  mean    sd median trimmed mad  min  max range skew kurtosis    se
X1     1 774 0.52 0.21    0.54    0.52 0.23 0.06 0.91  0.86  0    -0.79 0.01
-----
group: 9
  vars   n  mean    sd median trimmed mad  min  max range skew kurtosis    se
X1     1 445 0.57 0.23    0.65    0.58 0.2 0.05 0.96  0.91 -0.5    -0.69 0.01
-----
group: 10
  vars   n  mean    sd median trimmed mad  min  max range skew kurtosis    se
X1     1 471 0.49 0.2    0.55    0.5 0.21 0.04 0.94  0.9 -0.26    -0.75 0.01
-----
group: 11
  vars   n  mean    sd median trimmed mad  min  max range skew kurtosis    se
X1     1 895 0.54 0.18    0.52    0.54 0.22 0.07 0.87  0.8 -0.06    -0.6 0.01
[1] "tempo and album_type"

```



```

Descriptive statistics by group
group: 0
  vars   n  mean    sd median trimmed mad  min  max range skew kurtosis    se
X1     1 722 121.83 27.14 120.15    119.2 32.85 71.11 202.01 130.9 0.58    -0.46
      se
X1 1.01
-----
group: 1
  vars   n  mean    sd median trimmed mad  min  max range skew kurtosis    se
X1     1 938 127.44 27.98 125.98    127.13 30.87 69.99 182.97 112.99 0.16    -0.92
      se
X1 0.91
-----
group: 2
  vars   n  mean    sd median trimmed mad  min  max range skew kurtosis    se
X1     1 606 121.12 32.31 112.95    118.49 34.15 72.99 201.74 128.75 0.64    -0.71
      se

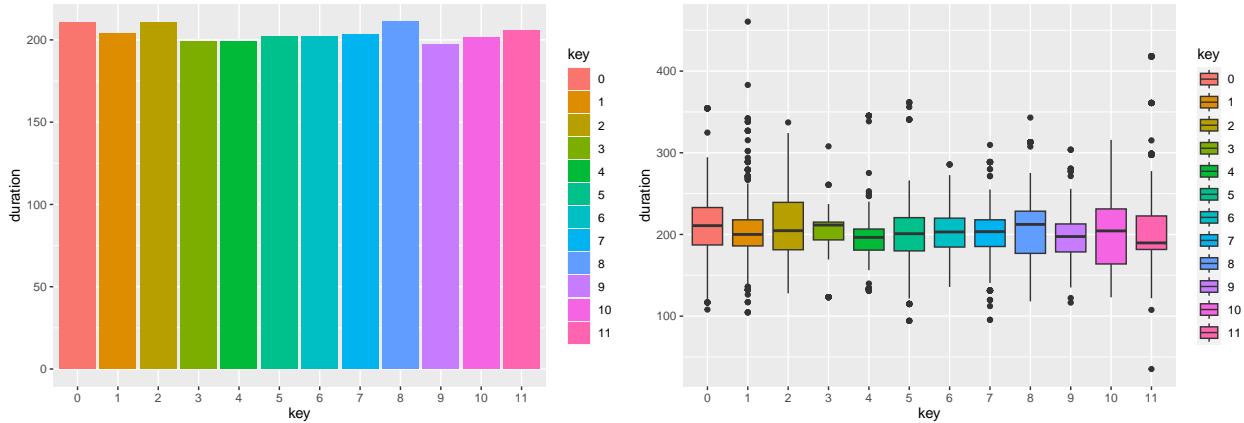
```

```

X1 1.31
-----
group: 3
  vars   n   mean     sd median trimmed   mad   min    max range skew kurtosis
X1      1 186 112.65 18.78 111.88 111.22 17.55 62.45 177.91 115.47     1     1.68
    se
X1 1.38
-----
group: 4
  vars   n   mean     sd median trimmed   mad   min    max range skew kurtosis
X1      1 399 119.62 26.84 113.01 117.35 28.19 65.38 189.89 124.52     0.6   -0.54
    se
X1 1.34
-----
group: 5
  vars   n   mean     sd median trimmed   mad min    max range skew kurtosis
X1      1 634 119.75 27.97 110.01 117.57 25.25 75 193.02 118.01     0.6   -0.87
    se
X1 1.11
-----
group: 6
  vars   n   mean     sd median trimmed   mad min    max range skew kurtosis
X1      1 734 115.91 25.37 114.04 112.9 23.66 75 180.07 105.06     0.93     0.2
    se
X1 0.94
-----
group: 7
  vars   n   mean     sd median trimmed   mad min    max range skew kurtosis
X1      1 638 117.62 33.63 106.91 114.27 29.47 68.5 205.27 136.77     0.81   -0.32
    se
X1 1.33
-----
group: 8
  vars   n   mean     sd median trimmed   mad min    max range skew kurtosis
X1      1 774 119.5 28.95 117.97 117.32 32.75 62.48 199.86 137.38     0.57   -0.33
    se
X1 1.04
-----
group: 9
  vars   n   mean     sd median trimmed   mad min    max range skew kurtosis
X1      1 445 120.1 26.4 116.97 117.96 25.56 71.88 203.86 131.98     0.65   -0.01
    se
X1 1.25
-----
group: 10
  vars   n   mean     sd median trimmed   mad min    max range skew kurtosis
X1      1 471 125.13 28.56 124.98 124.1 31.07 73.42 190.1 116.68     0.17   -0.77
    se
X1 1.32
-----
group: 11
  vars   n   mean     sd median trimmed   mad min    max range skew kurtosis
X1      1 895 115.75 25.31 110.96 113.31 23.31 64.93 180.07 115.13     0.71   -0.26
    se

```

```
X1 0.85
[1] "duration and album_type"
```



Descriptive statistics by group

```
group: 0
vars n mean sd median trimmed mad min max range skew
X1 1 722 210.68 43.03 210.77 209.49 34.99 108.03 354.32 246.29 0.54
kurtosis se
X1 1.76 1.6
-----
group: 1
vars n mean sd median trimmed mad min max range skew
X1 1 938 204.06 34.88 200.04 201.19 23.41 104.59 460.57 355.98 1.35
kurtosis se
X1 5.48 1.14
-----
group: 2
vars n mean sd median trimmed mad min max range skew kurtosis
X1 1 606 210.48 41 204.6 209.62 44.64 127.95 337.15 209.2 0.16 -0.53
se
X1 1.67
-----
group: 3
vars n mean sd median trimmed mad min max range skew
X1 1 186 199.21 29.36 211.48 203.16 6.35 123.26 307.88 184.62 -0.94
kurtosis se
X1 2.21 2.15
-----
group: 4
vars n mean sd median trimmed mad min max range skew
X1 1 399 199.21 38.91 196.4 195.82 21.53 131.06 345.24 214.18 1.92
kurtosis se
X1 6.06 1.95
-----
group: 5
vars n mean sd median trimmed mad min max range skew kurtosis
X1 1 634 201.79 42.37 200.92 201.73 31.21 94.25 361.95 267.7 0.42 1.79
se
X1 1.68
```

```

group: 6
  vars   n   mean     sd median trimmed   mad   min   max range skew
X1    1 734 202.18 24.62 203.06  202.45 25.54 135.74 285.63 149.9 -0.05
      kurtosis   se
X1    -0.3 0.91

group: 7
  vars   n   mean     sd median trimmed   mad   min   max range skew kurtosis
X1    1 638 203.14 35 203.42  204.11 21.82 95.47 309.64 214.17 -0.14      0.47
      se
X1 1.39

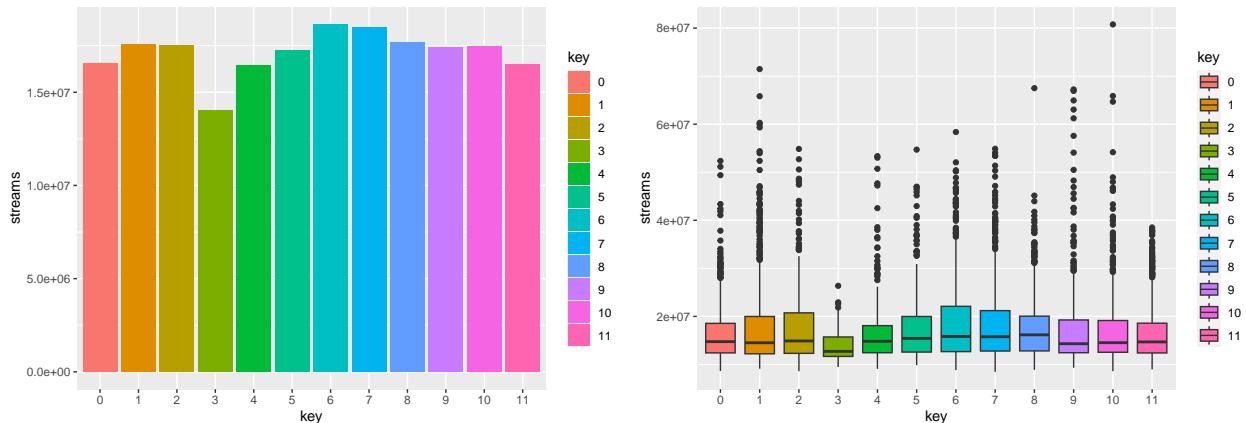
group: 8
  vars   n   mean     sd median trimmed   mad   min   max range skew kurtosis
X1    1 774 211.1 37.9 212.29  207.88 28.62 118.07 343.1 225.03 0.73      0.94
      se
X1 1.36

group: 9
  vars   n   mean     sd median trimmed   mad   min   max range skew
X1    1 445 197.22 31.79 197.44  197.51 22.88 116.56 303.78 187.22 0.12
      kurtosis   se
X1    0.62 1.51

group: 10
  vars   n   mean     sd median trimmed   mad   min   max range skew
X1    1 471 201.59 40.86 204.35  198.4 39.91 123.04 315.77 192.73 0.66
      kurtosis   se
X1    0.36 1.88

group: 11
  vars   n   mean     sd median trimmed   mad   min   max range skew kurtosis
X1    1 895 205.48 53.46 189.65  197.3 34.03 35.24 417.92 382.68 2.15      6.01
      se
X1 1.79
[1] "streams and album_type"

```



Descriptive statistics by group

```

group: 0
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 722 16542100 5953546 14741930 15580021 4129094 8616666 52357127
      range skew kurtosis      se
X1 43740461    2      5.91 221568
-----
group: 1
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 938 17543468 8330619 14508852 15899555 4228014 9101506 71467874
      range skew kurtosis      se
X1 62366368 2.35      7.06 272004.3
-----
group: 2
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 606 17501190 7264315 14885554 16277880 4810405 8595924 54848635
      range skew kurtosis      se
X1 46252711 1.89      4.6 295092.6
-----
group: 3
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 186 14049496 3256121 12717532 13600350 2090213 9468277 26362706
      range skew kurtosis      se
X1 16894429 1.18      0.72 238750.4
-----
group: 4
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 399 16437267 6473197 14812016 15310882 3879822 9082718 53344093
      range skew kurtosis      se
X1 44261375 2.68      9.72 324065.2
-----
group: 5
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 634 17223769 6439071 15420072 16194855 4813801 9844788 54707620
      range skew kurtosis      se
X1 44862832 1.95      5.27 255728.2
-----
group: 6
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 734 18637481 8276399 15813802 17179808 5728427 8796175 58370367
      range skew kurtosis      se
X1 49574192 1.68      2.91 305487.5
-----
group: 7
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 638 18503118 8286155 15756519 16957659 5362644 8454914 54891573
      range skew kurtosis      se
X1 46436659 1.81      3.41 328052
-----
group: 8
  vars   n      mean      sd      median     trimmed      mad      min      max
X1     1 774 17651586 6481319 16162662 16696010 5190065 8876988 67499798
      range skew kurtosis      se
X1 58622810 1.77      5.64 232966.2
-----
```

```

group: 9
  vars   n    mean      sd   median  trimmed     mad      min      max
X1     1 445 17387001 8807755 14308256 15623615 3923642 9304477 67237638
       range skew kurtosis      se
X1 57933161 2.93     10.71 417527.7

```

```

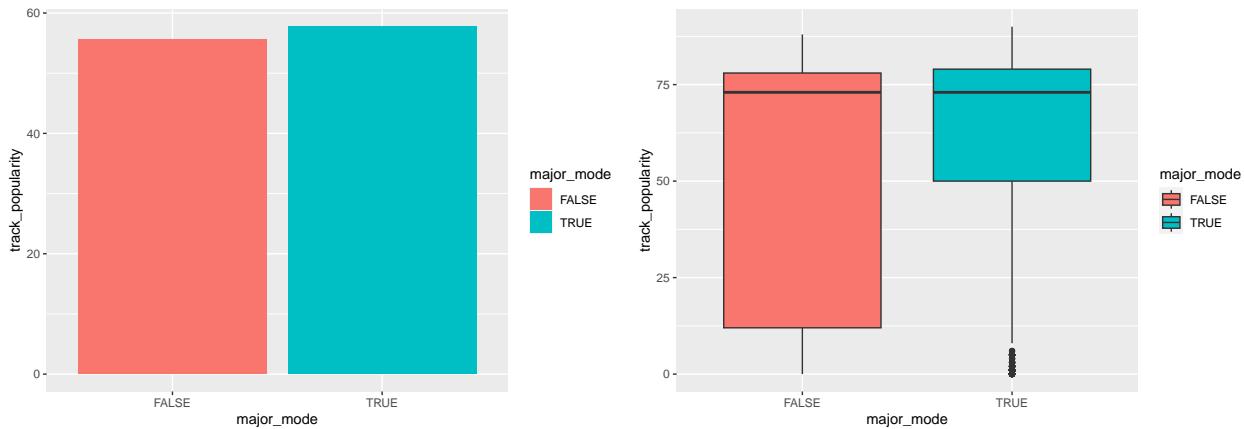
group: 10
  vars   n    mean      sd   median  trimmed     mad      min      max
X1     1 471 17460198 8564108 14521798 15753886 3804266 8602986 80764045
       range skew kurtosis      se
X1 72161059 2.86     11.63 394613.3

```

```

group: 11
  vars   n    mean      sd   median  trimmed     mad      min      max
X1     1 895 16517458 5774676 14686481 15566692 4088590 8953677 38506427
       range skew kurtosis      se
X1 29552750 1.47     1.8 193026.1
[1] "track_popularity and album_type"

```



Descriptive statistics by group

group: FALSE

```

  vars   n    mean      sd   median  trimmed     mad      min      max
X1     1 3233 55.54 32.26      73  59.05 10.38     0  88     88     -1     -0.85 0.57

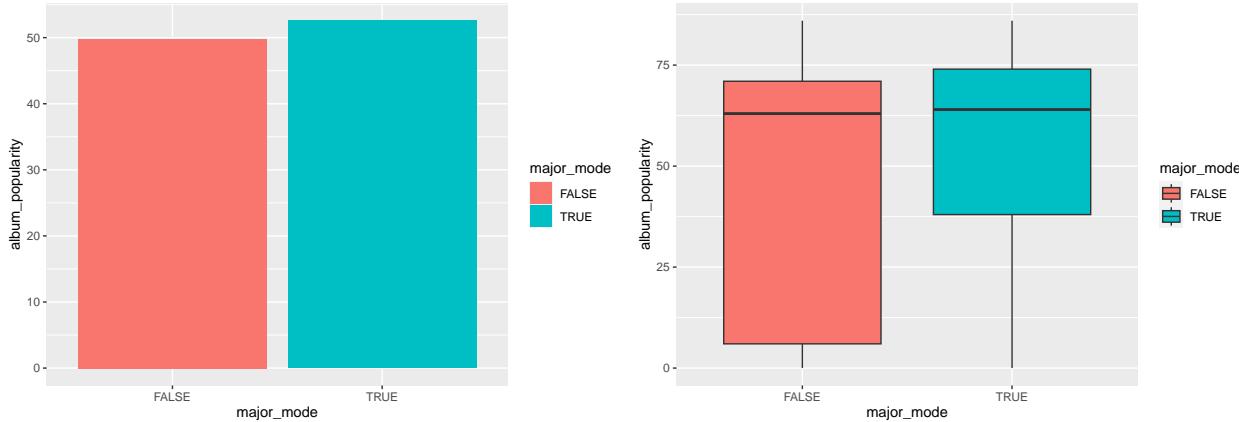
```

group: TRUE

```

  vars   n    mean      sd   median  trimmed     mad      min      max
X1     1 4209 57.72 31.85      73  61.48 11.86     0  90     90    -1.09     -0.59 0.49
[1] "album_popularity and album_type"

```



Descriptive statistics by group

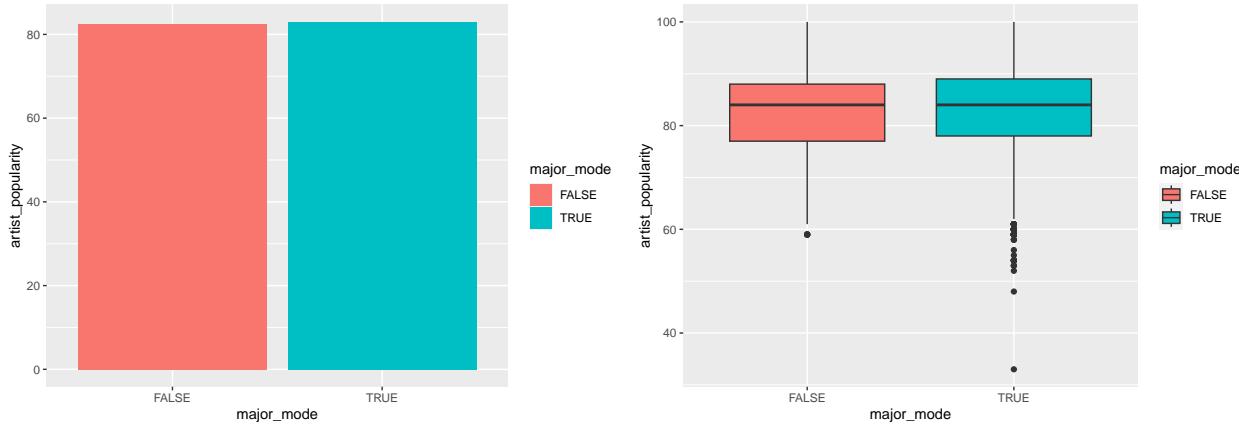
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3233	49.79	30.21	63	52.04	16.31	0	86	86	-0.85	-0.96	0.53

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4209	52.57	30.43	64	55.18	17.79	0	86	86	-0.91	-0.79	0.47

[1] "artist_popularity and album_type"



Descriptive statistics by group

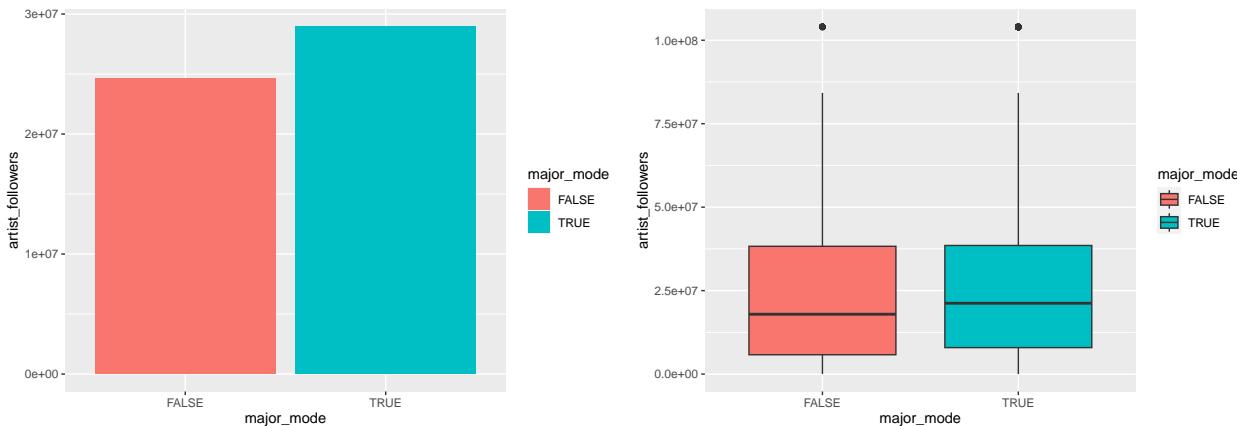
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3233	82.56	7.6	84	83.01	7.41	59	100	41	-0.47	-0.12	0.13

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4209	82.98	8.69	84	83.48	7.41	33	100	67	-0.64	0.64	0.13

[1] "artist_followers and album_type"



Descriptive statistics by group

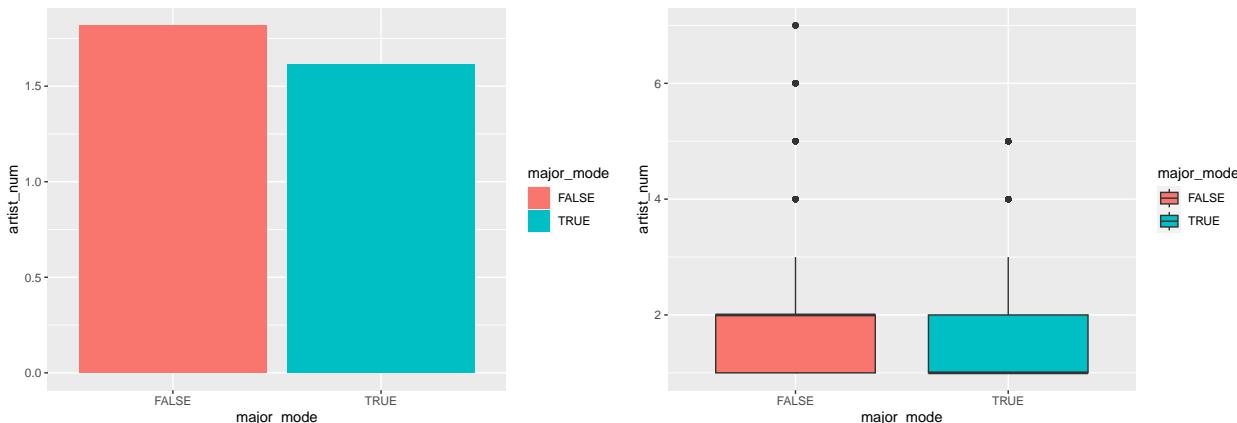
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	3233	24613929	23138186	17929017	21296410	22161573	42127	104059839
		range	skew	kurtosis	se				
X1	104017712	1.16	0.96	406936.3					

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	4209	28948174	26285355	21221092	25403859	23779031	3805	104059839
		range	skew	kurtosis	se				
X1	104056034	1.1	0.51	405158					

[1] "artist_num and album_type"



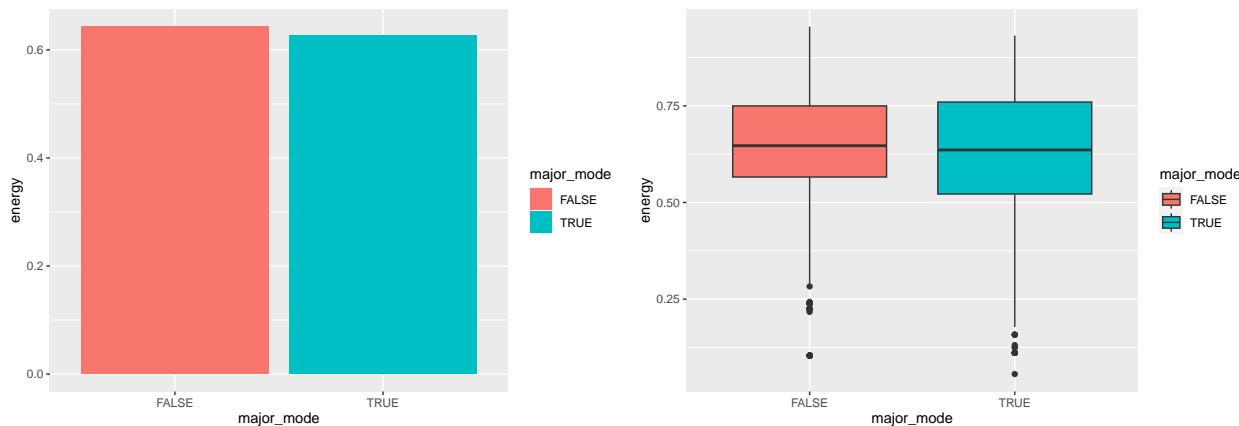
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3233	1.82	1.02	2	1.65	1.48	1	7	6	1.83	4.7	0.02
		range	skew	kurtosis	se								

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4209	1.61	0.78	1	1.48	0	1	5	4	1.62	3.68	0.01
		range	skew	kurtosis	se								



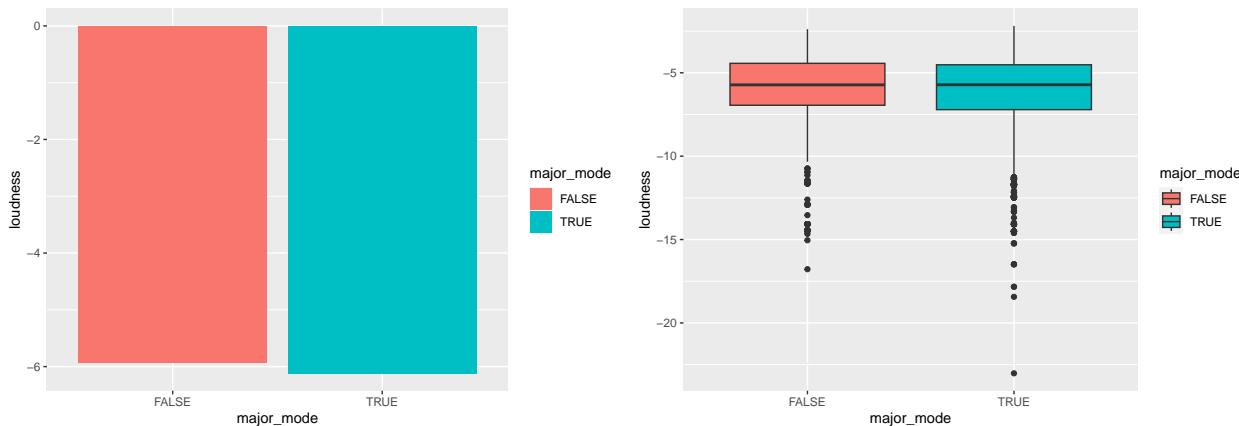
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 3233 0.64 0.14    0.65    0.65 0.14 0.1 0.96  0.85 -0.69     0.74  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 4209 0.63 0.15    0.64    0.63 0.17 0.06 0.93  0.88 -0.39     -0.39  0
[1] "loudness and album_type"
```



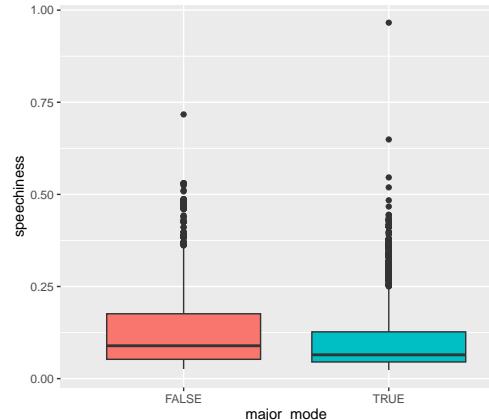
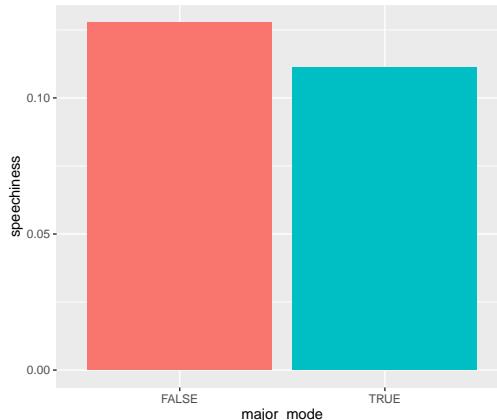
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 3233 -5.92 2.09   -5.72   -5.75 1.89 -16.78 -2.38 14.4 -1.14     2.5
      se
X1  0.04
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad min  max range skew kurtosis se
X1    1 4209 -6.12 2.23   -5.72   -5.89  2 -23.02 -2.19 20.84 -1.28     2.89
      se
X1  0.03
[1] "speechiness and album_type"
```



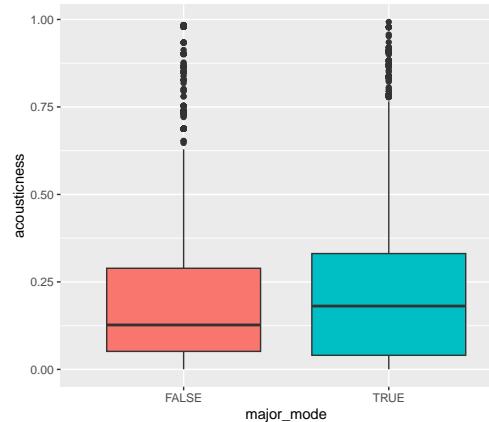
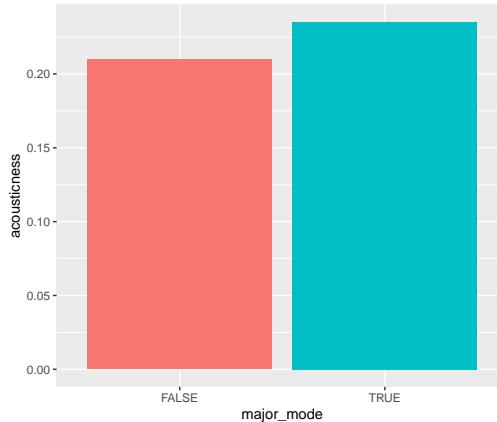
Descriptive statistics by group

group: FALSE

```
vars     n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 3233 0.13 0.11    0.09    0.11 0.06 0.03 0.72 0.69 1.63    2.28  0
```

group: TRUE

```
vars     n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 4209 0.11 0.1    0.06    0.09 0.04 0.02 0.97 0.94 1.7    2.58  0
[1] "acousticness and album_type"
```



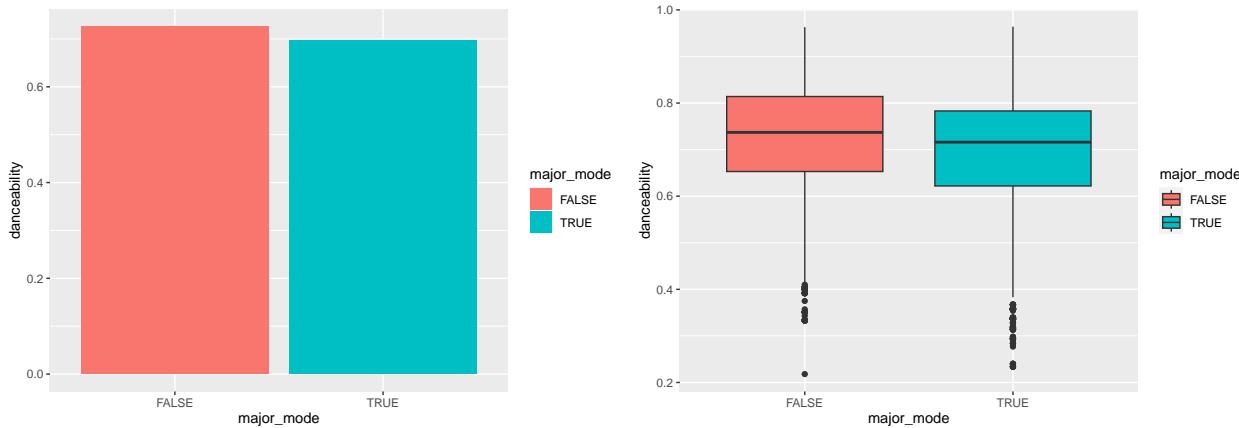
Descriptive statistics by group

group: FALSE

```
vars     n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 3233 0.21 0.22    0.13    0.17 0.14    0 0.98 0.98 1.52    1.71  0
```

group: TRUE

```
vars     n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 4209 0.24 0.23    0.18    0.2 0.22    0 0.99 0.99 1.12    0.46  0
[1] "danceability and album_type"
```



Descriptive statistics by group

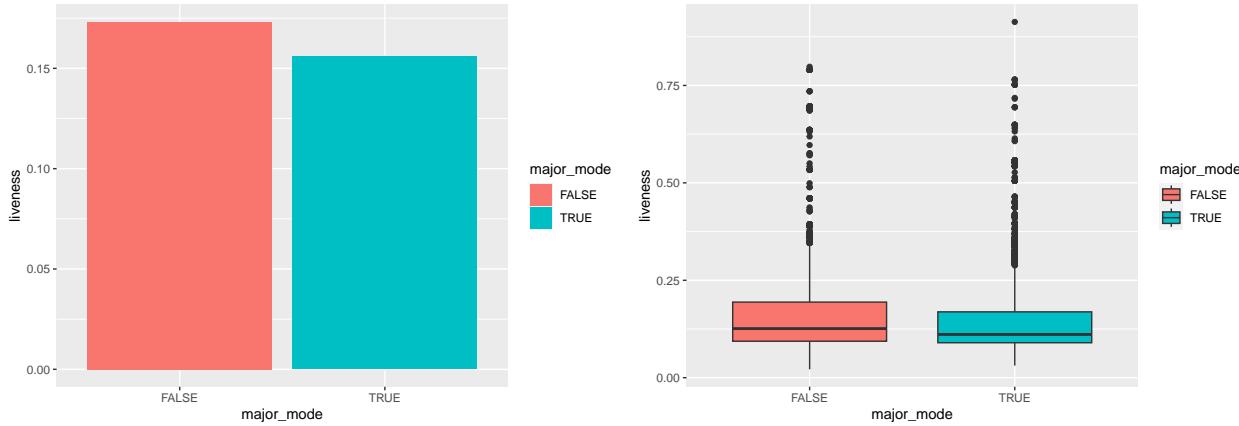
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3233	0.73	0.12	0.74	0.73	0.73	0.12	0.22	0.96	0.74	-0.73	0.4

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4209	0.7	0.13	0.72	0.71	0.71	0.12	0.23	0.96	0.73	-0.71	0.58

[1] "liveness and album_type"



Descriptive statistics by group

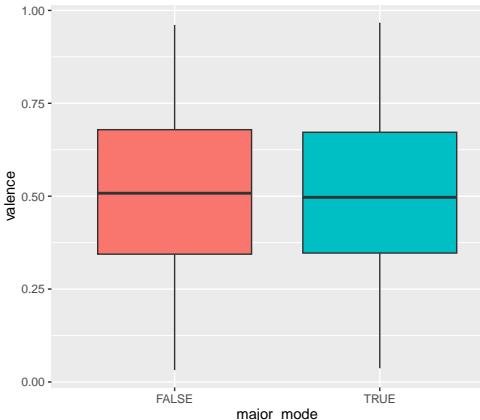
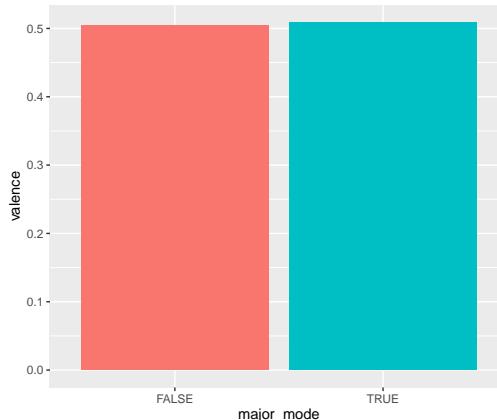
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	3233	0.17	0.13	0.13	0.15	0.15	0.06	0.02	0.8	0.78	2.44	6.78

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	4209	0.16	0.11	0.11	0.14	0.14	0.04	0.03	0.91	0.88	2.2	5.94

[1] "valence and album_type"



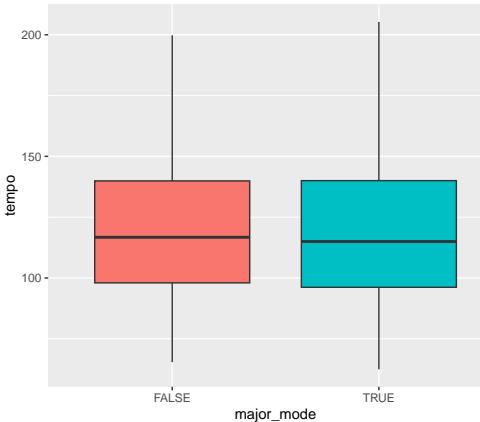
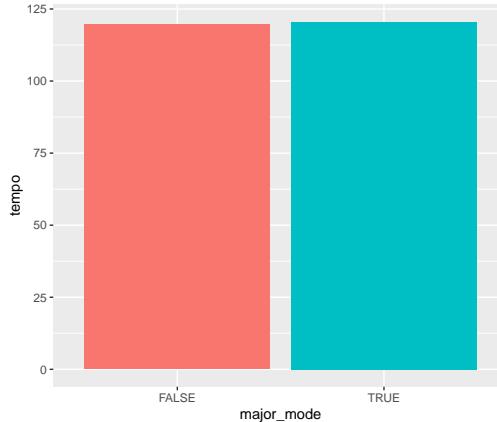
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed   mad   min   max range skew kurtosis se
X1    1 3233  0.5 0.22    0.51    0.51  0.25  0.03  0.96  0.93 -0.03   -0.91  0
```

group: TRUE

```
vars   n  mean   sd median trimmed   mad   min   max range skew kurtosis se
X1    1 4209  0.51 0.21     0.5     0.51  0.24  0.04  0.97  0.93  0.13   -0.75  0
[1] "tempo and album_type"
```



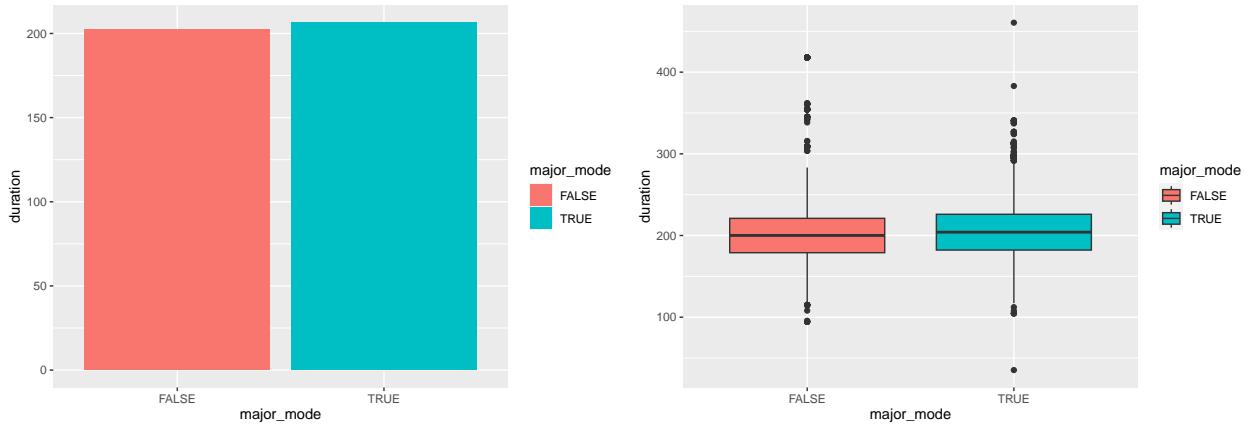
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed   mad   min   max range skew kurtosis se
X1    1 3233 119.66 26.8 116.74  117.57 29.26 65.38 199.76 134.38 0.59   -0.43
      se
X1  0.47
```

group: TRUE

```
vars   n  mean   sd median trimmed   mad   min   max range skew kurtosis se
X1    1 4209 120.51 29.4 114.99  118.11 29.97 62.45 205.27 142.83 0.6   -0.5
      se
X1  0.45
[1] "duration and album_type"
```



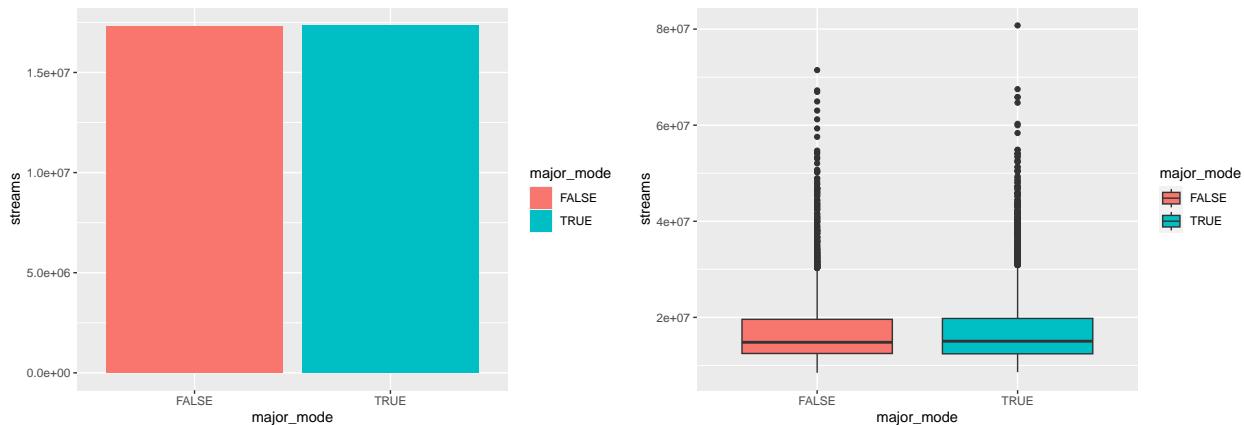
Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	3233	202.52	43.93	200.08	199.86	31.26	94.25	417.92	323.68	1.47
	kurtosis										
X1			5.38	0.77							

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	4209	206.42	35.77	204.09	204.46	32.46	35.24	460.57	425.33	0.65
	kurtosis										
X1			1.72	0.55							
[1] "streams and album_type"											



Descriptive statistics by group

group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	3233	17312353	7364660	14815511	15984754	4381489	8454914	71467874		
	kurtosis										
X1		63012960	2.28	7.33	129523.9						

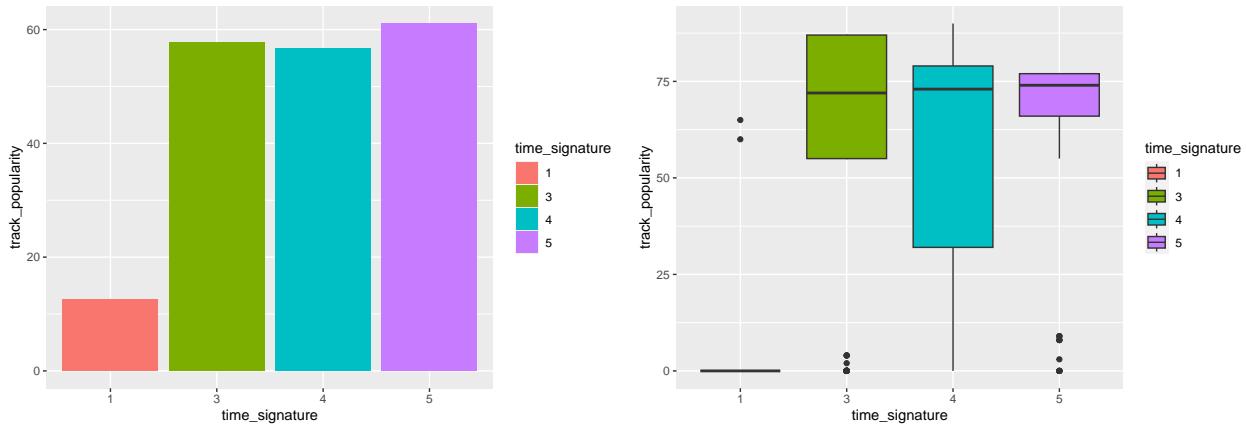
group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	4209	17347807	7277869	15037910	16052626	4609092	8602986	80764045		

```

range skew kurtosis      se
X1 72161059 2.26      7.47 112179.8
[1] "track_popularity and album_type"

```



Descriptive statistics by group

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	10	12.5	26.38	0	7.5	0	0	65	65	1.29	-0.34	8.34

group: 3

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	185	57.68	33.93	72	61.11	22.24	0	87	87	-0.94	-0.83	2.49

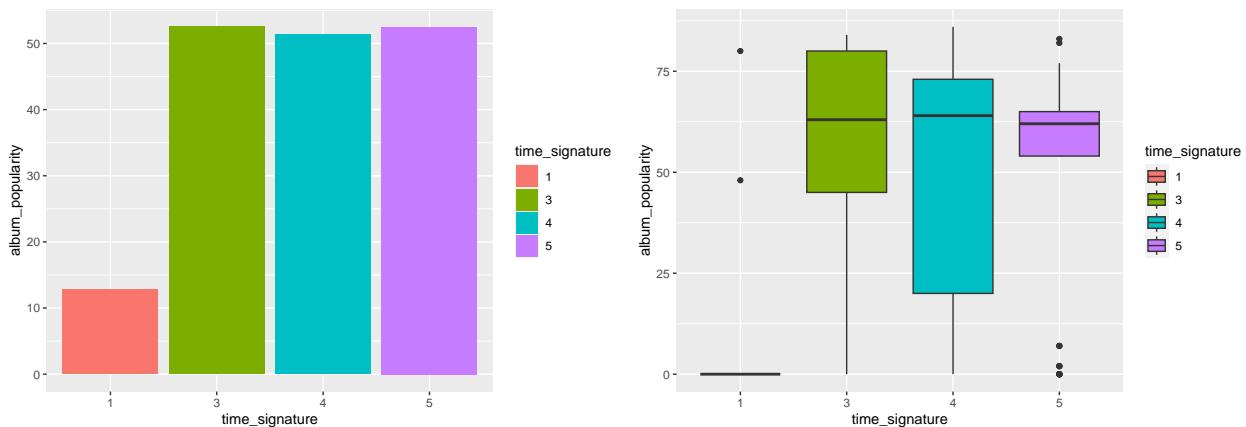
group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7162	56.76	32.02	73	60.43	11.86	0	90	90	-1.05	-0.71	0.38

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	85	61.07	26.94	74	66.26	4.45	0	77	77	-1.59	0.69	2.92

[1] "album_popularity and album_type"



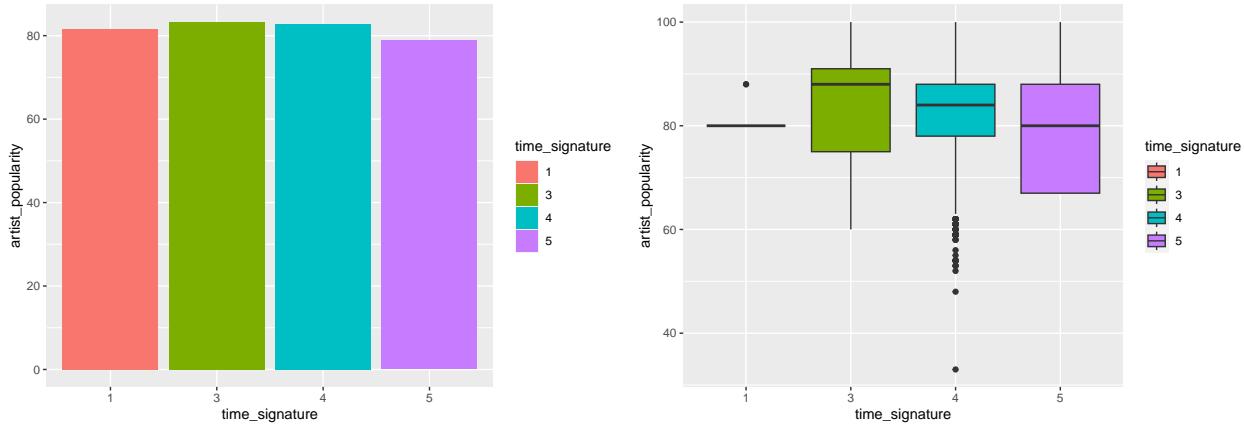
Descriptive statistics by group

group: 1

```

vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 10 12.8 28.02 0 6 0 0 80 80 1.5 0.59 8.86
-----
group: 3
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 185 52.52 31.8 63 55.07 25.2 0 84 84 -0.8 -0.95 2.34
-----
group: 4
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 7162 51.37 30.37 64 53.81 16.31 0 86 86 -0.88 -0.86 0.36
-----
group: 5
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 85 52.51 24.08 62 56.28 4.45 0 83 83 -1.51 0.6 2.61
[1] "artist_popularity and album_type"

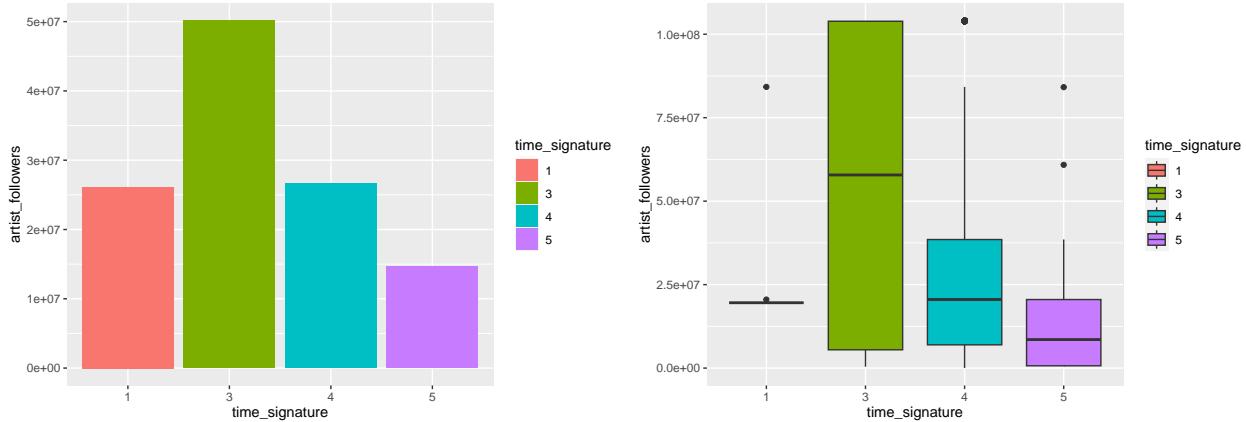
```



```

Descriptive statistics by group
group: 1
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 10 81.6 3.37 80 81 0 80 88 8 1.28 -0.37 1.07
-----
group: 3
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 185 83.26 10.48 88 84.4 7.41 60 100 40 -0.87 -0.19 0.77
-----
group: 4
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 7162 82.83 8.14 84 83.27 7.41 33 100 67 -0.56 0.49 0.1
-----
group: 5
vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 85 78.85 9.94 80 78.88 11.86 67 100 33 -0.19 -1.65 1.08
[1] "artist_followers and album_type"

```



Descriptive statistics by group

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range
X1	1	10	26136167	20413355	19575370	19694875	0	19575370	84227300	64651930
			skew	kurtosis			se			
X1	2.28		3.57	6455270						

group: 3

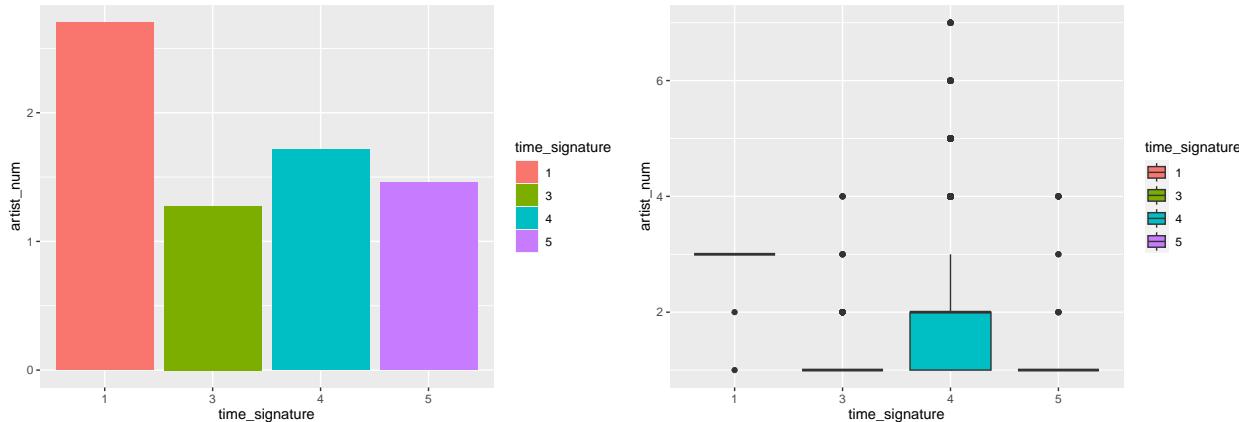
	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	185	50138005	42521498	57849231	49641600	68319418	415415	103972710
			range	skew	kurtosis		se		
X1	103557295	0.05	-1.72	3126243					

group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	7162	26618454	24225988	20546114	23321337	23131476	3805	104059839
			range	skew	kurtosis		se		
X1	104056034	1.12	0.74	286262.4					

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range
X1	1	85	14605117	15328838	8545449	12489825	11646705	689854	84143530	83453676
			skew	kurtosis			se			
X1	1.49		3.74	1662646						
	[1]	"artist_num and album_type"								



Descriptive statistics by group

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	10	2.7	0.67	3	2.88	0	1	3	2	-1.64	1.17	0.21

group: 3

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	185	1.28	0.62	1	1.13	0	1	4	3	2.58	6.94	0.05

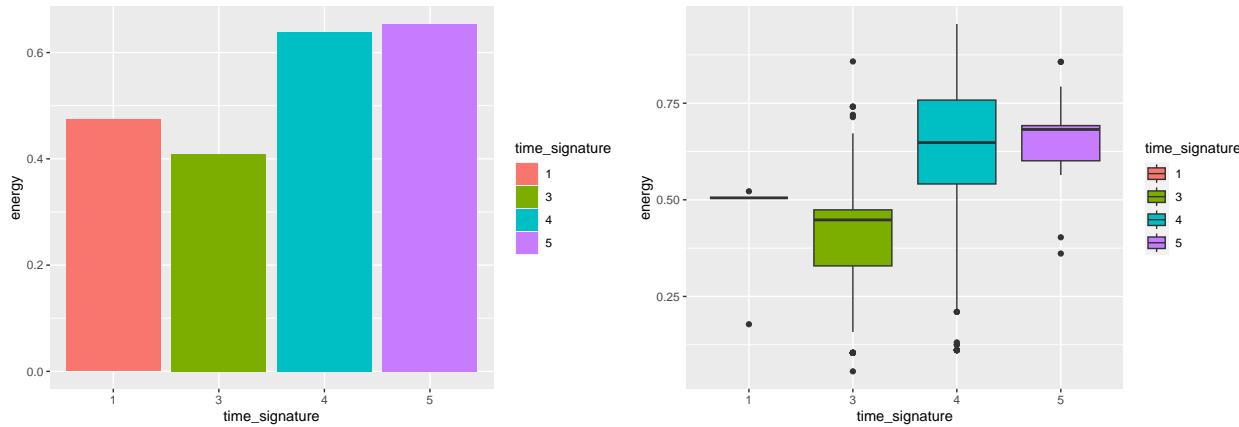
group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7162	1.71	0.9	2	1.56	1.48	1	7	6	1.86	5.26	0.01

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	85	1.46	1.01	1	1.22	0	1	4	3	1.91	1.95	0.11

[1] "energy and album_type"



Descriptive statistics by group

group: 1

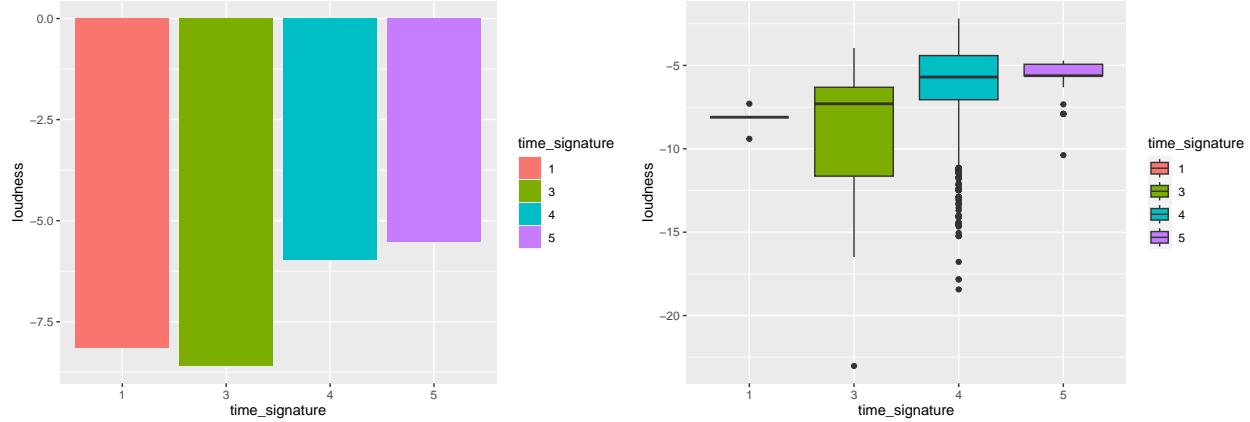
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	10	0.47	0.1	0.5	0.5	0	0.18	0.52	0.34	-2.27	3.54	0.03

group: 3

```

vars   n  mean   sd median trimmed mad  min  max range skew kurtosis   se
X1     1 185  0.41 0.16    0.45    0.42 0.1 0.06 0.86    0.8 -0.33    -0.01 0.01
-----
group: 4
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis   se
X1     1 7162  0.64 0.14    0.65    0.65 0.16 0.11 0.96    0.84 -0.45    -0.2  0
-----
group: 5
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis   se
X1     1 85   0.65 0.08    0.68    0.65 0.12 0.36 0.86    0.5 -0.34    1.79 0.01
[1] "loudness and album_type"

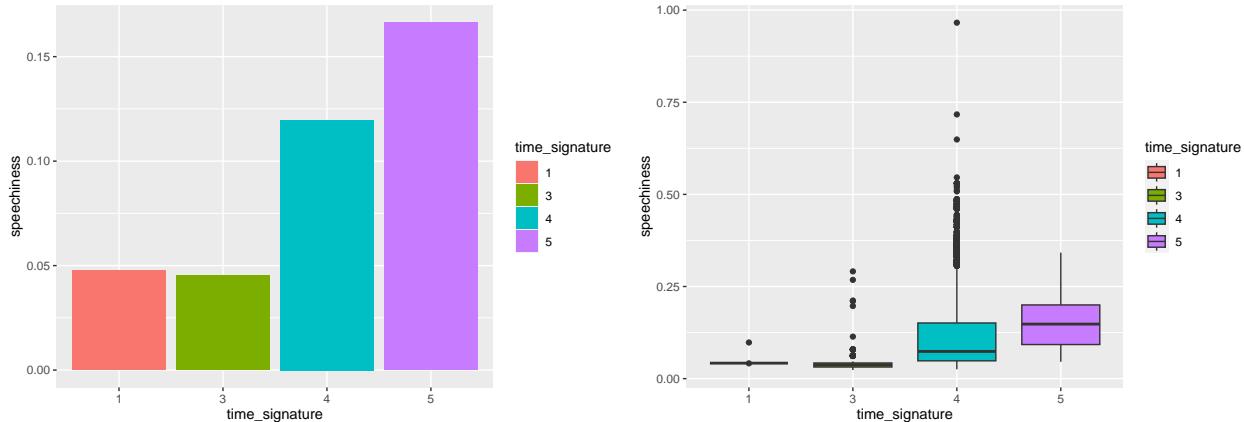
```



```

Descriptive statistics by group
group: 1
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis   se
X1     1 10   -8.15 0.51   -8.11   -8.11  0  -9.4 -7.3  2.11   -1    1.49 0.16
-----
group: 3
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis   se
X1     1 185  -8.59 3.19   -7.3    -8.25 1.69 -23.02 -3.95 19.07 -1.14    1.24
se
X1 0.23
-----
group: 4
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis   se
X1     1 7162 -5.97 2.11   -5.7    -5.78 1.97 -18.43 -2.19 16.25 -1.13    2.24
se
X1 0.02
-----
group: 5
vars   n  mean   sd median trimmed mad  min  max range skew kurtosis   se
X1     1 85   -5.54 0.9   -5.62   -5.38 0.91 -10.38 -4.71  5.68 -2.62    9.3 0.1
[1] "speechiness and album_type"

```



Descriptive statistics by group

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	10	0.05	0.02	0.04	0.04	0.04	0	0.04	0.1	0.06	2.28	3.57	0.01

group: 3

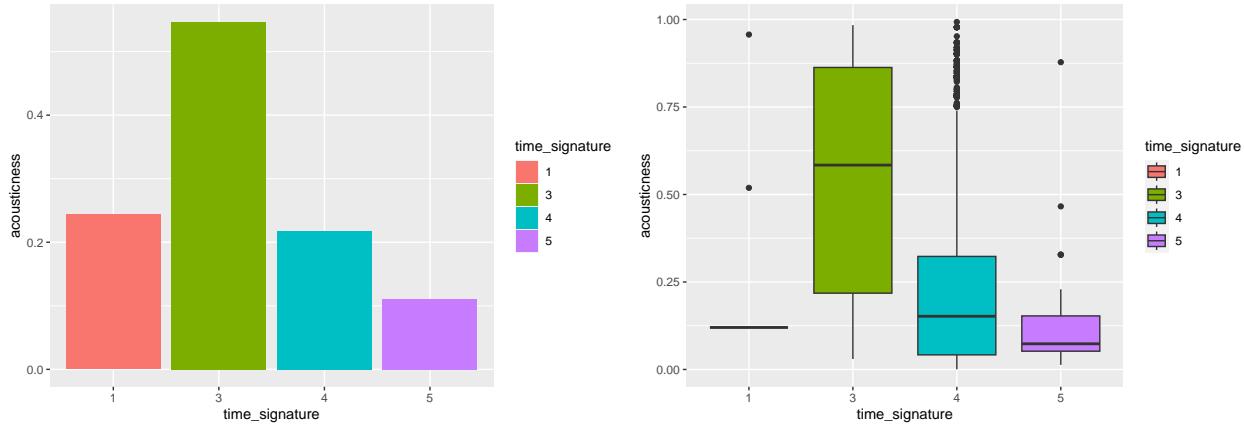
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	185	0.05	0.04	0.04	0.04	0.04	0.01	0.02	0.29	0.27	4.56	23.94	0

group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	7162	0.12	0.1	0.07	0.07	0.1	0.05	0.03	0.97	0.94	1.65	2.4	0

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	85	0.17	0.09	0.15	0.16	0.08	0.05	0.34	0.3	0.91	-0.36	0.01
[1]	"acousticness and album_type"												



Descriptive statistics by group

group: 1

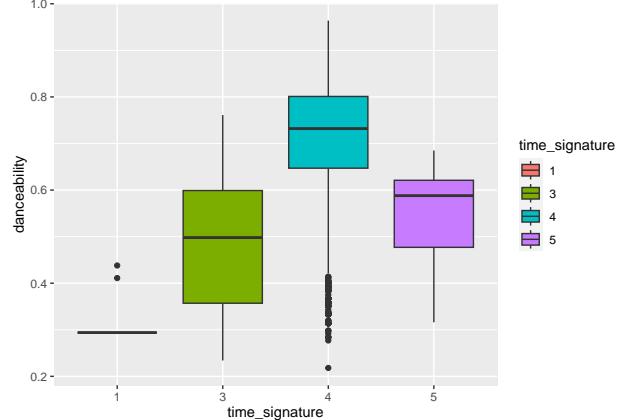
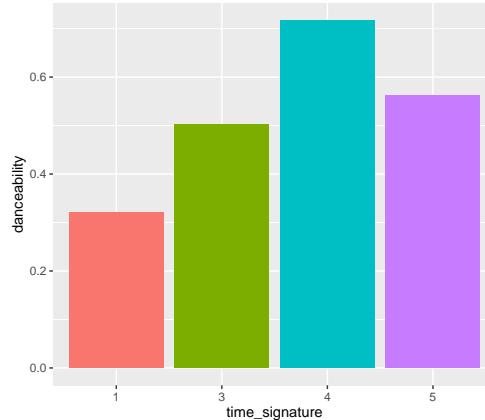
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	10	0.24	0.28	0.12	0.17	0.17	0	0.12	0.96	0.84	1.68	1.32	0.09

group: 3

```

vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 185 0.55 0.31    0.58    0.54 0.48 0.03 0.98  0.95    0   -1.57 0.02
-----
group: 4
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 7162 0.22 0.22    0.15    0.18 0.18  0 0.99  0.99 1.26    0.89 0
-----
group: 5
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 85 0.11 0.11    0.07    0.09 0.03 0.01 0.88  0.86 4.22    23.51 0.01
[1] "danceability and album_type"

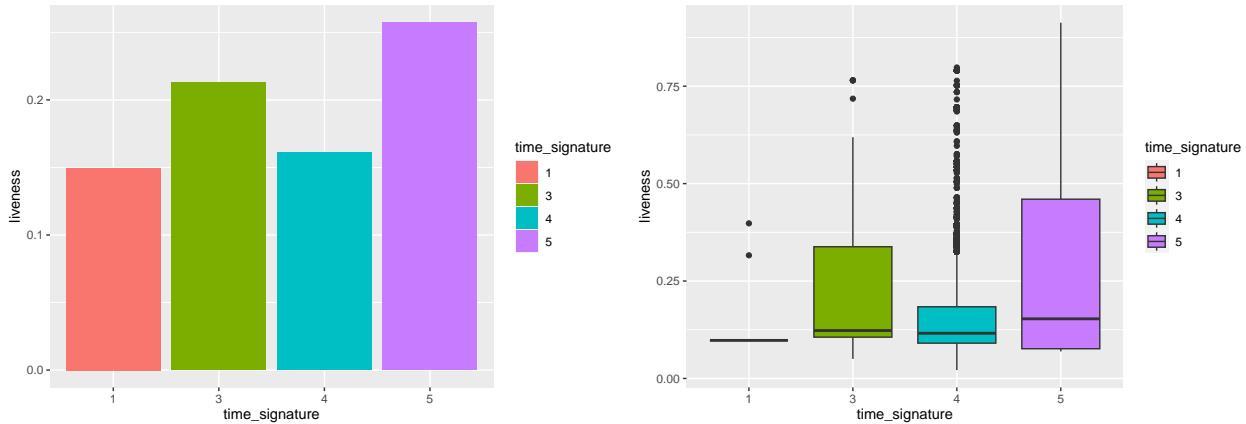
```



```

Descriptive statistics by group
group: 1
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 10 0.32 0.06    0.29    0.31 0 0.29 0.44  0.14 1.32    -0.18 0.02
-----
group: 3
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 185 0.5 0.14    0.5     0.5 0.15 0.23 0.76  0.53 -0.16    -0.86 0.01
-----
group: 4
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 7162 0.72 0.12    0.73    0.72 0.11 0.22 0.96  0.75 -0.69    0.5 0
-----
group: 5
vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 85 0.56 0.07    0.59    0.57 0.05 0.32 0.69  0.37 -0.62    -0.28 0.01
[1] "liveness and album_type"

```



Descriptive statistics by group

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	10	0.15	0.11	0.1	0.12	0	0.1	0.4	0.3	1.38	0.05	0.04

group: 3

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	185	0.21	0.15	0.12	0.19	0.05	0.05	0.76	0.71	1.43	2.31	0.01

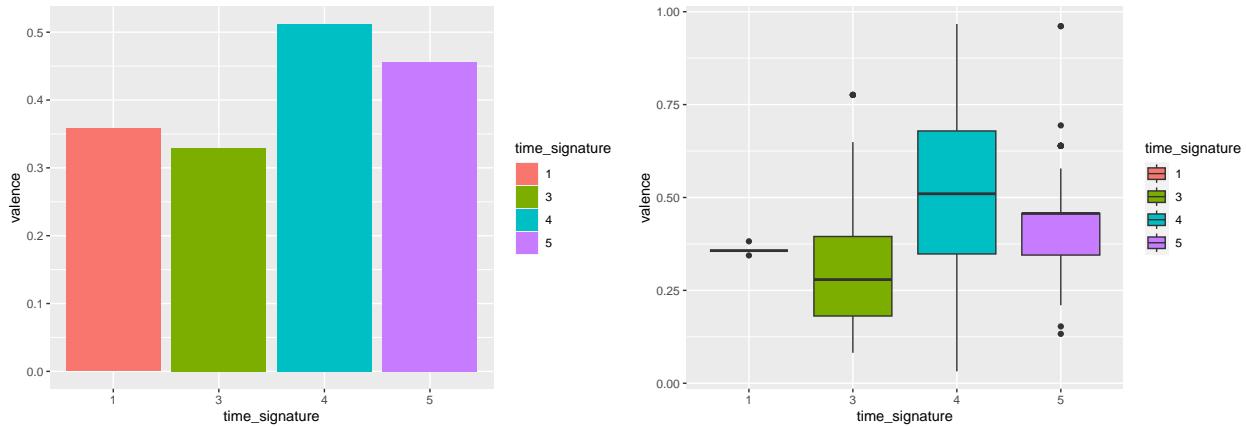
group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	7162	0.16	0.12	0.12	0.14	0.05	0.02	0.8	0.78	2.47	7.5	0

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	85	0.26	0.19	0.15	0.25	0.11	0.07	0.91	0.84	0.56	-0.56	0.02

[1] "valence and album_type"



Descriptive statistics by group

group: 1

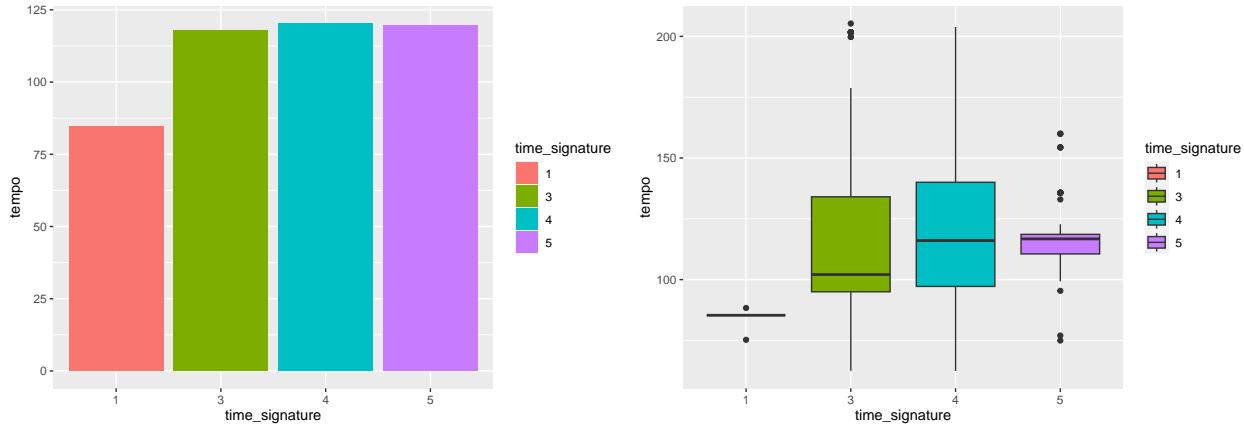
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	10	0.36	0.01	0.36	0.36	0	0.34	0.38	0.04	1.32	1.82	0

group: 3

```

vars   n  mean    sd median trimmed mad  min  max range skew kurtosis   se
X1     1 185 0.33 0.16   0.28    0.31 0.16 0.08 0.78   0.69 0.92      0.12 0.01
-----
group: 4
vars   n  mean    sd median trimmed mad  min  max range skew kurtosis   se
X1     1 7162 0.51 0.22   0.51    0.51 0.25 0.03 0.97   0.93 0.02     -0.81 0
-----
group: 5
vars   n  mean    sd median trimmed mad  min  max range skew kurtosis   se
X1     1 85 0.46 0.14   0.46    0.45 0.17 0.13 0.96   0.83 0.9      2.55 0.02
[1] "tempo and album_type"

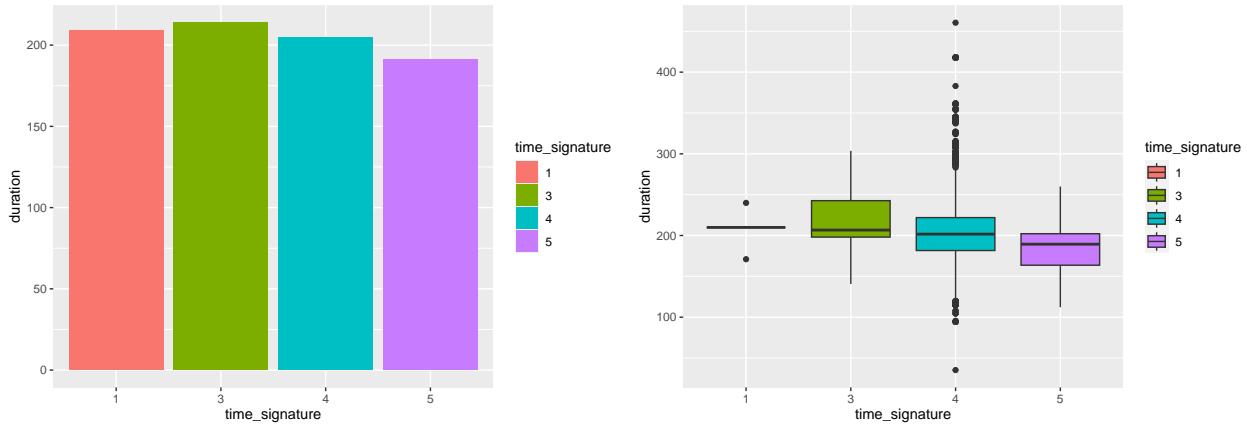
```



```

Descriptive statistics by group
group: 1
vars   n  mean    sd median trimmed mad  min  max range skew kurtosis   se
X1     1 10 84.62 3.43   85.33   85.33  0 75.25 88.33 13.08 -1.91      2.74 1.08
-----
group: 3
vars   n  mean    sd median trimmed mad  min  max range skew kurtosis   se
X1     1 185 117.99 37.6  102.08  113.99 20.38 62.48 205.27 142.79 0.95     -0.12
se
X1 2.76
-----
group: 4
vars   n  mean    sd median trimmed mad  min  max range skew kurtosis   se
X1     1 7162 120.25 28.13  116.05  117.97 29.69 62.45 203.86 141.42 0.58
kurtosis   se
X1  -0.52 0.33
-----
group: 5
vars   n  mean    sd median trimmed mad  min  max range skew kurtosis   se
X1     1 85 119.58 15.23  116.74  118.01 9.14 74.95 159.97 85.01 0.68      1.91
se
X1 1.65
[1] "duration and album_type"

```



Descriptive statistics by group

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	10	209.01	16.37	209.89	209.89	0	170.96	239.95	68.99	-0.58	1.2
				se								
X1		5.18										

group: 3

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	185	213.82	35.65	206.64	215.03	32.38	140.69	303.64	162.95	0.01
				se							
X1		-0.8	2.62								

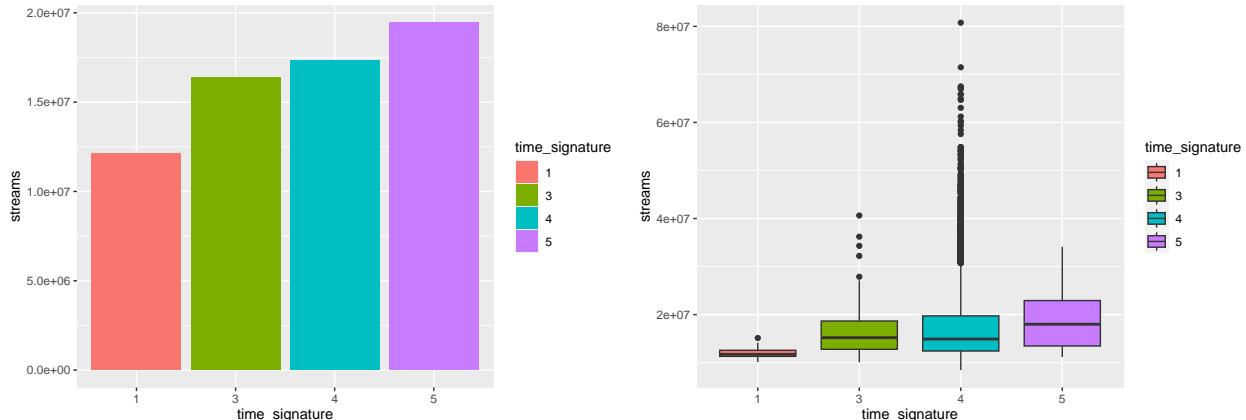
group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	7162	204.64	39.7	201.66	202.41	29.89	35.24	460.57	425.33	1.14	4.32
				se								
X1		0.47										

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	85	191.34	34.28	189.36	187.57	38.14	112.24	260	147.76	0.71	-0.33
				se								
X1		3.72										

[1] "streams and album_type"



Descriptive statistics by group

group: 1

	vars	n	mean	sd	median	trimmed	mad	min	max	range
X1	1	10	12113931	1540243	11731067	11985157	1119017	10129426	15128629	4999203
			skew	kurtosis		se				
X1	0.66	-0.84	487067.7							

group: 3

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	185	16376615	4985754	15200900	15714556	4261486	10056946	40628023
			range	skew	kurtosis	se			
X1	30571077	1.65	3.98	366559.9					

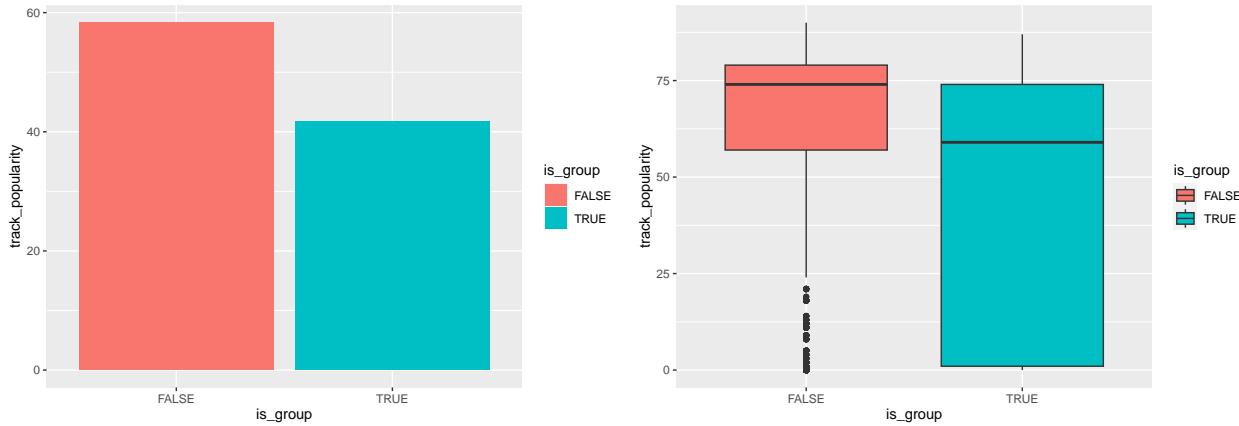
group: 4

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	7162	17339254	7370776	14913889	16011023	4506764	8454914	80764045
			range	skew	kurtosis	se			
X1	72309131	2.28	7.42	87095.57					

group: 5

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	85	19449526	6658211	17996318	18824561	6794966	11167592	34104838
			range	skew	kurtosis	se			
X1	22937246	0.68	-0.69	722184.3					

[1] "track_popularity and album_type"



Descriptive statistics by group

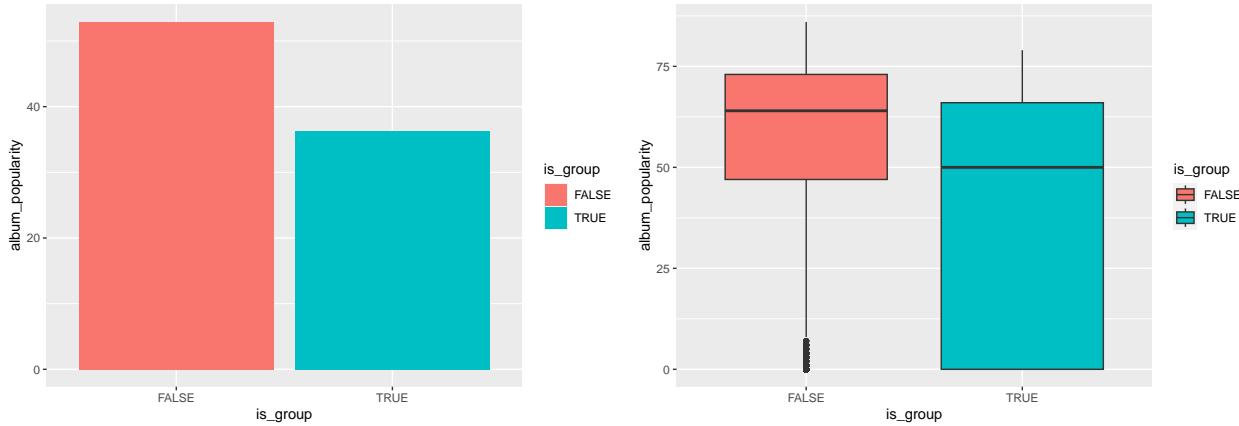
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6751	58.31	31.36	74	62.32	10.38	0	90	90	-1.16	-0.44	0.38

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	691	41.74	34.75	59	41.88	32.62	0	87	87	-0.16	-1.81	1.32

[1] "album_popularity and album_type"



Descriptive statistics by group

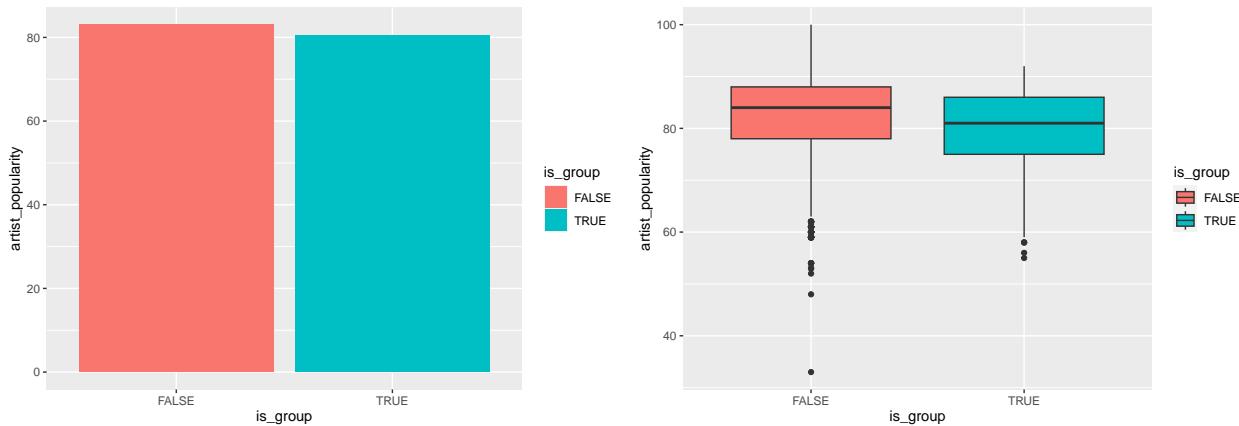
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6751	52.9	29.8	64	55.68	16.31	0	86	86	-0.99	-0.63	0.36

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	691	36.32	31.65	50	36.09	35.58	0	79	79	-0.08	-1.82	1.2

[1] "artist_popularity and album_type"



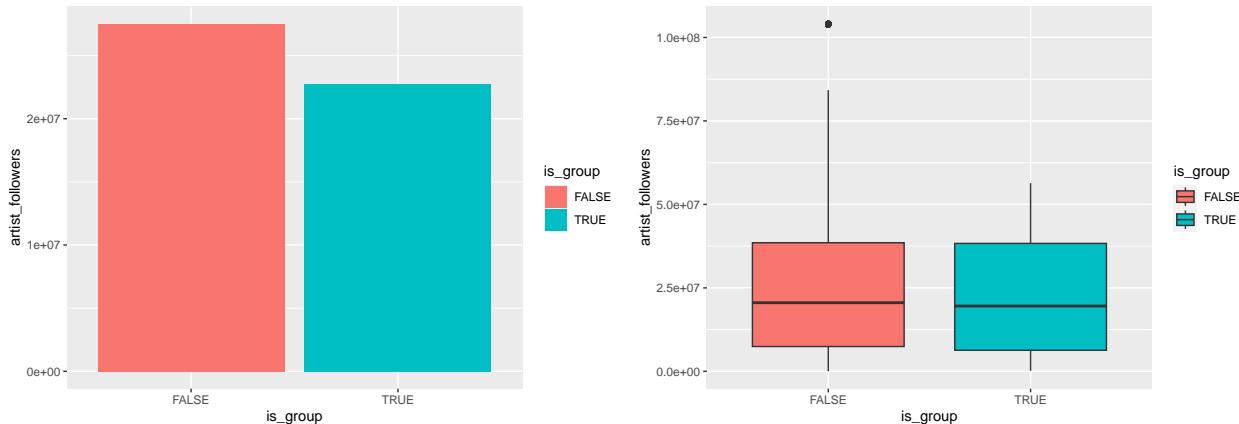
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed mad min max range skew kurtosis   se
X1    1 6751 83.05 8.25      84     83.5 7.41   33 100     67 -0.59      0.51 0.1
```

group: TRUE

```
vars   n  mean   sd median trimmed mad min max range skew kurtosis   se
X1    1 691 80.37 7.73      81     80.95 8.9  55 92     37 -0.6      -0.18 0.29
[1] "artist_followers and album_type"
```



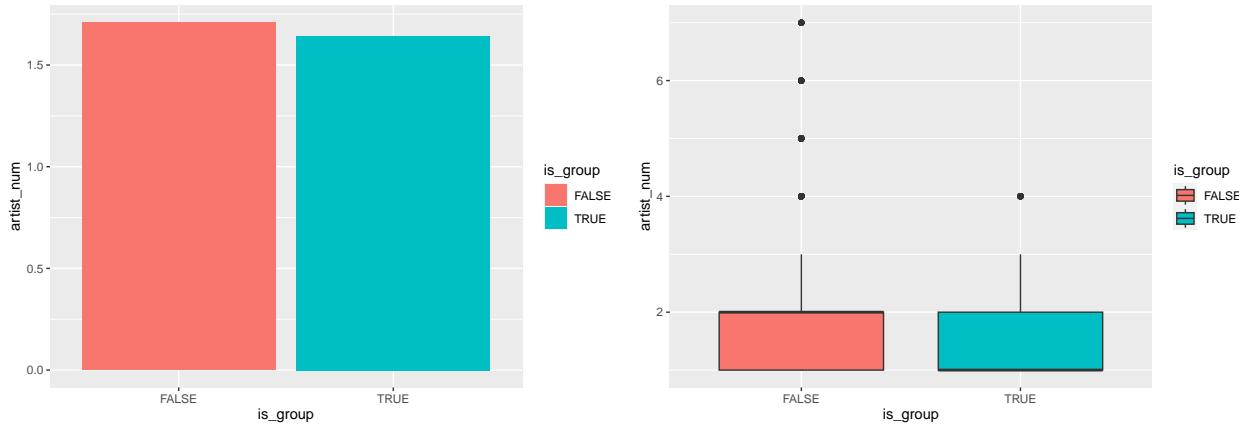
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed mad min max range skew kurtosis   se
X1    1 6751 27506435 25586858 20550098 23958590 22902585 3805 104059839
          range skew kurtosis   se
X1 104056034 1.15      0.68 311410.2
```

group: TRUE

```
vars   n  mean   sd median trimmed mad min max range skew kurtosis   se
X1    1 691 22755068 18602794 19562506 21549697 26008356 155010 56375377
          range skew kurtosis   se
X1 56220367 0.33      -1.38 707683.7
[1] "artist_num and album_type"
```



Descriptive statistics by group

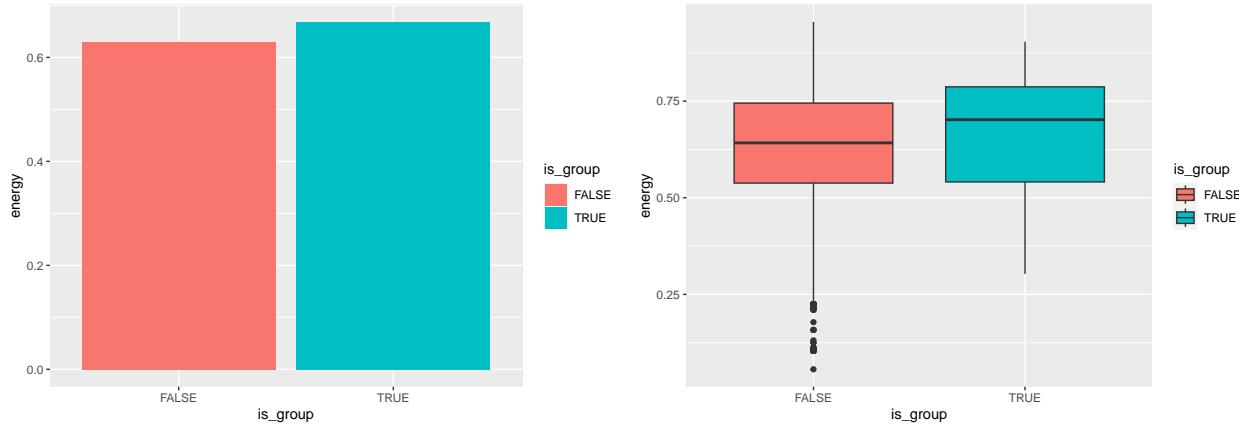
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	6751	1.71	0.91	2	1.55	1.48	1	7	6	1.91	5.47	0.01

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	691	1.64	0.83	1	1.5	0	1	4	3	1.2	0.77	0.03

[1] "energy and album_type"



Descriptive statistics by group

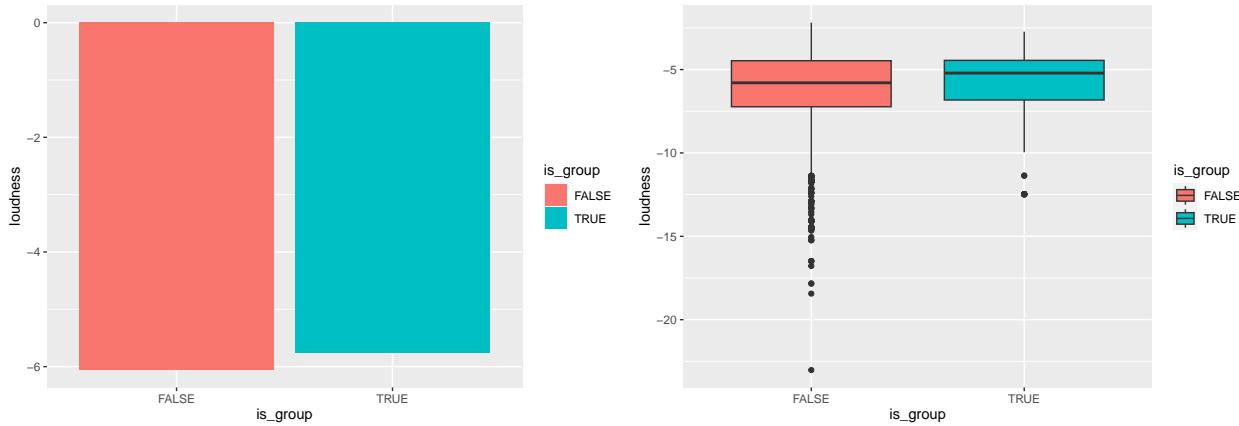
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	6751	0.63	0.15	0.64	0.64	0.64	0.15	0.06	0.96	0.9	-0.51	0.06	0

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	691	0.67	0.15	0.7	0.68	0.16	0.3	0.9	0.6	-0.61	-0.42	0.01

[1] "loudness and album_type"



Descriptive statistics by group

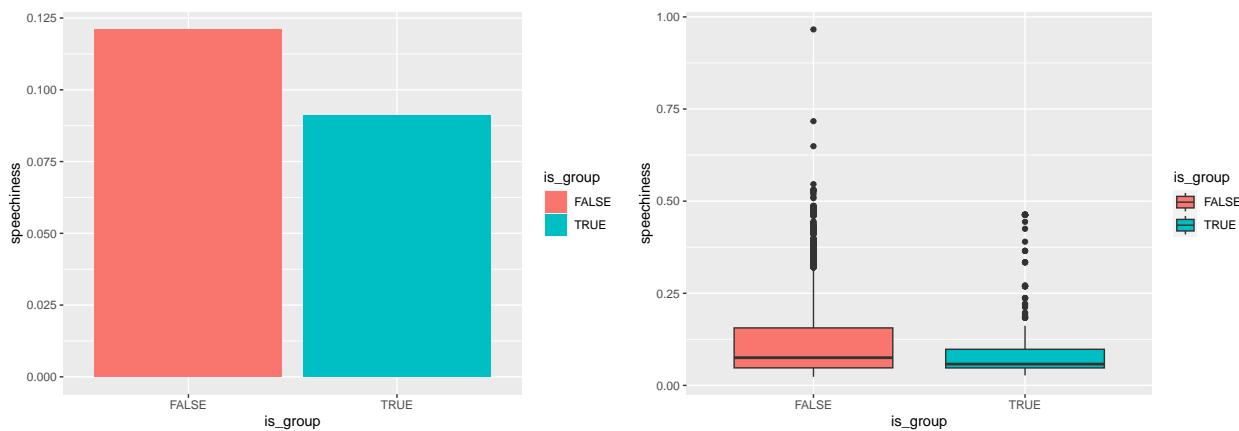
group: FALSE

```
vars   n  mean   sd median trimmed  mad    min    max range skew kurtosis
X1     1 6751 -6.06  2.2   -5.8   -5.86  2.02 -23.02 -2.19 20.84 -1.2      2.71
      se
X1 0.03
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad    min    max range skew kurtosis
X1     1 691  -5.76  1.83  -5.21   -5.52  1.34 -12.47 -2.73  9.74 -1.57      3.24
      se
X1 0.07
```

[1] "speechiness and album_type"



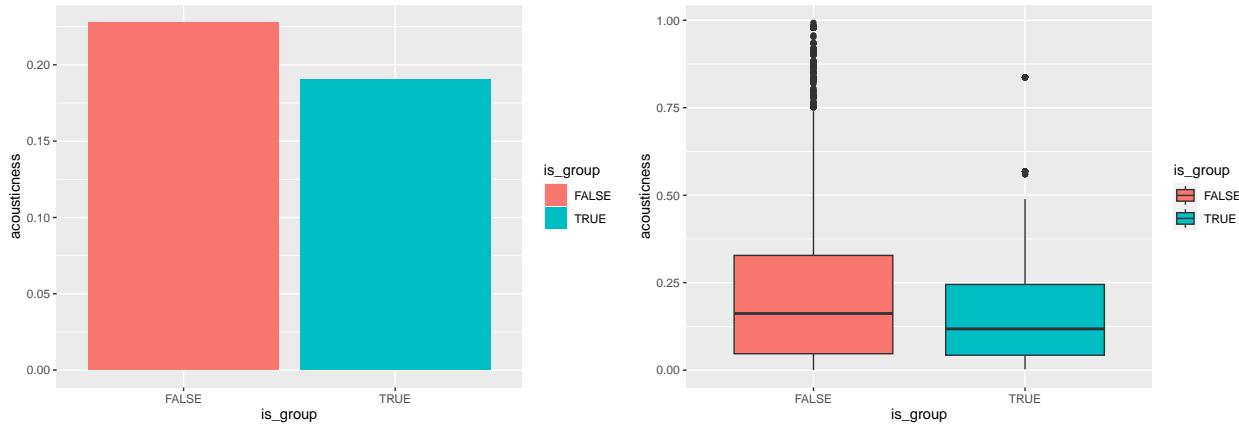
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad    min    max range skew kurtosis se
X1     1 6751  0.12  0.1    0.08     0.1  0.05  0.02  0.97  0.94 1.58      2.17  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad    min    max range skew kurtosis se
X1     1 691  0.09  0.09   0.06     0.07  0.02  0.03  0.46  0.44 2.89      7.95  0
[1] "acousticness and album_type"
```



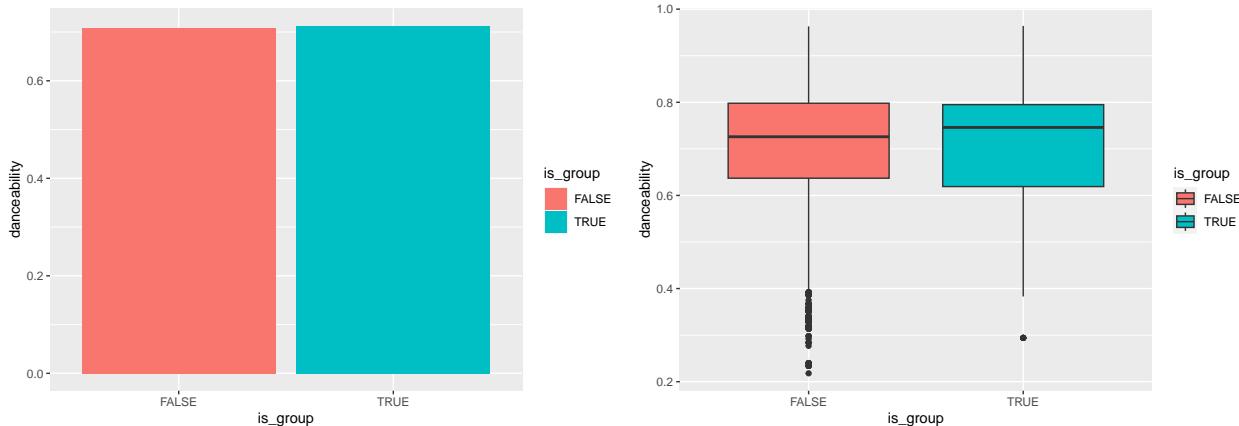
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed  mad min  max range skew kurtosis se
X1     1 6751 0.23 0.23    0.16    0.19 0.19    0 0.99 0.99 1.26    0.85 0
```

group: TRUE

```
vars   n mean   sd median trimmed  mad min  max range skew kurtosis se
X1     1 691 0.19 0.21    0.12    0.15 0.12    0 0.84 0.83 1.59    1.95 0.01
[1] "danceability and album_type"
```



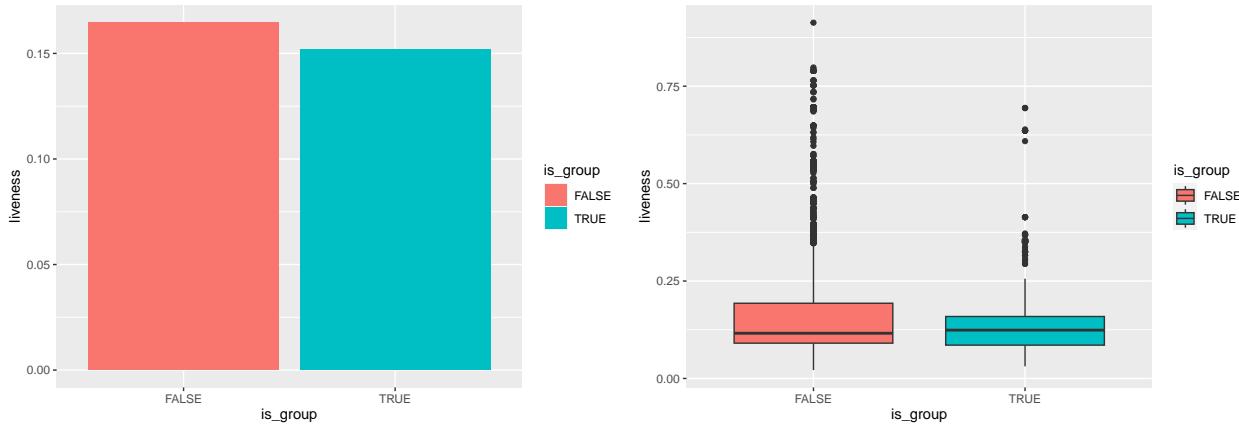
Descriptive statistics by group

group: FALSE

```
vars   n mean   sd median trimmed  mad min  max range skew kurtosis se
X1     1 6751 0.71 0.13    0.73    0.72 0.12 0.22 0.96 0.74 -0.71    0.53 0
```

group: TRUE

```
vars   n mean   sd median trimmed  mad min  max range skew kurtosis se
X1     1 691 0.71 0.13    0.75    0.72 0.12 0.29 0.96 0.67 -0.97    0.87 0
[1] "liveness and album_type"
```



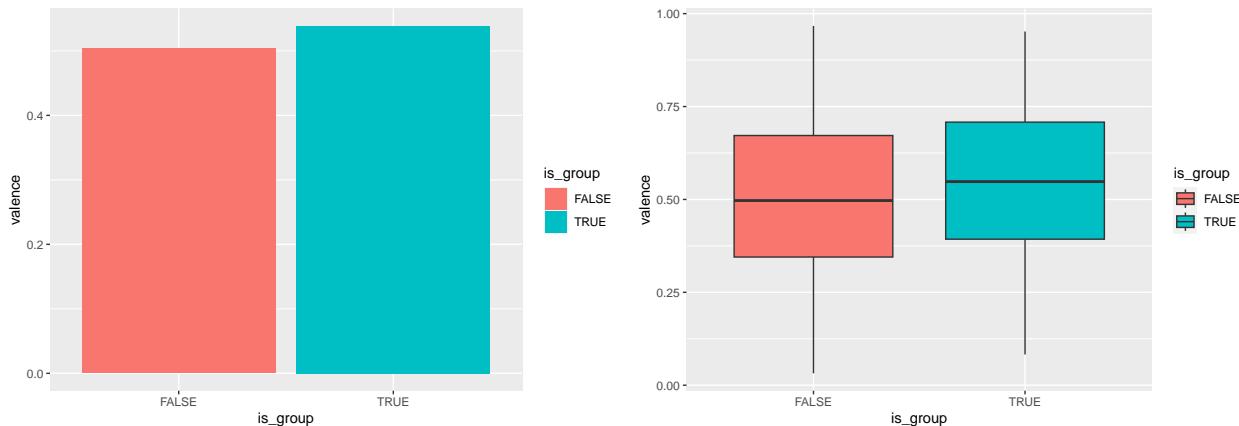
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 6751 0.16 0.12   0.12    0.14 0.05 0.02 0.91  0.89 2.38     6.89  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 691  0.15 0.11   0.12    0.13 0.06 0.03 0.69  0.66 2.45     6.91  0
[1] "valence and album_type"
```



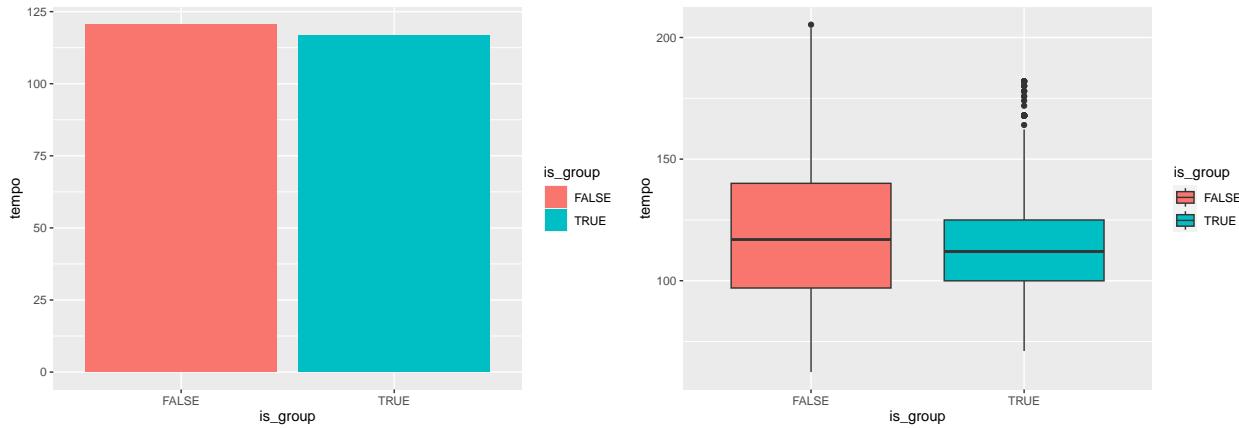
Descriptive statistics by group

group: FALSE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 6751  0.5 0.22   0.5    0.5 0.24 0.03 0.97  0.93 0.06   -0.84  0
```

group: TRUE

```
vars   n  mean   sd median trimmed  mad  min  max range skew kurtosis se
X1    1 691  0.54 0.21   0.55    0.54 0.24 0.08 0.95  0.87 0.06   -0.63  0.01
[1] "tempo and album_type"
```



Descriptive statistics by group

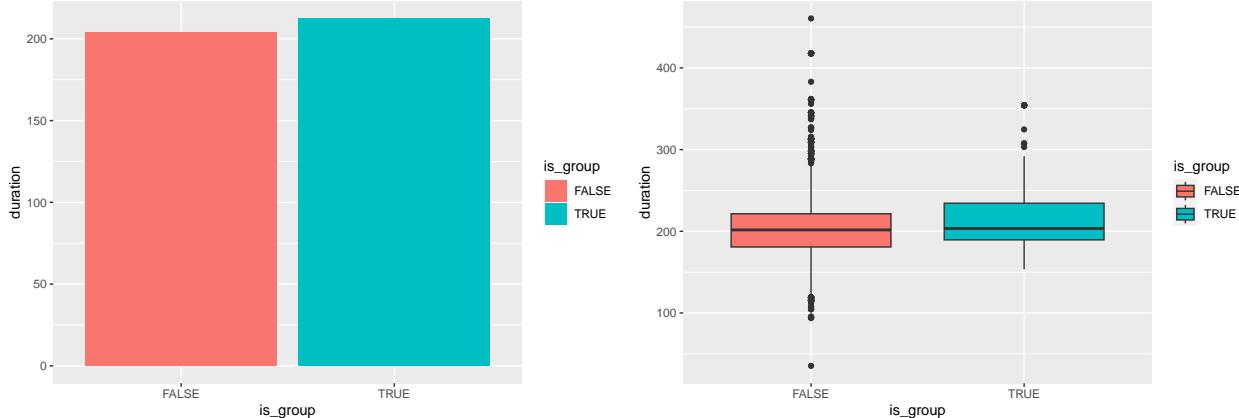
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	6751	120.48	28.63	116.95	118.16	31.08	62.45	205.27	142.83	0.58
	kurtosis										
X1		-0.5	0.35								

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	691	116.83	24.62	112.02	114.34	19.21	71.11	181.98	110.88	0.81	0.18
	se											
X1		0.94										

[1] "duration and album_type"



Descriptive statistics by group

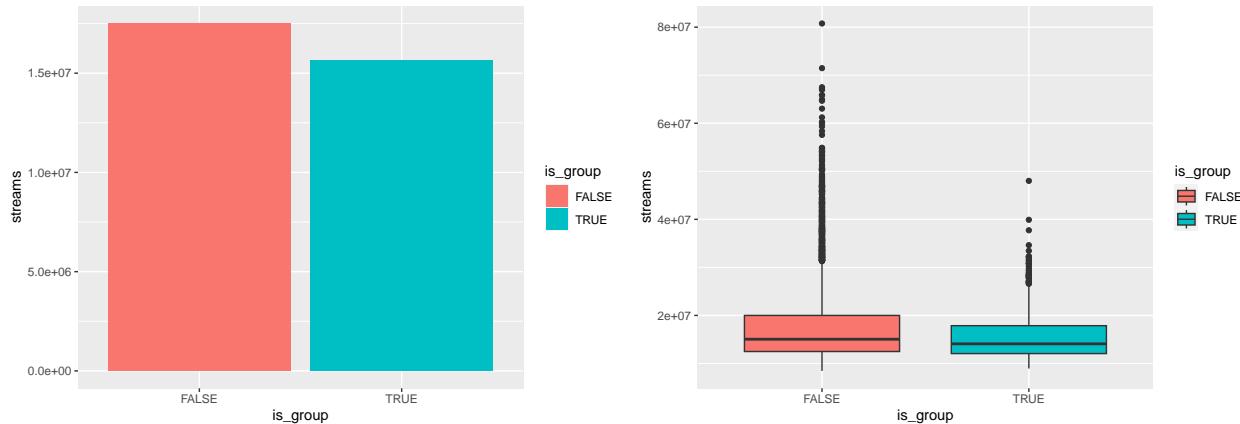
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	6751	203.93	39.77	201.66	201.81	30.24	35.24	460.57	425.33	1.09
	kurtosis										
X1		4.23	0.48								

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew
X1	1	691	212.47	36.73	203.42	208.77	28.37	153.35	354.32	200.97	1.54

```
kurtosis se
X1      3.7 1.4
[1] "streams and album_type"
```



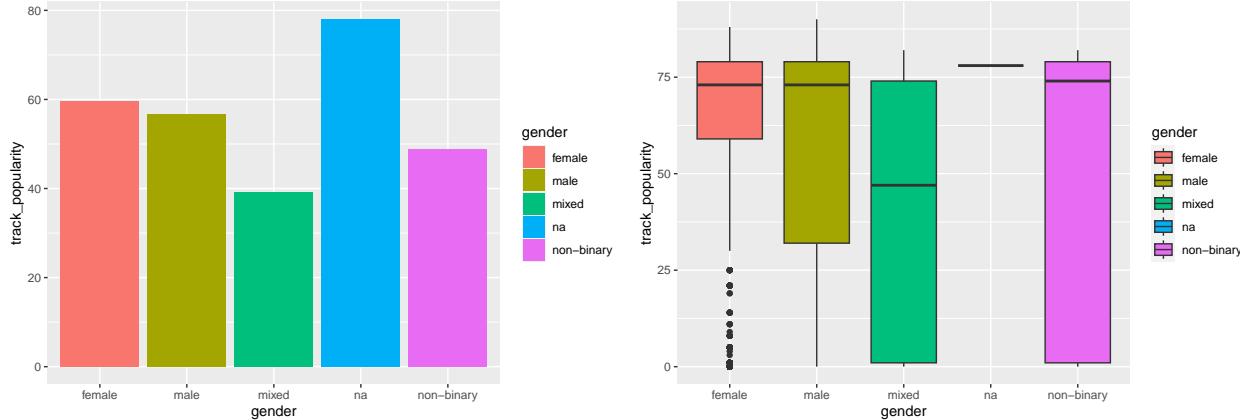
Descriptive statistics by group
group: FALSE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	6751	17502870	7484401	15051794	16155063	4612810	8454914	80764045
		range	skew	kurtosis	se				
X1	72309131	2.24		7.15	91090.49				

group: TRUE

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	691	15666973	5102482	14094859	14841724	3662446	8953677	48011162
		range	skew	kurtosis	se				
X1	39057485	1.73		4.07	194107.6				

```
[1] "track_popularity and album_type"
```



Descriptive statistics by group
group: female

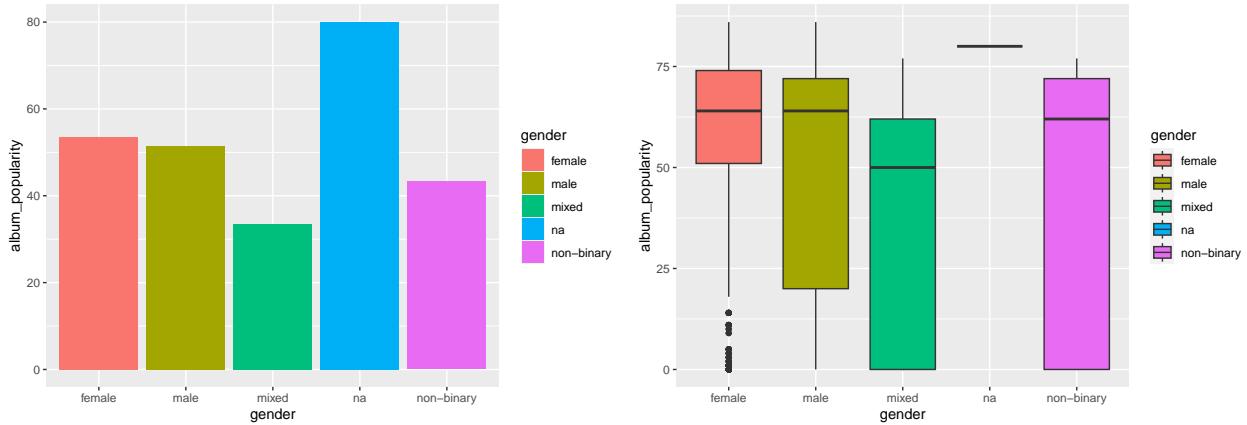
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1653	59.52	29.64	73	63.88	11.86	0	88	88	-1.27	-0.08	0.73

group: male

```

vars      n  mean      sd median trimmed   mad min max range skew kurtosis    se
X1      1 5422 56.76 32.28      73   60.36 10.38    0  90     90 -1.04     -0.74 0.44
-----
group: mixed
vars      n  mean      sd median trimmed   mad min max range skew kurtosis    se
X1      1 185 39.24 35.65      47   39.17 44.48    0  82     82 -0.11     -1.92 2.62
-----
group: na
vars n  mean sd median trimmed   mad min max range skew kurtosis se
X1  1 8   78   0    78      78   0  78    78   0  NaN     NaN  0
-----
group: non-binary
vars      n  mean      sd median trimmed   mad min max range skew kurtosis    se
X1      1 174 48.86 35.94      74   50.76 11.86    0  82     82 -0.51     -1.67 2.72
[1] "album_popularity and album_type"

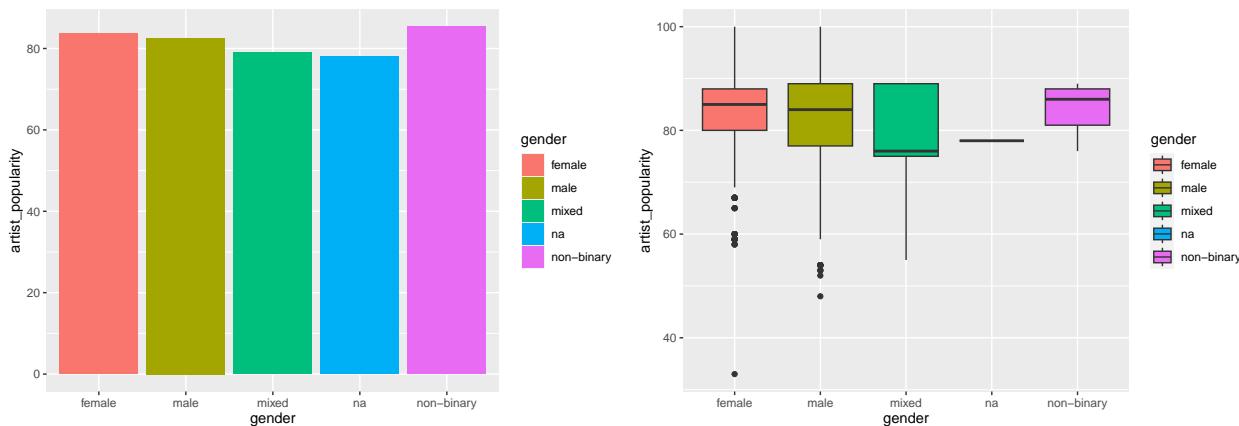
```



```

Descriptive statistics by group
group: female
vars      n  mean      sd median trimmed   mad min max range skew kurtosis    se
X1      1 1653 53.6 28.51      64   56.62 17.79    0  86     86 -1.03     -0.43 0.7
-----
group: male
vars      n  mean      sd median trimmed   mad min max range skew kurtosis    se
X1      1 5422 51.51 30.58      64   53.94 14.83    0  86     86 -0.89     -0.88 0.42
-----
group: mixed
vars      n  mean      sd median trimmed   mad min max range skew kurtosis    se
X1      1 185 33.48 30.74      50   32.95 23.72    0  77     77 -0.12     -1.88 2.26
-----
group: na
vars n  mean sd median trimmed   mad min max range skew kurtosis se
X1  1 8   80   0    80      80   0  80    80   0  NaN     NaN  0
-----
group: non-binary
vars      n  mean      sd median trimmed   mad min max range skew kurtosis    se
X1      1 174 43.29 33.09      62   44.45 22.24    0  77     77 -0.45     -1.67 2.51
[1] "artist_popularity and album_type"

```



Descriptive statistics by group

group: female

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1653	83.69	7.23	85	84.1	4.45	33	100	67	-0.67	2.85	0.18

group: male

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5422	82.58	8.53	84	83.04	7.41	48	100	52	-0.5	-0.04	0.12

group: mixed

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	185	79.01	9.45	76	79.86	16.31	55	89	34	-0.46	-0.88	0.69

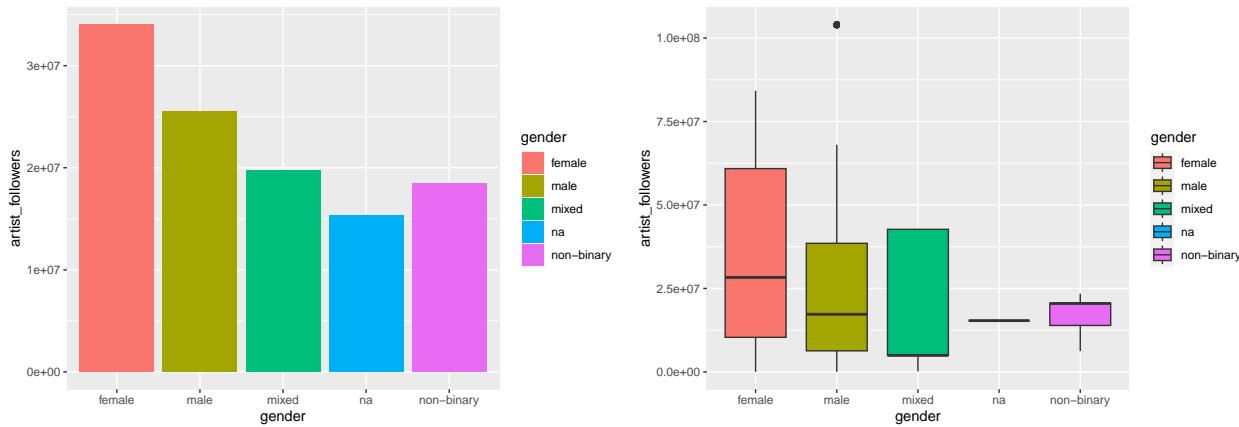
group: na

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	8	78	0	78	78	0	78	78	0	NaN	NaN	0

group: non-binary

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	174	85.36	3.08	86	85.49	2.97	76	89	13	-0.56	-1.01	0.23

[1] "artist_followers and album_type"



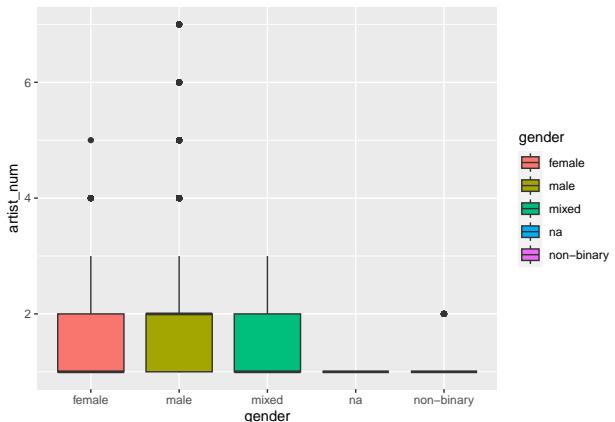
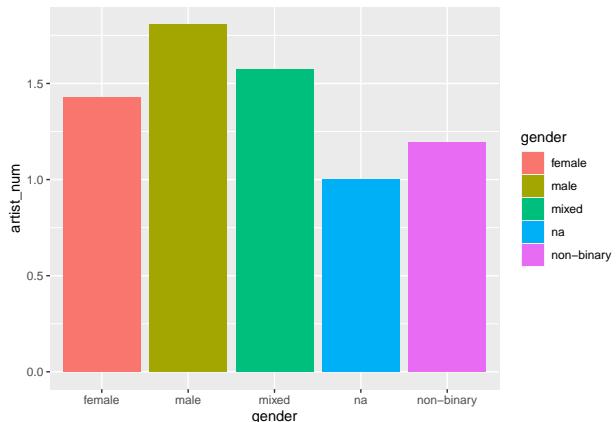
Descriptive statistics by group

group: female

```

vars n mean sd median trimmed mad min max
X1 1 1653 34034438 26409934 28304074 31703554 27323239 3805 84227300
    range skew kurtosis se
X1 84223495 0.67 -0.85 649577.4
-----
group: male
vars n mean sd median trimmed mad min max
X1 1 5422 25484175 24795219 17259219 21816069 22544982 14787 104059839
    range skew kurtosis se
X1 104045052 1.29 1.38 336735
-----
group: mixed
vars n mean sd median trimmed mad min max range
X1 1 185 19751090 19096804 4947693 19241050 5361814 155010 42795797 42640787
    skew kurtosis se
X1 0.36 -1.85 1404025
-----
group: na
vars n mean sd median trimmed mad min max range skew
X1 1 8 15356994 0 15356994 15356994 0 15356994 15356994 0 NaN
    kurtosis se
X1 NaN 0
-----
group: non-binary
vars n mean sd median trimmed mad min max
X1 1 174 18441173 3489773 20501433 18442203 2238216 6225944 23447289
    range skew kurtosis se
X1 17221345 -0.51 -0.68 264559
[1] "artist_num and album_type"

```



Descriptive statistics by group

group: female

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1653	1.43	0.66	1	1.31	0	1	5	4	1.62	2.79	0.02

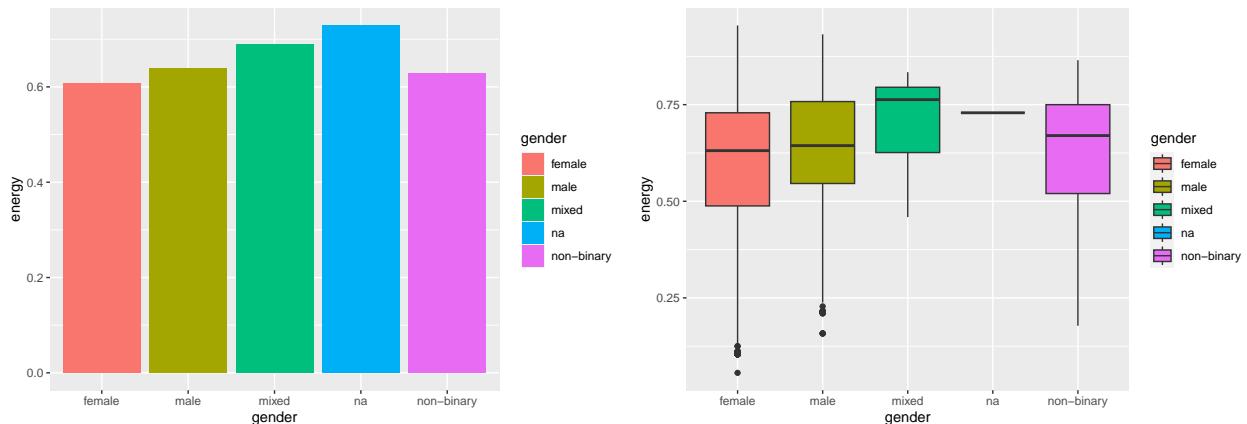
group: male

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5422	1.81	0.95	2	1.65	1.48	1	7	6	1.78	4.72	0.01

```

group: mixed
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 185 1.57 0.77      1    1.47  0   1   3    2 0.89     -0.76 0.06
-----
group: na
  vars n mean sd median trimmed mad min max range skew kurtosis se
X1   1 8   1   0      1    1.00  1   1   1    0 NaN      NaN 0
-----
group: non-binary
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 174 1.2  0.4      1    1.12  0   1   2    1 1.52     0.32 0.03
[1] "energy and album_type"

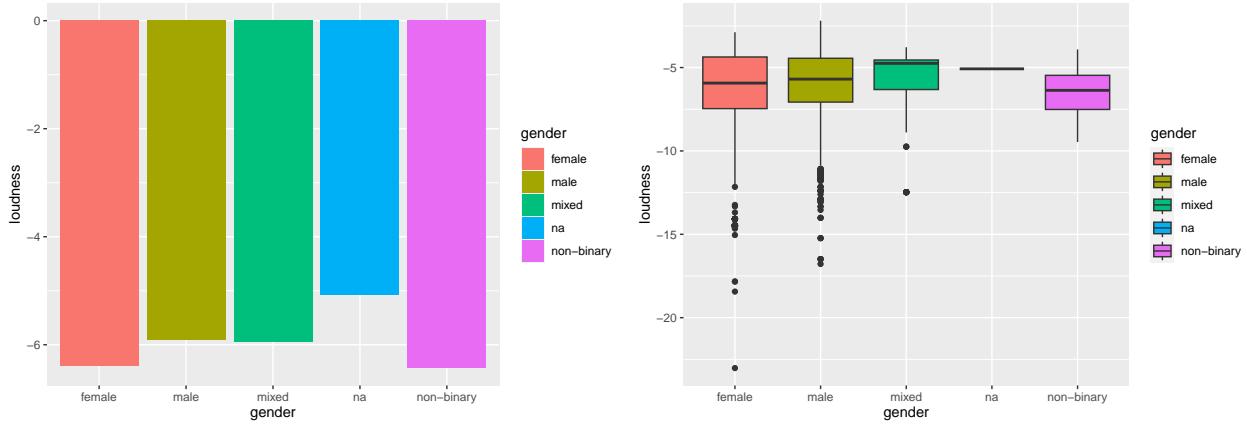
```



```

Descriptive statistics by group
group: female
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 1653 0.61 0.17      0.63  0.62 0.19 0.06 0.96    0.9 -0.58     -0.12 0
-----
group: male
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 5422 0.64 0.14      0.64  0.65 0.15 0.16 0.93    0.77 -0.37     -0.25 0
-----
group: mixed
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 185 0.69 0.12      0.76  0.7 0.11 0.46 0.83    0.37 -0.62     -0.88 0.01
-----
group: na
  vars n mean sd median trimmed mad min max range skew kurtosis se
X1   1 8  0.73 0   0.73    0.73  0 0.73 0.73    0 NaN      NaN 0
-----
group: non-binary
  vars   n mean   sd median trimmed mad min max range skew kurtosis   se
X1     1 174 0.63 0.14      0.67  0.64 0.12 0.18 0.86    0.69 -0.78     -0.38 0.01
[1] "loudness and album_type"

```



Descriptive statistics by group

group: female

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	1653	-6.39	2.74	-5.93	-5.99	2.27	-23.02	-2.88	20.14	-1.44	2.38
	se											
X1	0.07											

group: male

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	5422	-5.92	1.97	-5.69	-5.79	1.9	-16.78	-2.19	14.59	-0.82	1.37
	se											
X1	0.03											

group: mixed

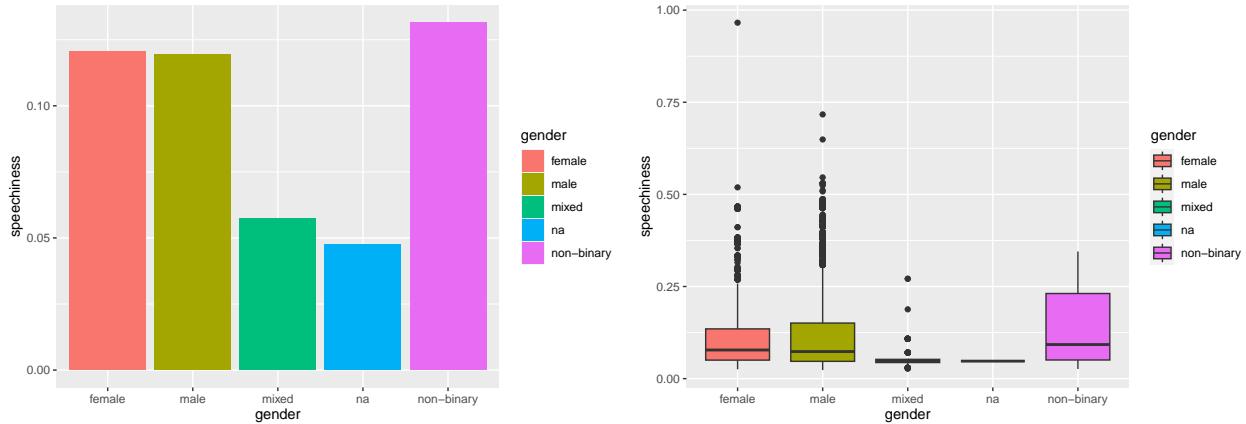
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis
X1	1	185	-5.94	2.42	-4.75	-5.38	1.01	-12.47	-3.78	8.69	-1.86	2.38
	se											
X1	0.18											

group: na

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	8	-5.08	0	-5.08	-5.08	0	-5.08	-5.08	0	Nan	Nan	0

group: non-binary

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	174	-6.43	1.29	-6.37	-6.47	1.6	-9.46	-3.91	5.55	0.17	-0.63	0.1
	[1]	"speechiness and album_type"											



Descriptive statistics by group

group: female

```
vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1    1 1653 0.12 0.11   0.08     0.1 0.05 0.03 0.97 0.94 1.79      3.33  0
```

group: male

```
vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1    1 5422 0.12 0.1    0.07     0.1 0.05 0.02 0.72 0.69 1.61      2.04  0
```

group: mixed

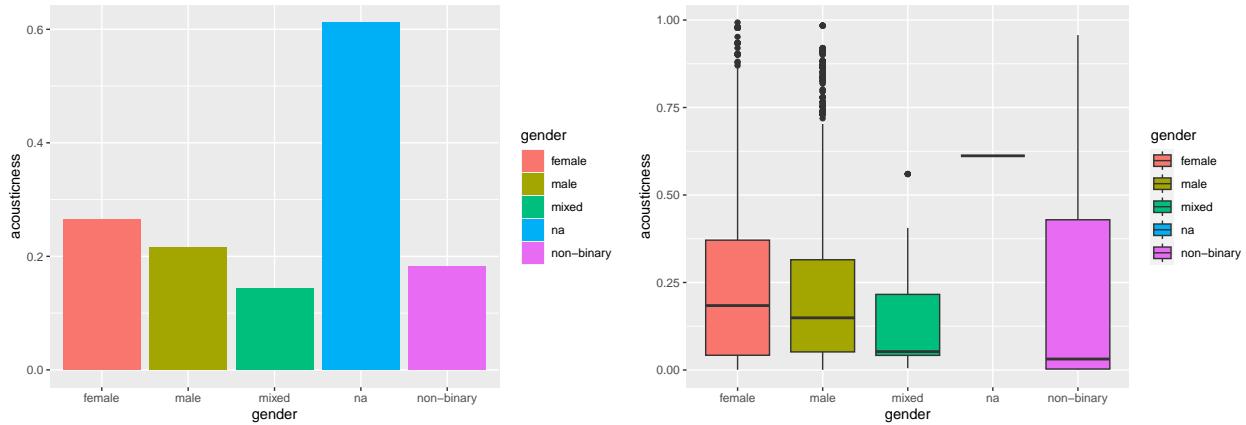
```
vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1    1 185 0.06 0.03   0.05     0.05 0.01 0.03 0.27 0.24 3.56     17.65  0
```

group: na

```
vars n mean sd median trimmed mad min max range skew kurtosis se
X1  1 8 0.05 0  0.05   0.05 0 0.05 0.05 0  NaN  NaN 0
```

group: non-binary

```
vars   n mean   sd median trimmed mad min max range skew kurtosis se
X1    1 174 0.13 0.09   0.09     0.13 0.08 0.03 0.34 0.32 0.38     -1.55 0.01
[1] "acousticness and album_type"
```



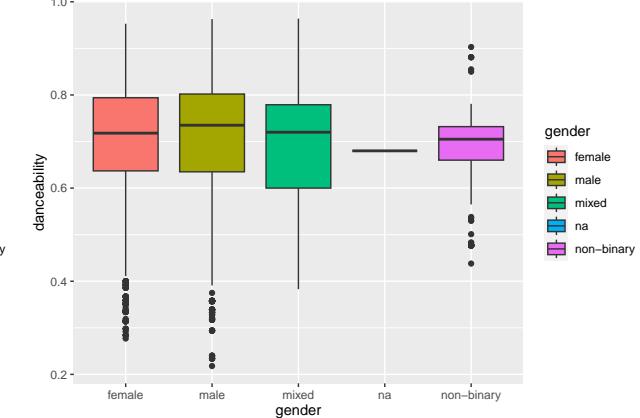
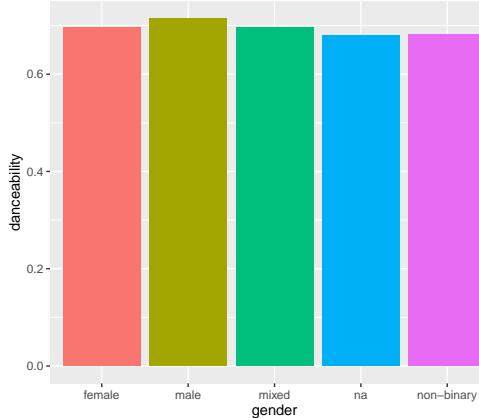
Descriptive statistics by group

group: female

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1       1 1653 0.27 0.26    0.18    0.23 0.21    0 0.99  0.99 1.12      0.27 0.01
-----
group: male
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1       1 5422 0.22 0.21    0.15    0.18 0.17    0 0.98  0.98 1.29      0.99 0
-----
group: mixed
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1       1 185 0.14 0.15    0.05    0.12 0.07 0.01 0.56  0.55 1.14      0.49 0.01
-----
group: na
vars n mean sd median trimmed mad min max range skew kurtosis se
X1   1 8 0.61 0 0.61 0.61 0 0.61 0.61 0 NaN  NaN 0
-----
group: non-binary
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1       1 174 0.18 0.25    0.03    0.14 0.04    0 0.96  0.96 1.19      0.01 0.02
[1] "danceability and album_type"

```

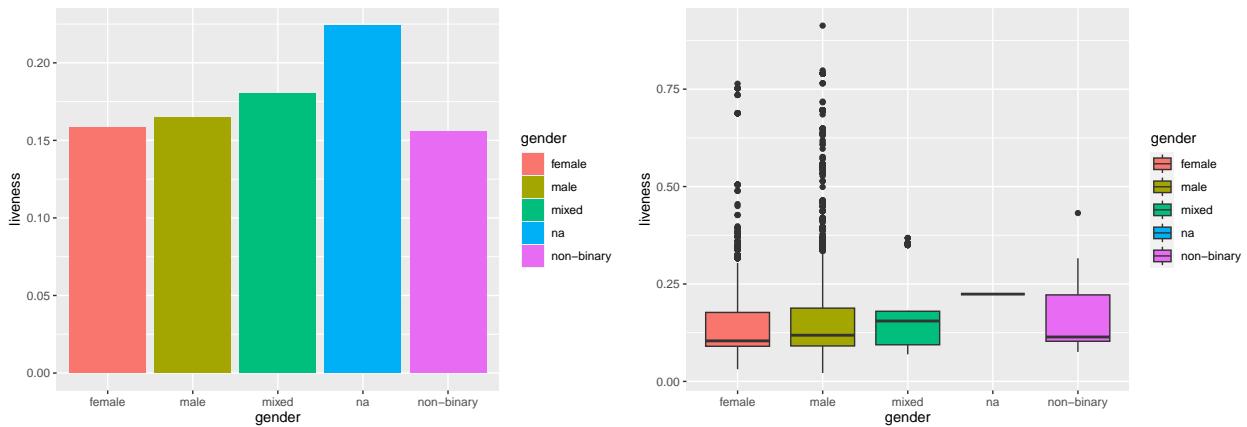


```

Descriptive statistics by group
group: female
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1       1 1653 0.7 0.14    0.72    0.71 0.11 0.28 0.95  0.68 -0.86      0.47 0
-----
group: male
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1       1 5422 0.71 0.13    0.74    0.72 0.12 0.22 0.96  0.74 -0.67      0.47 0
-----
group: mixed
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1       1 185 0.7 0.11    0.72    0.7 0.12 0.38 0.96  0.58 -0.63      0.38 0.01
-----
group: na
vars n mean sd median trimmed mad min max range skew kurtosis se
X1   1 8 0.68 0 0.68 0.68 0 0.68 0.68 0 NaN  NaN 0
-----
group: non-binary
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se

```

```
X1      1 174 0.68 0.1      0.7      0.69 0.04 0.44 0.9  0.47 -0.87      0.05 0.01
[1] "liveness and album_type"
```



Descriptive statistics by group

group: female

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1653	0.16	0.12	0.1	0.14	0.05	0.03	0.76	0.73	2.35	6.87

group: male

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5422	0.16	0.12	0.12	0.14	0.05	0.02	0.91	0.89	2.42	6.9

group: mixed

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	185	0.18	0.1	0.16	0.17	0.09	0.07	0.37	0.3	0.91	-0.71

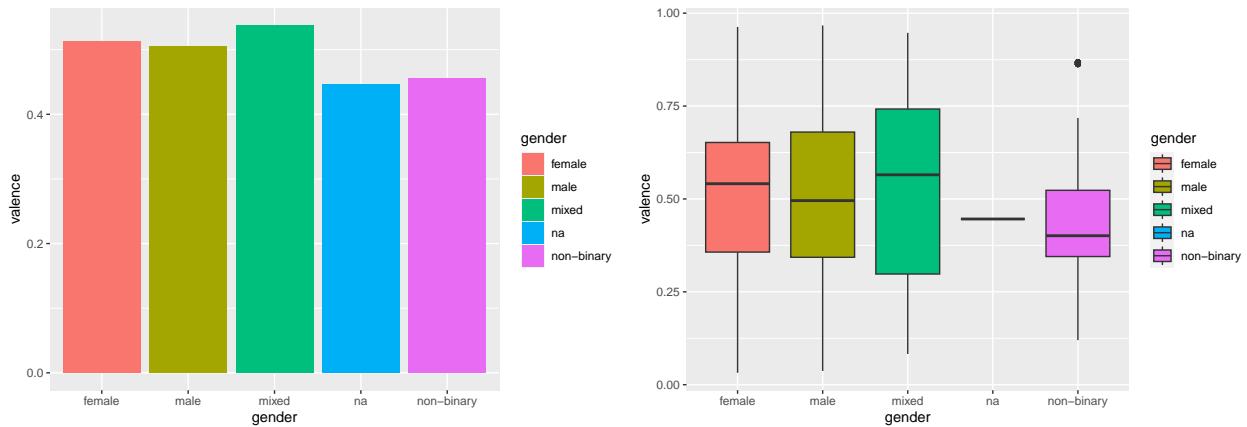
group: na

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	8	0.22	0	0.22	0.22	0	0.22	0.22	0	Nan	Nan

group: non-binary

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	174	0.16	0.07	0.11	0.15	0.06	0.08	0.43	0.36	0.69	-0.2

```
[1] "valence and album_type"
```



Descriptive statistics by group

group: female

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	1653	0.51	0.21	0.54	0.52	0.2	0.03	0.96	0.93	-0.16	-0.5	0.01

group: male

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	5422	0.51	0.22	0.5	0.5	0.25	0.04	0.97	0.93	0.08	-0.9	0

group: mixed

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	185	0.54	0.24	0.56	0.53	0.28	0.08	0.95	0.86	0.1	-1.18	0.02

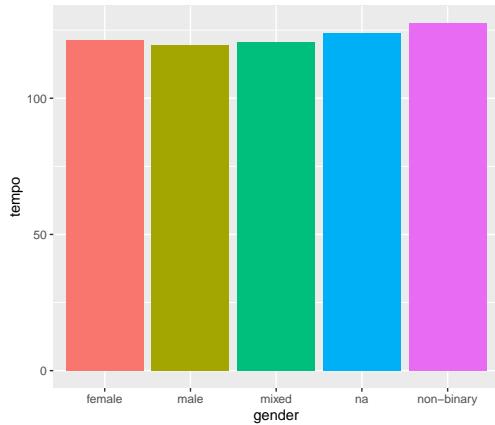
group: na

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	8	0.45	0	0.45	0.45	0	0.45	0.45	NaN	NaN	0

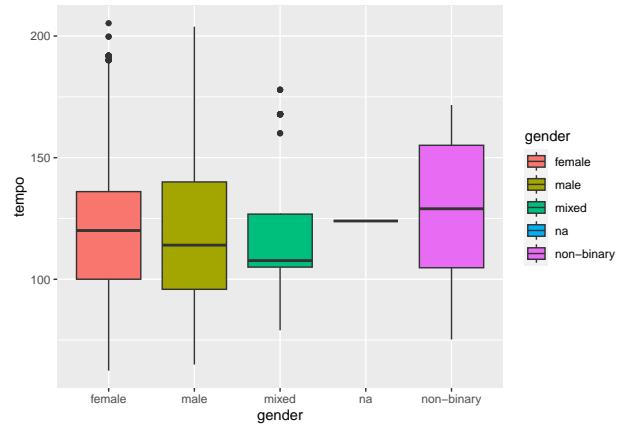
group: non-binary

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se	
X1	1	174	0.46	0.18	0.4	0.43	0.08	0.12	0.87	0.75	1.18	0.72	0.01

[1] "tempo and album_type"



gender
female
male
mixed
na
non-binary



Descriptive statistics by group

group: female

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1653	121.43	27	120.05	119.48	26.7	62.45	205.27	142.83	0.58	0.02
X1	0.66											

group: male

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	5422	119.49	28.78	114.04	116.95	29.76	64.93	203.86	138.93	0.63	
X1	-0.52	0.39										

group: mixed

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	185	120.63	28.28	107.68	119.05	14.69	79.03	177.91	98.89	0.78	-0.68

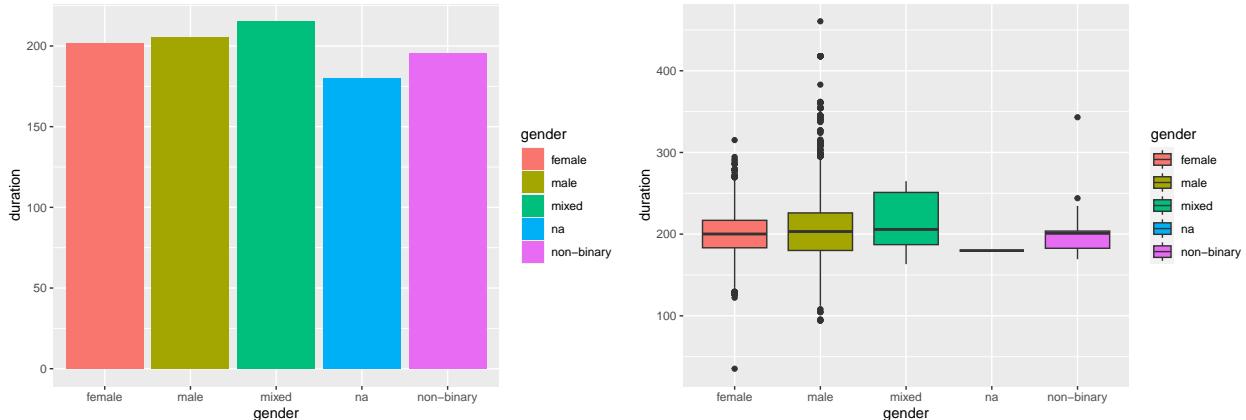
```

      se
X1 2.08

-----
group: na
  vars n  mean sd median trimmed mad   min   max range skew kurtosis se
X1    1 8 123.97 0 123.97 123.97 0 123.97 123.97 0 NaN      NaN 0

-----
group: non-binary
  vars n  mean sd median trimmed mad   min   max range skew kurtosis se
X1    1 174 127.54 24.26 129 128.41 38.55 75.25 171.65 96.4 -0.16 -1.44
  se
X1 1.84
[1] "duration and album_type"

```



```

Descriptive statistics by group
group: female
  vars n  mean sd median trimmed mad   min   max range skew
X1    1 1653 201.55 27.46 200.18 200.86 25.05 35.24 315.15 279.91 0.14
  kurtosis se
X1      1.46 0.68

-----
group: male
  vars n  mean sd median trimmed mad   min   max range skew
X1    1 5422 205.66 43.13 203.2 202.9 34.21 94.25 460.57 366.33 1.11
  kurtosis se
X1      3.61 0.59

-----
group: mixed
  vars n  mean sd median trimmed mad   min   max range skew kurtosis
X1    1 185 215.3 31.55 205.75 215.1 27.58 163.25 264.85 101.6 0.21 -1.29
  se
X1 2.32

-----
group: na
  vars n  mean sd median trimmed mad   min   max range skew kurtosis se
X1    1 8 179.87 0 179.87 179.87 0 179.87 179.87 0 NaN      NaN 0

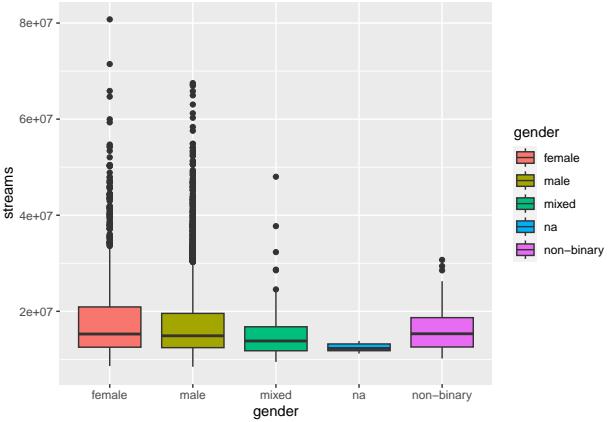
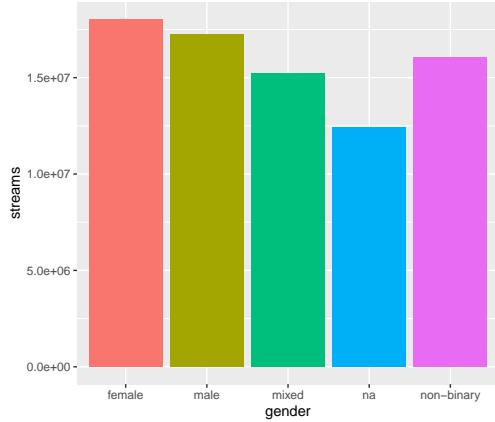
-----
group: non-binary
  vars n  mean sd median trimmed mad   min   max range skew kurtosis

```

```

X1      1 174 195.77 21.05      201 193.95 27.12 169.33 343.1 173.77 2.11      12.07
       se
X1 1.6
[1] "streams and album_type"

```



Descriptive statistics by group

group: female

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1653	18023694	8253423	15275359	16498442	4879844	8595924	80764045
			range	skew	kurtosis		se		
X1	72168121	2.29		7.34	203000.8				

group: male

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	5422	17242145	7134630	14905964	15976476	4476844	8454914	67499798
			range	skew	kurtosis		se		
X1	59044884	2.18		6.71	96892.84				

group: mixed

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	185	15201515	5021261	13827723	14437405	3393766	9468277	48011162
			range	skew	kurtosis		se		
X1	38542885	2.59		10.98	369170.4				

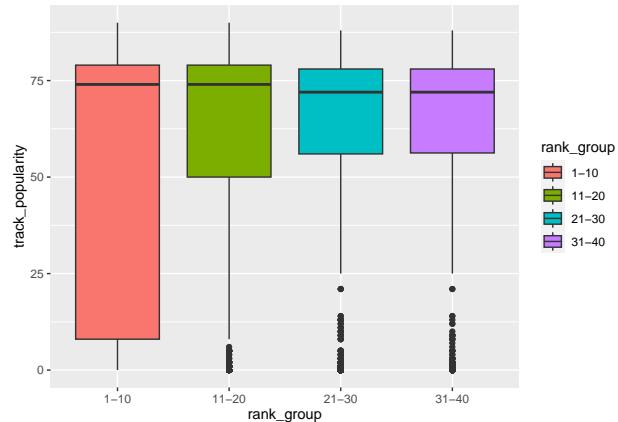
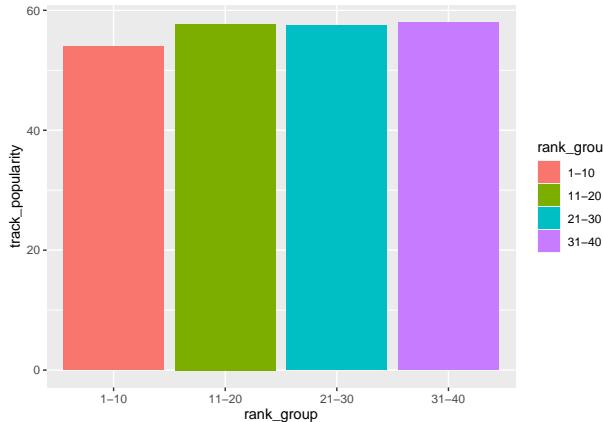
group: na

	vars	n	mean	sd	median	trimmed	mad	min	max	range
X1	1	8	12426086	965992.8	12267835	12426086	1357999	11199552	13829838	2630286
			skew	kurtosis		se				
X1	0.11	-1.7	341530							

group: non-binary

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	174	16068902	4107852	15330400	15708146	4544835	10181972	30706135
			range	skew	kurtosis		se		
X1	20524163	0.84		0.51	311415.4				

```
[1] "track_popularity and album_type"
```



Descriptive statistics by group

group: 1-10

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1834	53.96	34.51	74	56.71	11.86	0	90	90	-0.75	-1.29	0.81

group: 11-20

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1782	57.72	32.03	74	61.6	10.38	0	90	90	-1.1	-0.62	0.76

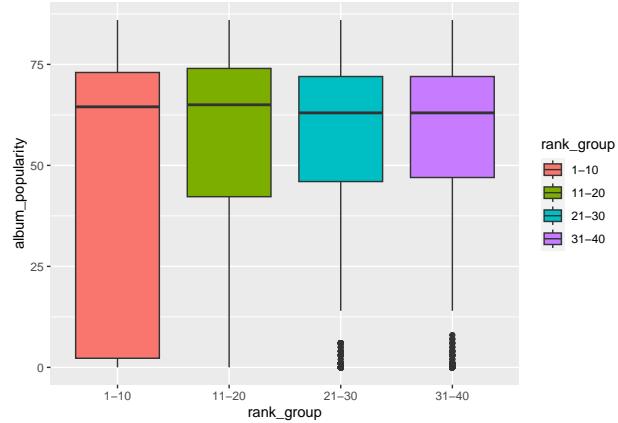
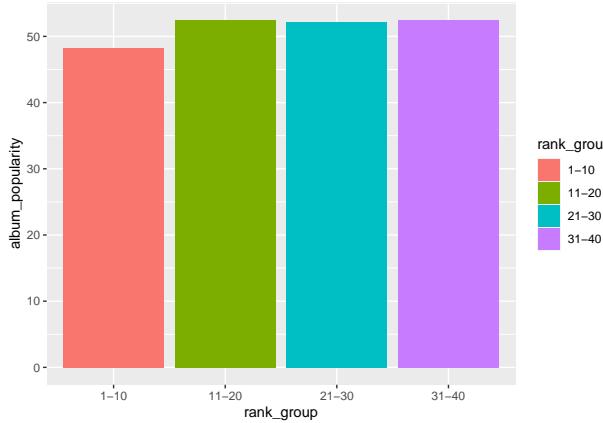
group: 21-30

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1908	57.43	31.16	72	61.28	10.38	0	88	88	-1.15	-0.47	0.71

group: 31-40

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1918	57.94	30.3	72	61.93	11.86	0	88	88	-1.22	-0.24	0.69

[1] "album_popularity and album_type"



Descriptive statistics by group

group: 1-10

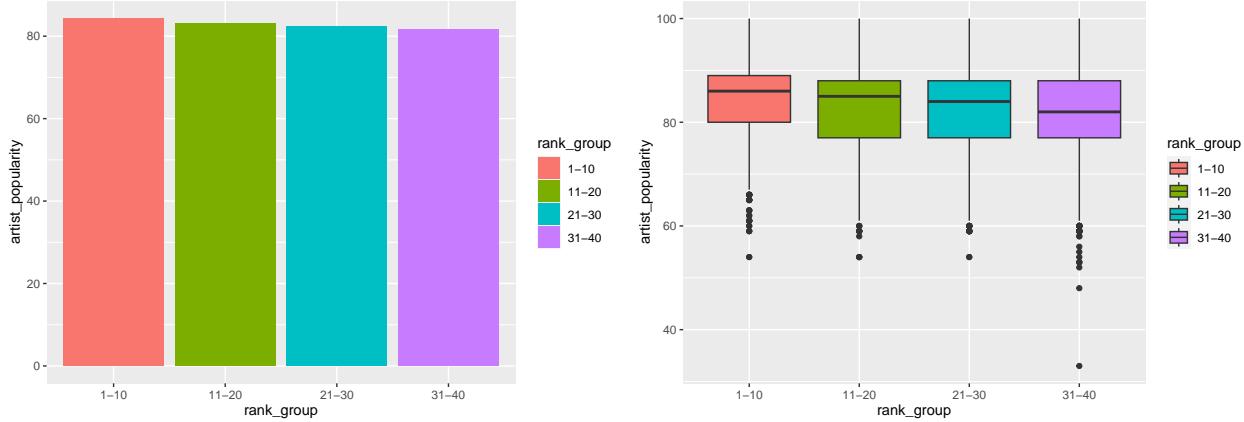
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1834	48.28	32.67	64.5	49.82	20.02	0	86	86	-0.61	-1.38	0.76

group: 11-20

```

vars      n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1       1 1782 52.46 30.39      65   55.17 16.31    0   86    86 -0.95    -0.77 0.72
-----
group: 21-30
vars      n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1       1 1908 52.18 29.59      63   54.82 16.31    0   86    86 -0.97    -0.65 0.68
-----
group: 31-40
vars      n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1       1 1918 52.48 28.58      63   55.27 14.83    0   86    86 -1.03    -0.46 0.65
[1] "artist_popularity and album_type"

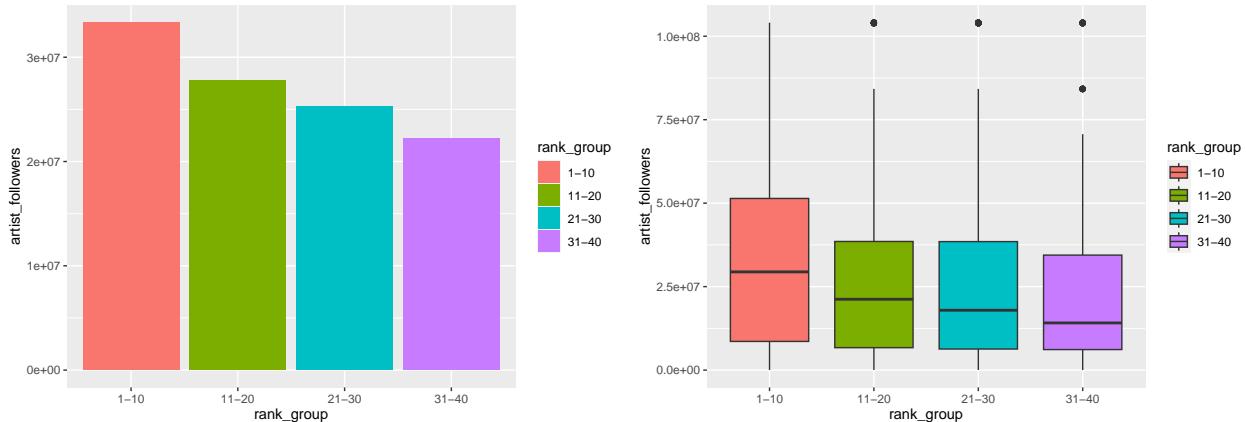
```



```

Descriptive statistics by group
group: 1-10
vars      n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1       1 1834 84.28 8.12      86   84.81 5.93   54 100    46 -0.61    0.06 0.19
-----
group: 11-20
vars      n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1       1 1782 82.99 8.25      85   83.52 5.93   54 100    46 -0.61    0.29 0.2
-----
group: 21-30
vars      n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1       1 1908 82.46 8.11      84   82.92 7.41   54 100    46 -0.5     0.24 0.19
-----
group: 31-40
vars      n   mean     sd median trimmed   mad min max range skew kurtosis    se
X1       1 1918 81.54 8.23      82   82.05 8.9    33 100    67 -0.63    1.13 0.19
[1] "artist_followers and album_type"

```



Descriptive statistics by group

group: 1-10

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1834	33314677	26978040	29419215	30524887	31016640	25288	104059839
	range	skew	kurtosis	se					
X1	104034551	0.8	-0.06	629956.8					

group: 11-20

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1782	27774401	25165842	21221092	24452310	23897401	25288	104059839
	range	skew	kurtosis	se					
X1	104034551	1.09	0.6	596152.8					

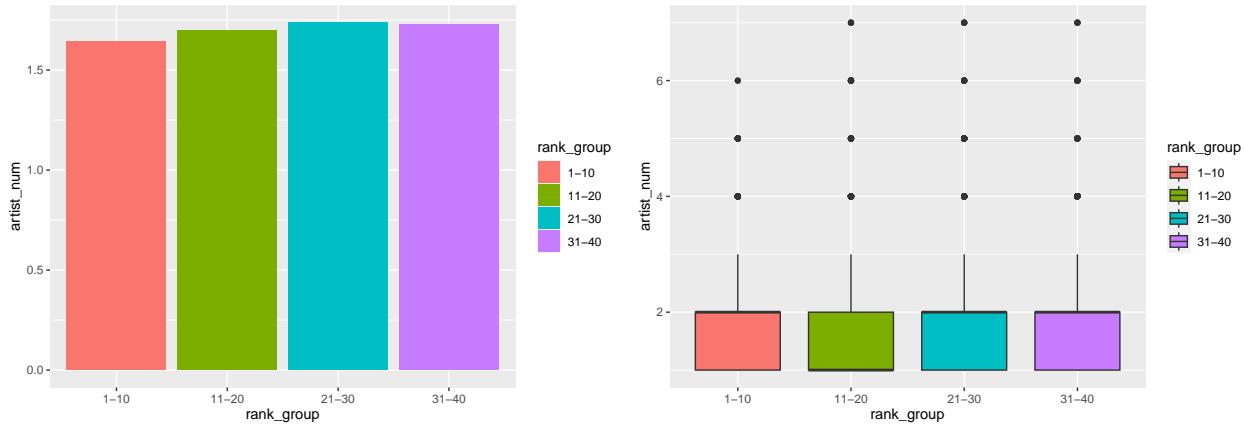
group: 21-30

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1908	25310769	24505157	17924003	21520631	21551304	25288	104059839
	range	skew	kurtosis	se					
X1	104034551	1.29	1.26	561007					

group: 31-40

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1918	22176042	22151421	14124936	18447716	15418968	3805	104059839
	range	skew	kurtosis	se					
X1	104056034	1.46	1.84	505798.2					

[1] "artist_num and album_type"



Descriptive statistics by group

group: 1-10

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1834	1.64	0.76	2	1.51	1.48	1	6	5	1.49	3.5	0.02

group: 11-20

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1782	1.7	0.94	1	1.52	0	1	7	6	1.98	5.37	0.02

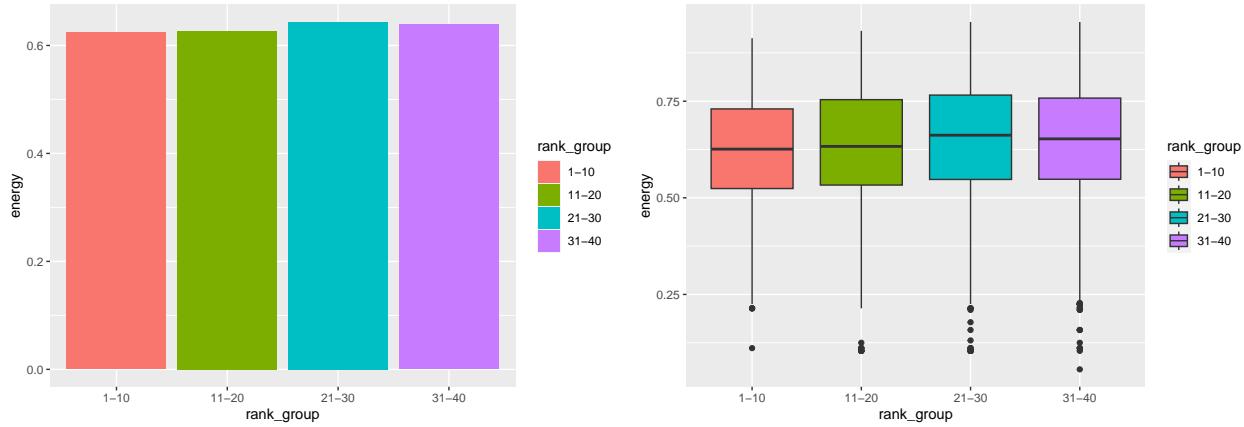
group: 21-30

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1908	1.74	0.94	2	1.58	1.48	1	7	6	1.87	5.22	0.02

group: 31-40

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1918	1.73	0.93	2	1.57	1.48	1	7	6	1.82	4.85	0.02

[1] "energy and album_type"



Descriptive statistics by group

group: 1-10

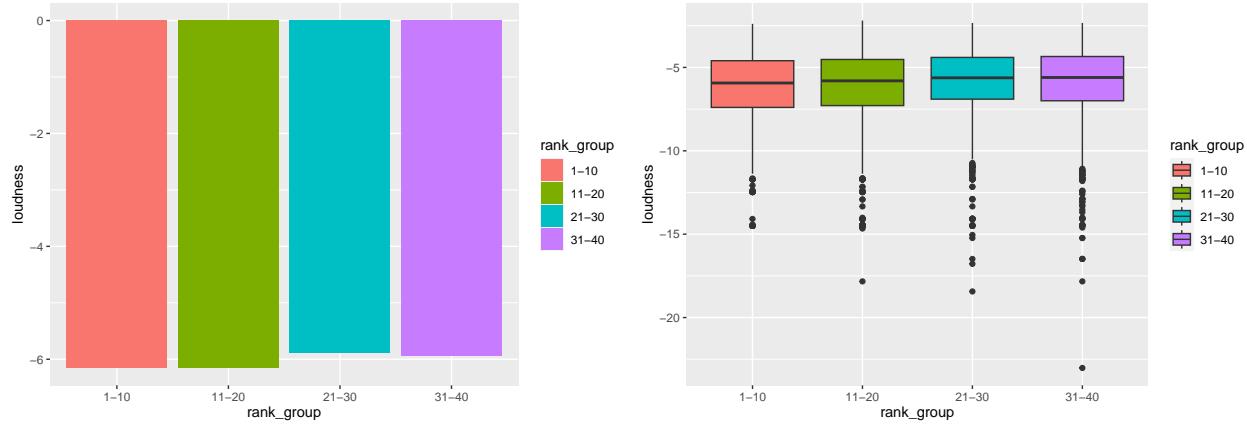
	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X1	1	1834	0.62	0.14	0.63	0.63	0.15	0.11	0.91	0.8	-0.28	-0.42	0

group: 11-20

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 1782 0.63 0.15    0.63    0.64 0.16 0.1 0.93  0.83 -0.51    -0.06  0
-----
group: 21-30
vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 1908 0.64 0.15    0.66    0.65 0.16 0.1 0.96  0.85 -0.66    0.29  0
-----
group: 31-40
vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 1918 0.64 0.15    0.65    0.65 0.16 0.06 0.96  0.9 -0.57    0.16  0
[1] "loudness and album_type"

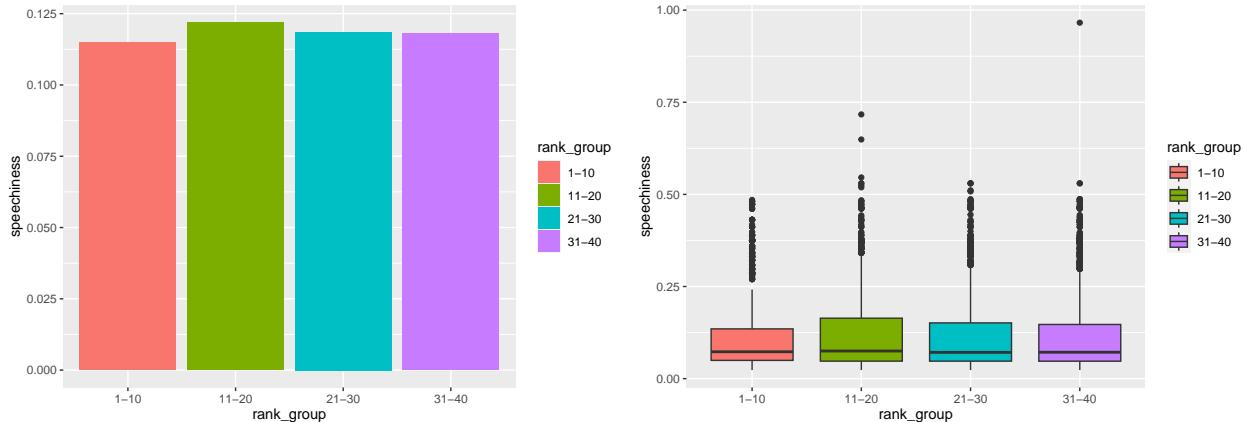
```



```

Descriptive statistics by group
group: 1-10
vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 1834 -6.15 2.08    -5.93   -5.99 2.09 -14.51 -2.38 12.12 -0.91    1.36
      se
X1  0.05
-----
group: 11-20
vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 1782 -6.15 2.28    -5.8    -5.91 2.03 -17.83 -2.19 15.64 -1.21    2.13
      se
X1  0.05
-----
group: 21-30
vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 1908 -5.9  2.08    -5.62   -5.7 1.86 -18.43 -2.33 16.1 -1.3     3.26
      se
X1  0.05
-----
group: 31-40
vars      n mean   sd median trimmed  mad min  max range skew kurtosis se
X1      1 1918 -5.95 2.22    -5.6    -5.71 1.96 -23.02 -2.33 20.69 -1.45    4.12
      se
X1  0.05
[1] "speechiness and album_type"

```



Descriptive statistics by group

group: 1-10

```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1834 0.11 0.1     0.07    0.09 0.04 0.02 0.48 0.46 1.73    2.21  0
```

group: 11-20

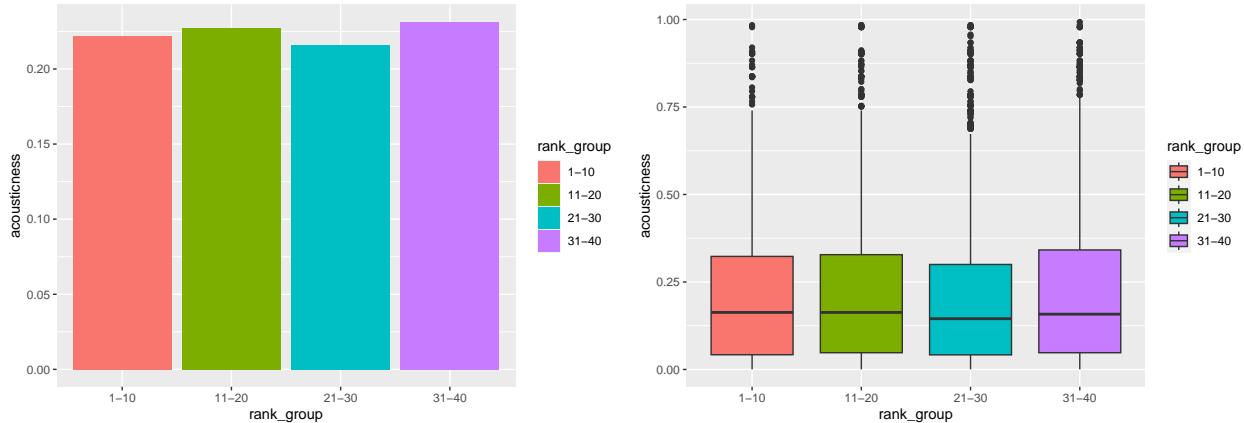
```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1782 0.12 0.11    0.07    0.1 0.05 0.02 0.72 0.69 1.57    1.99  0
```

group: 21-30

```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1908 0.12 0.1     0.07    0.1 0.05 0.02 0.53 0.51 1.55    1.67  0
```

group: 31-40

```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1918 0.12 0.11    0.07    0.1 0.05 0.02 0.97 0.94 1.81    3.78  0
[1] "acousticness and album_type"
```



Descriptive statistics by group

group: 1-10

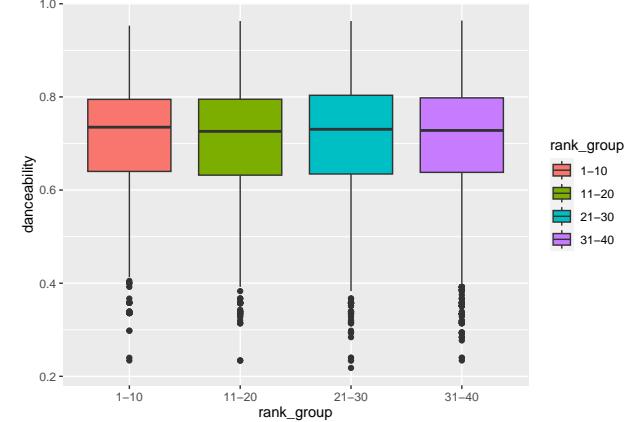
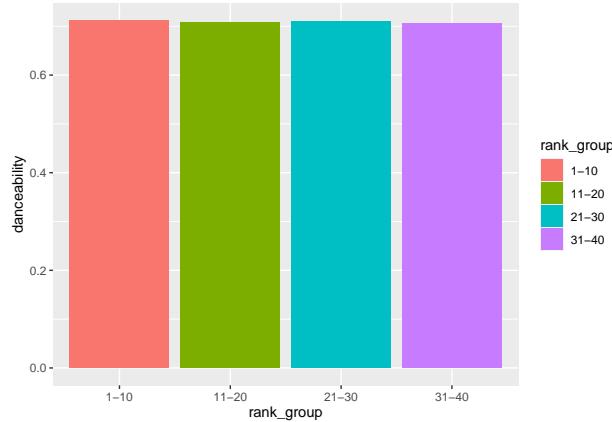
```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1834 0.22 0.22    0.16    0.19 0.19    0 0.98 0.98 1.19    0.56 0.01
```

group: 11-20

```

vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1      1 1782 0.23 0.23    0.16    0.19 0.19    0 0.98 0.98 1.28      0.99 0.01
-----
group: 21-30
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1      1 1908 0.22 0.23    0.14    0.18 0.17    0 0.98 0.98 1.43      1.34 0.01
-----
group: 31-40
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1      1 1918 0.23 0.23    0.16    0.2 0.19    0 0.99 0.99 1.23      0.78 0.01
[1] "danceability and album_type"

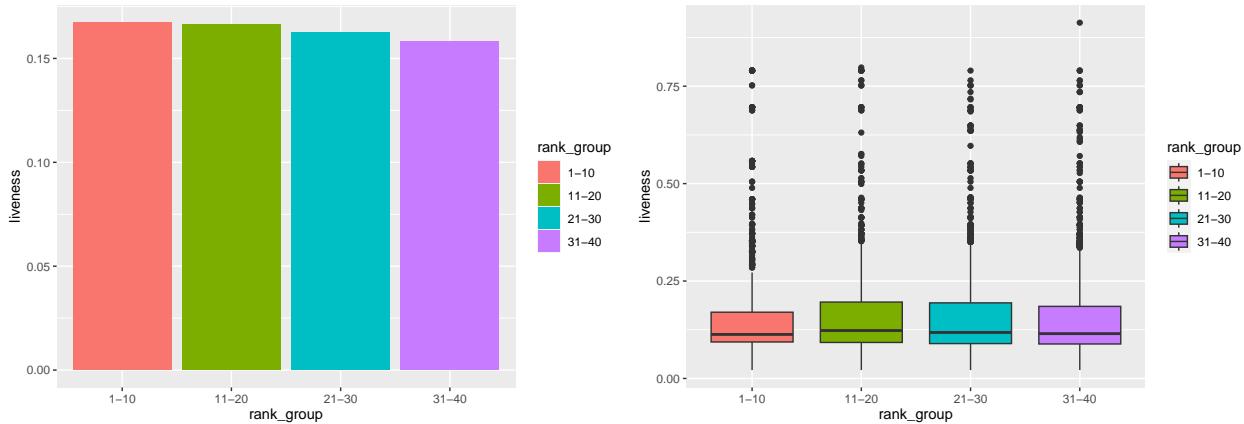
```



```

Descriptive statistics by group
group: 1-10
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1      1 1834 0.71 0.12    0.74    0.72 0.11 0.23 0.95 0.72 -0.71      0.5  0
-----
group: 11-20
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1      1 1782 0.71 0.13    0.73    0.72 0.11 0.23 0.96 0.73 -0.7      0.39  0
-----
group: 21-30
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1      1 1908 0.71 0.13    0.73    0.72 0.12 0.22 0.96 0.74 -0.7      0.56  0
-----
group: 31-40
vars      n mean   sd median trimmed  mad min  max range skew kurtosis   se
X1      1 1918 0.71 0.13    0.73    0.72 0.12 0.23 0.96 0.73 -0.81      0.64  0
[1] "liveness and album_type"

```



Descriptive statistics by group

group: 1-10

```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1834 0.17 0.13    0.11    0.14  0.04  0.02  0.79  0.77 2.47     6.61  0
```

group: 11-20

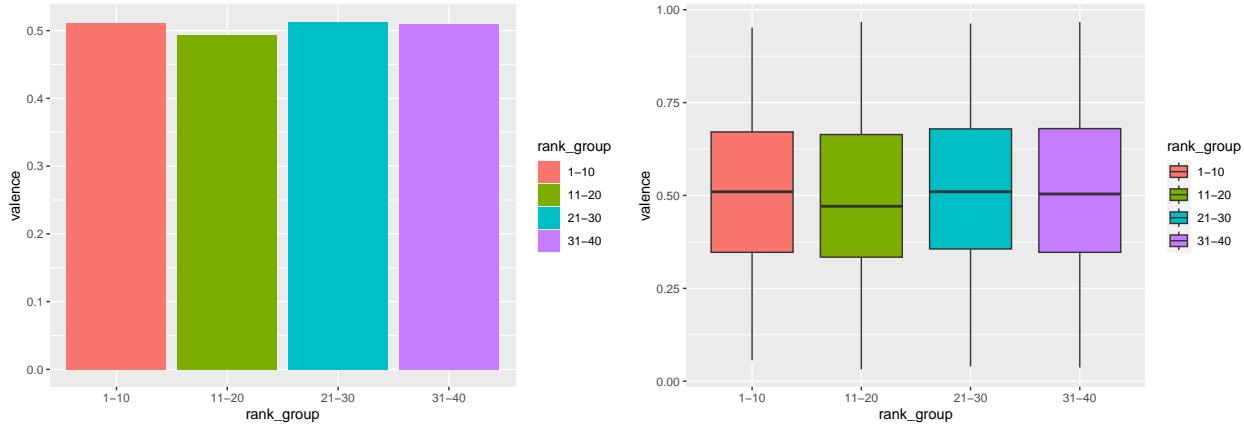
```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1782 0.17 0.12    0.12    0.14  0.06  0.02  0.8   0.78 2.28     6.77  0
```

group: 21-30

```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1908 0.16 0.12    0.12    0.14  0.05  0.02  0.79  0.77 2.14     5.6   0
```

group: 31-40

```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1918 0.16 0.12    0.12    0.14  0.05  0.02  0.91  0.89 2.52     8.01  0
[1] "valence and album_type"
```



Descriptive statistics by group

group: 1-10

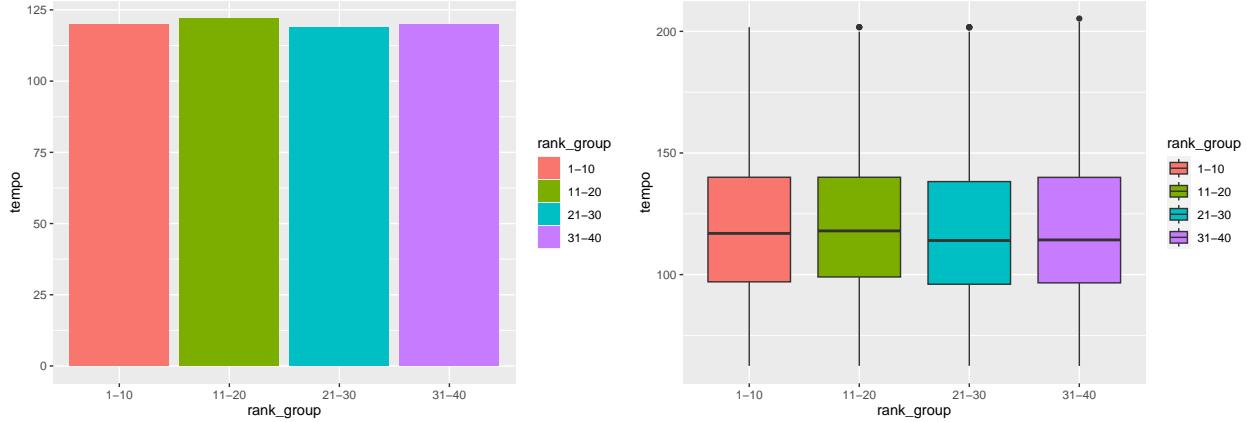
```
vars      n   mean    sd median trimmed   mad   min   max range skew kurtosis se
X1      1 1834 0.51 0.22    0.51    0.51  0.24  0.06  0.95  0.9  0.05   -0.81 0.01
```

group: 11-20

```

vars      n mean   sd median trimmed mad min  max range skew kurtosis    se
X1       1 1782 0.49 0.22    0.47    0.49 0.25 0.03 0.97  0.93 0.17    -0.83 0.01
-----
group: 21-30
vars      n mean   sd median trimmed mad min  max range skew kurtosis    se
X1       1 1908 0.51 0.21    0.51    0.51 0.24 0.04 0.96  0.92  0    -0.79 0
-----
group: 31-40
vars      n mean   sd median trimmed mad min  max range skew kurtosis    se
X1       1 1918 0.51 0.22    0.5    0.51 0.25 0.04 0.97  0.93 0.02    -0.81 0
[1] "tempo and album_type"

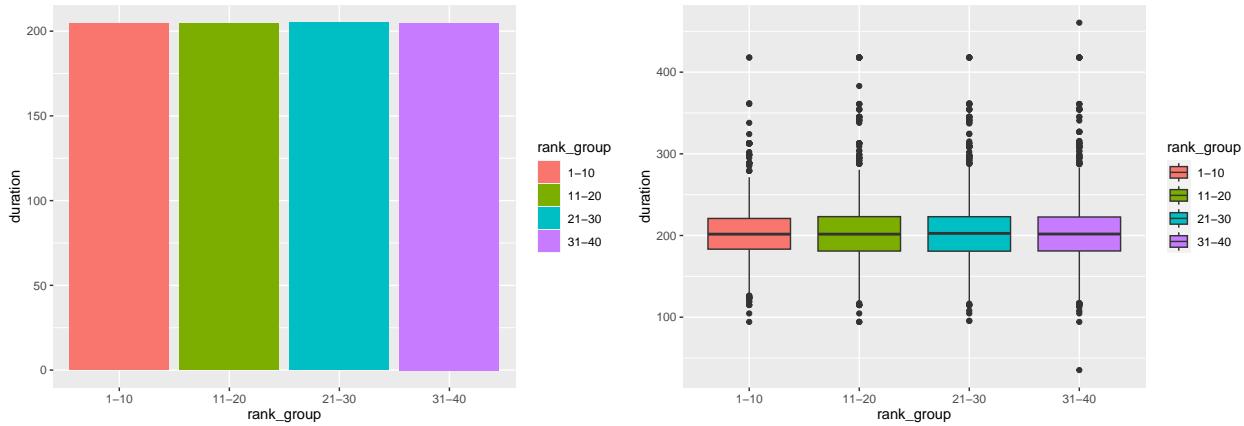
```



```

Descriptive statistics by group
group: 1-10
vars      n mean   sd median trimmed mad min  max range skew
X1       1 1834 119.92 28.06 116.95  117.55 31.15 62.48 201.74 139.26 0.59
kurtosis    se
X1      -0.53 0.66
-----
group: 11-20
vars      n mean   sd median trimmed mad min  max range skew
X1       1 1782 121.97 27.96 117.97  119.72 29.63 62.48 201.74 139.26 0.58
kurtosis    se
X1      -0.49 0.66
-----
group: 21-30
vars      n mean   sd median trimmed mad min  max range skew
X1       1 1908 118.99 28.19 114.01  116.68 29.63 62.48 201.74 139.26 0.61
kurtosis    se
X1      -0.41 0.65
-----
group: 31-40
vars      n mean   sd median trimmed mad min  max range skew kurtosis    se
X1       1 1918 119.79 28.89 114.27  117.43 29 62.45 205.27 142.83 0.64    -0.38
se
X1 0.66
[1] "duration and album_type"

```



Descriptive statistics by group

group: 1-10

```

vars      n    mean     sd median trimmed   mad    min    max range skew
X1      1 1834 204.38 35.25 201.66  203.4 28.35 94.25 417.92 323.68 0.61
      kurtosis    se
X1      2.37 0.82
-----
```

group: 11-20

```

vars      n    mean     sd median trimmed   mad    min    max range skew
X1      1 1782 204.73 40.99 201.66  201.89 30.89 94.25 417.92 323.68 1.39
      kurtosis    se
X1      5.14 0.97
-----
```

group: 21-30

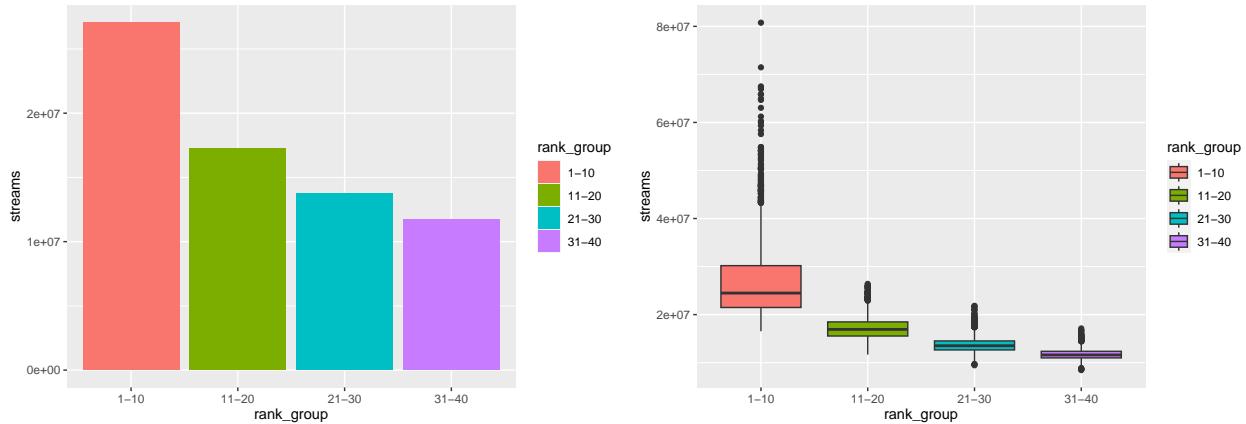
```

vars      n    mean     sd median trimmed   mad    min    max range skew kurtosis
X1      1 1908 205 41.21 202.62  202.33 31.06 95.47 417.92 322.45 1.11      3.52
      se
X1 0.94
-----
```

group: 31-40

```

vars      n    mean     sd median trimmed   mad    min    max range skew
X1      1 1918 204.77 40.48 201.82  202.36 30.83 35.24 460.57 425.33 1.15
      kurtosis    se
X1      4.55 0.92
[1] "streams and album_type"
```



Descriptive statistics by group

group: 1-10

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1834	27048371	8203465	24482434	25743975	5666251	16536376	80764045
			range	skew	kurtosis		se		
X1		64227669	1.81		4.4	191556.9			

group: 11-20

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1782	17219234	2327543	16922665	17039922	2142157	11678776	26396743
			range	skew	kurtosis		se		
X1		14717967	0.81		0.92	55137.1			

group: 21-30

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1908	13717795	1550166	13521841	13595351	1356549	9456847	21828762
			range	skew	kurtosis		se		
X1		12371915	1.01		2.23	35488.62			

group: 31-40

	vars	n	mean	sd	median	trimmed	mad	min	max
X1	1	1918	11742865	1163604	11604291	11657160	1012931	8454914	17119220
			range	skew	kurtosis		se		
X1		8664306	0.81		1.51	26569.35			

2. Dues variables numèriques

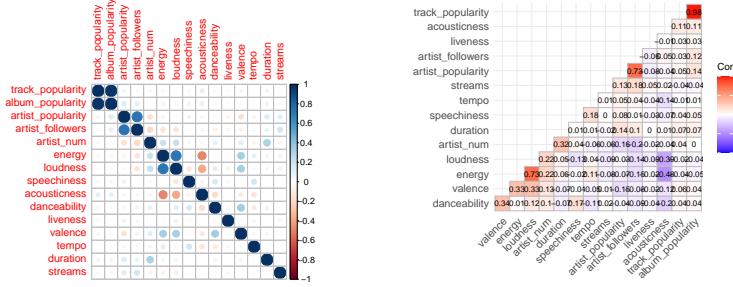
Per veure la relació entre les variables numèriques, primer farem una matriu de covariances i després per a cada parell de variables observarem el seu scatter plot:

```
[1] "Matriu de correlació: "
```

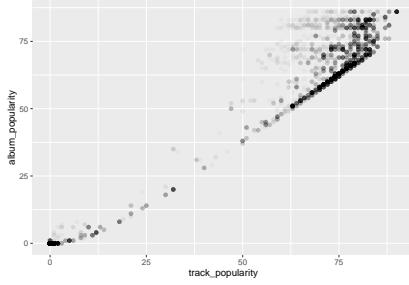
```
Loading required package: corrplot
```

```
corrplot 0.92 loaded
```

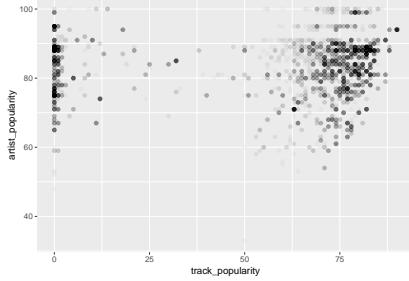
```
Loading required package: ggcrrplot
```



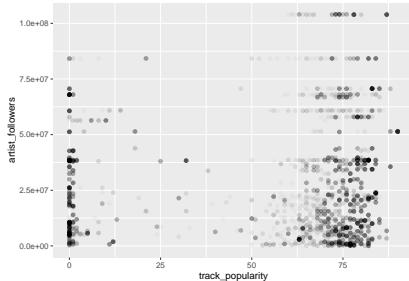
[1] "track_popularity and album_popularity"



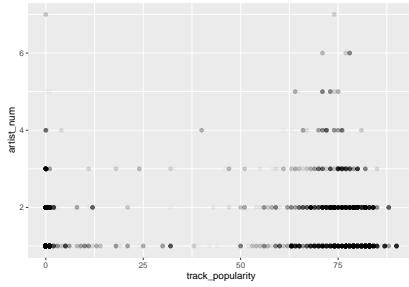
[1] "track_popularity and artist_popularity"



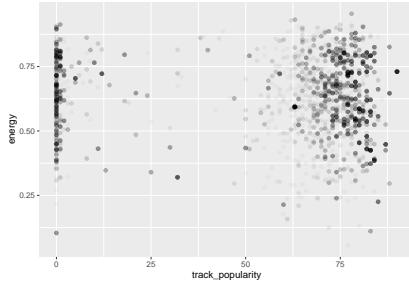
[1] "track_popularity and artist_followers"



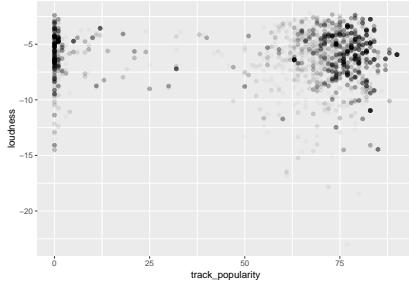
[1] "track_popularity and artist_num"



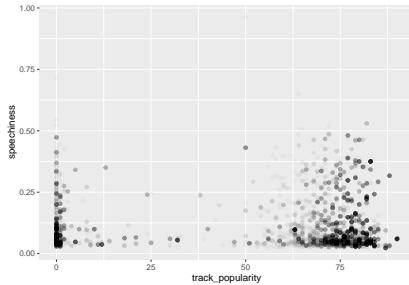
[1] "track_popularity and energy"



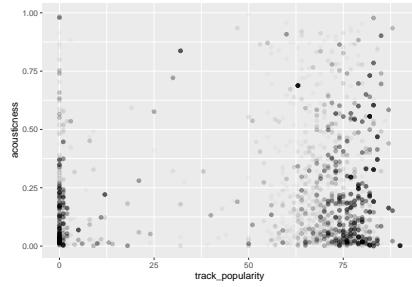
[1] "track_popularity and loudness"



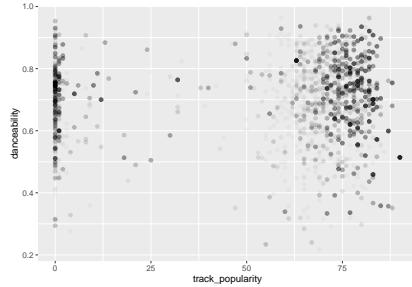
[1] "track_popularity and speechiness"



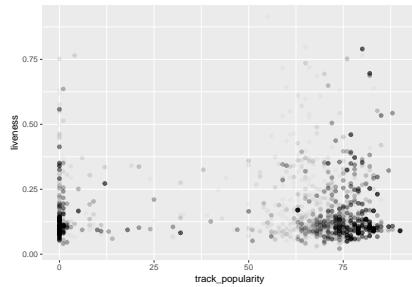
[1] "track_popularity and acousticness"



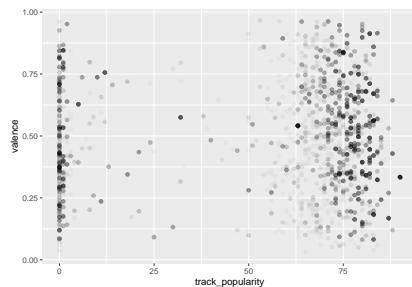
[1] "track_popularity and danceability"



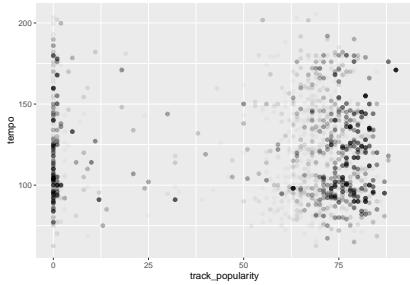
[1] "track_popularity and liveness"



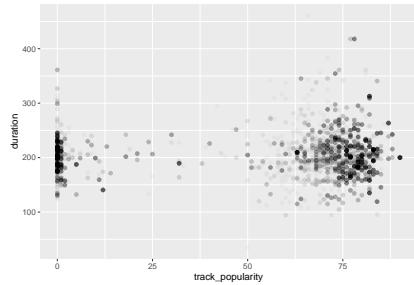
[1] "track_popularity and valence"



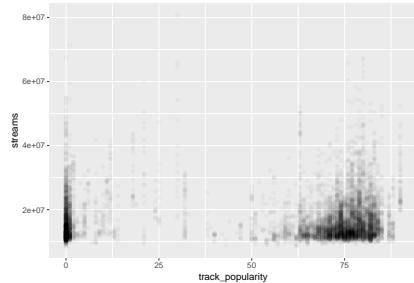
[1] "track_popularity and tempo"



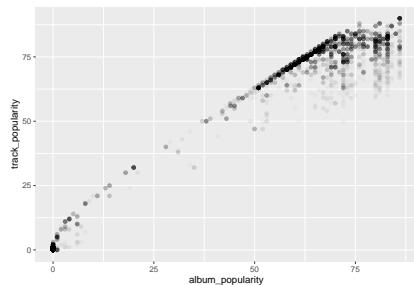
[1] "track_popularity and duration"



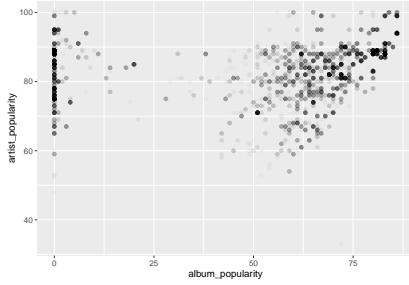
[1] "track_popularity and streams"



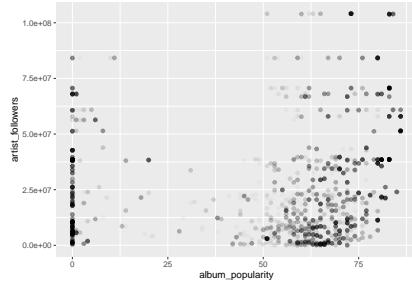
[1] "album_popularity and track_popularity"



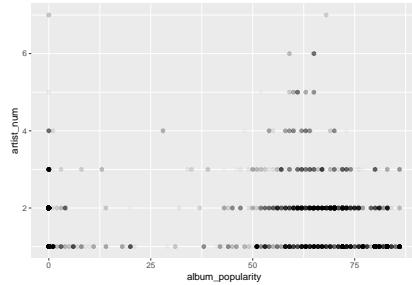
[1] "album_popularity and artist_popularity"



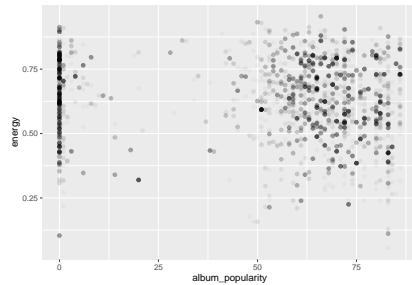
[1] "album_popularity and artist_followers"



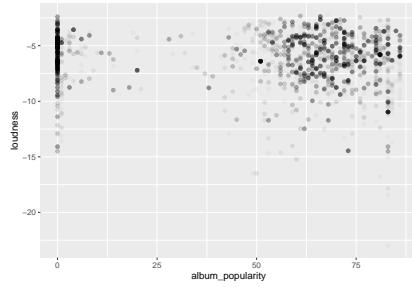
[1] "album_popularity and artist_num"



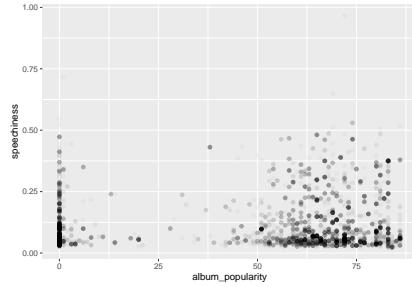
[1] "album_popularity and energy"



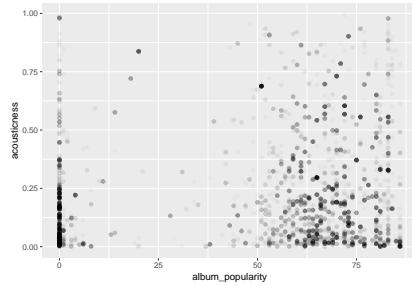
[1] "album_popularity and loudness"



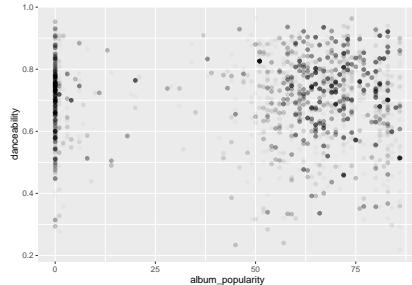
[1] "album_popularity and speechiness"



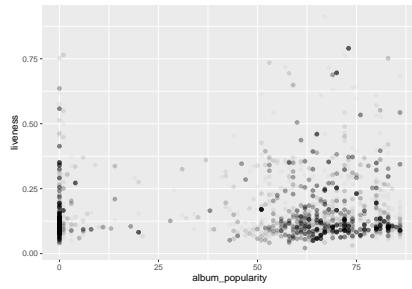
[1] "album_popularity and acousticness"



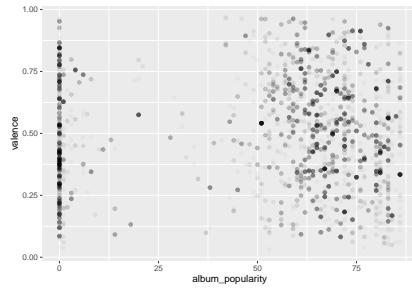
[1] "album_popularity and danceability"



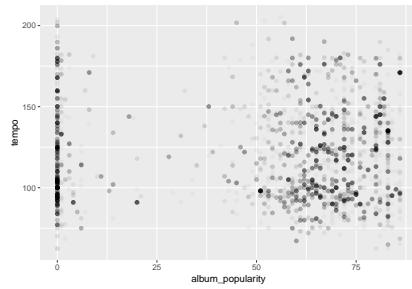
[1] "album_popularity and liveness"



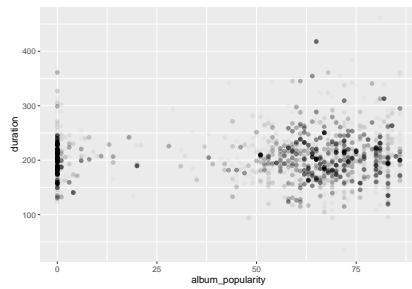
[1] "album_popularity and valence"



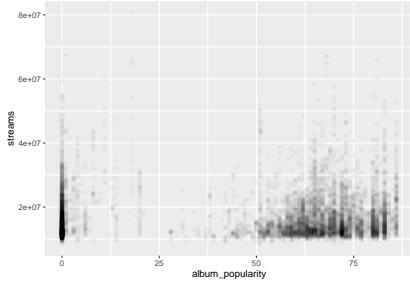
[1] "album_popularity and tempo"



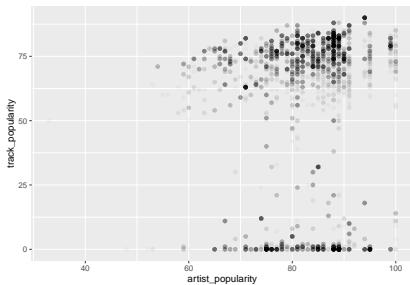
[1] "album_popularity and duration"



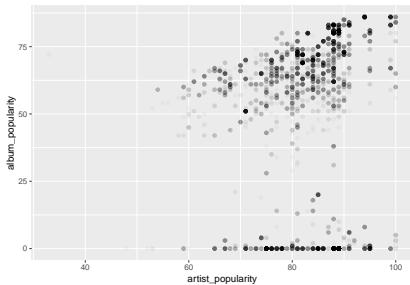
[1] "album_popularity and streams"



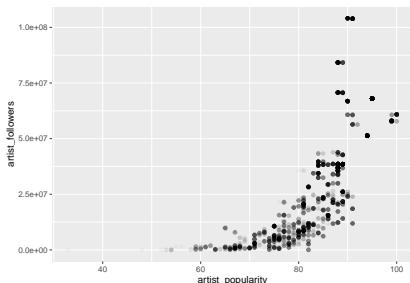
```
[1] "artist_popularity and track_popularity"
```



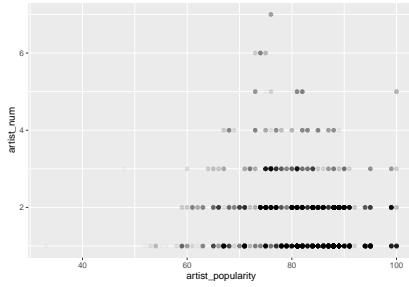
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[1] "artist_popularity and album_popularity"
```



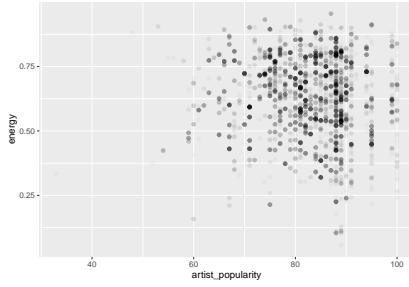
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[1] "artist_popularity and artist_followers"
```



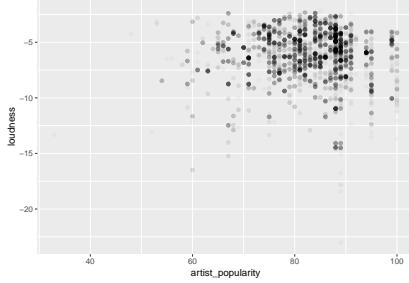
```
[1] "artist_popularity and artist_num"
```



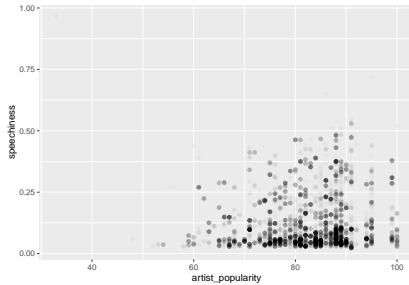
[1] "artist_popularity and energy"



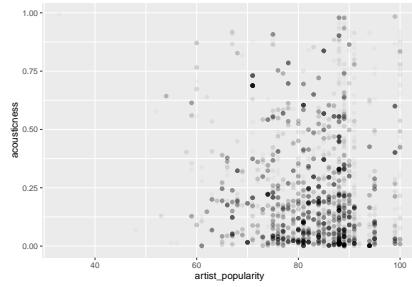
[1] "artist_popularity and loudness"



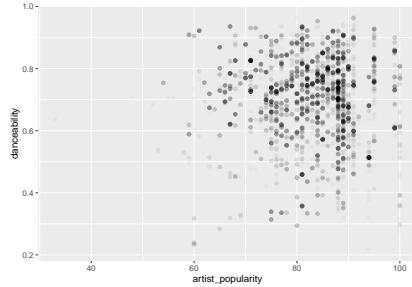
[1] "artist_popularity and speechiness"



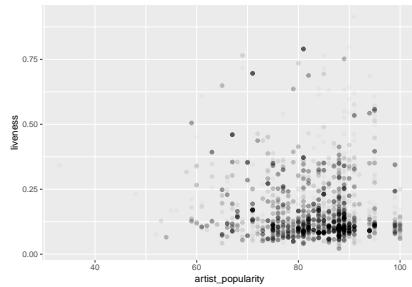
[1] "artist_popularity and acousticness"



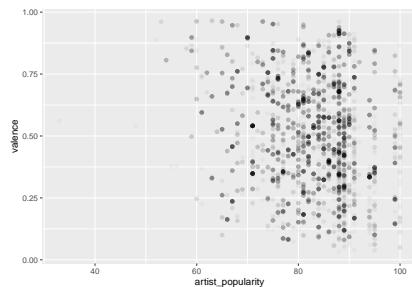
[1] "artist_popularity and danceability"



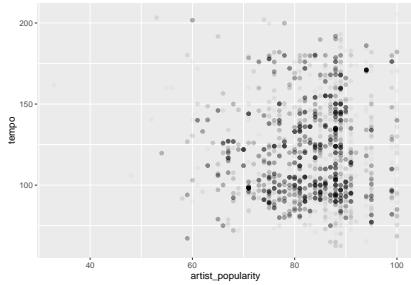
[1] "artist_popularity and liveness"



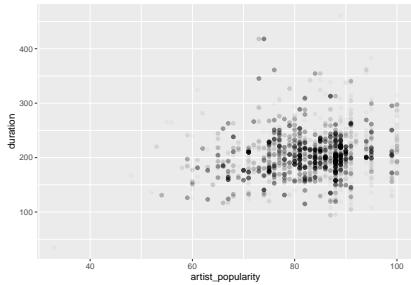
[1] "artist_popularity and valence"



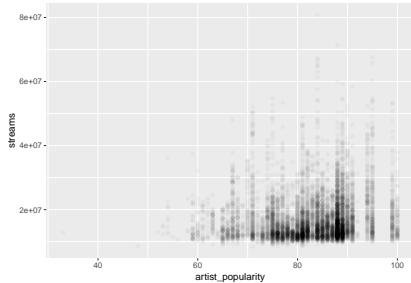
[1] "artist_popularity and tempo"



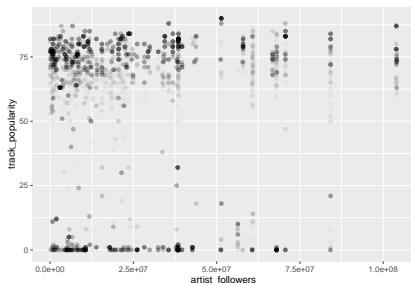
[1] "artist_popularity and duration"



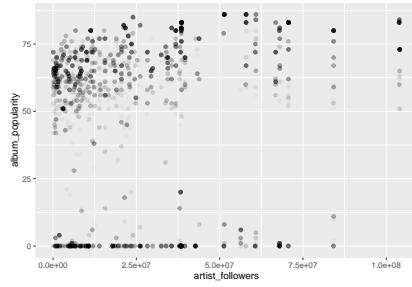
[1] "artist_popularity and streams"



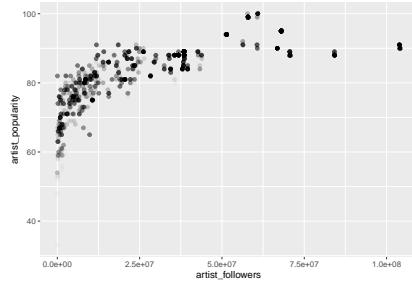
[1] "artist_followers and track_popularity"



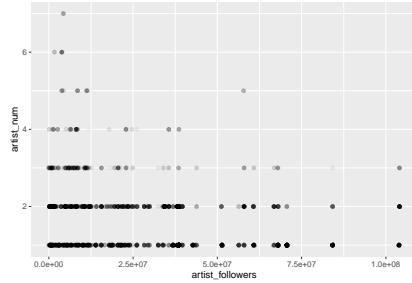
[1] "artist_followers and album_popularity"



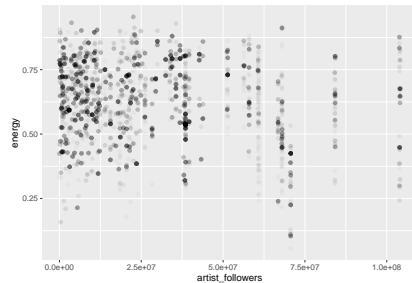
[1] "artist_followers and artist_popularity"



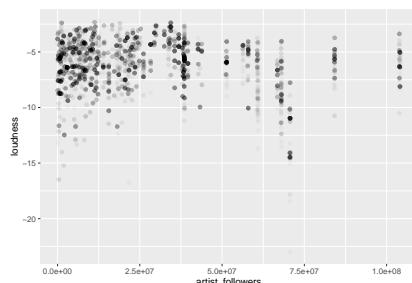
[1] "artist_followers and artist_num"



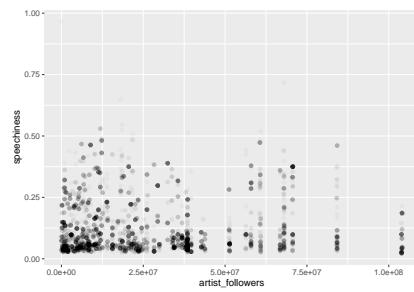
[1] "artist_followers and energy"



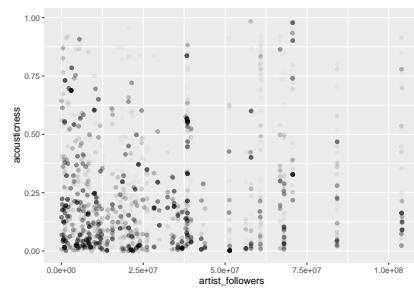
[1] "artist_followers and loudness"



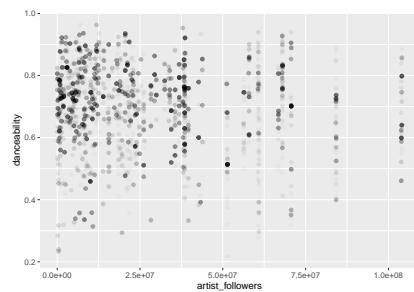
[1] "artist_followers and speechiness"



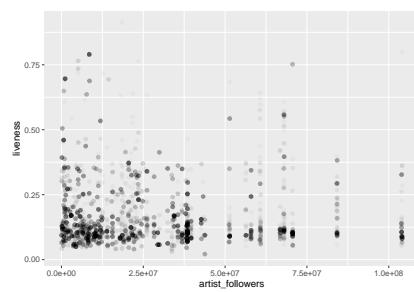
[1] "artist_followers and acousticness"



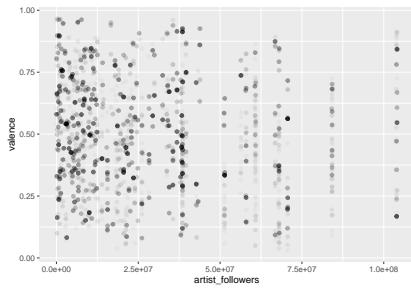
[1] "artist_followers and danceability"



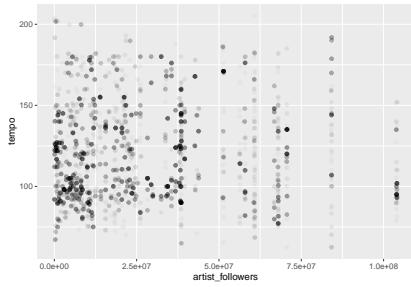
[1] "artist_followers and liveness"



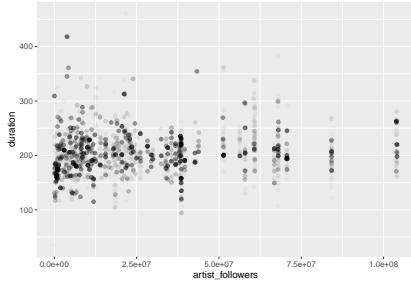
[1] "artist_followers and valence"



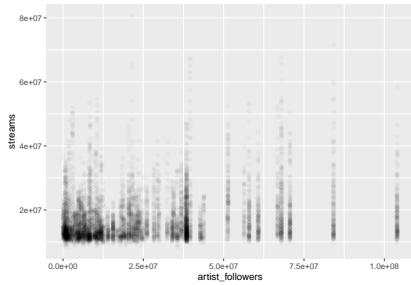
[1] "artist_followers and tempo"



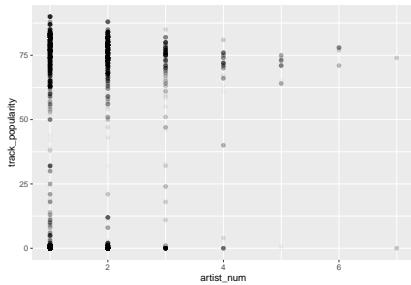
[1] "artist_followers and duration"



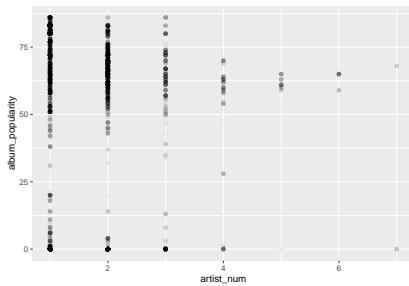
[1] "artist_followers and streams"



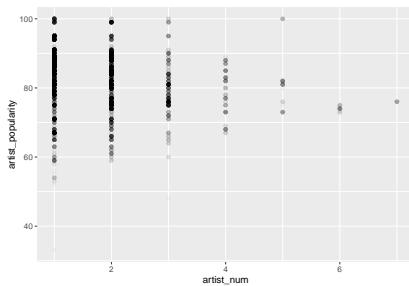
[1] "artist_num and track_popularity"



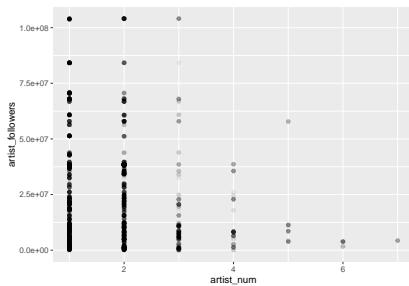
[1] "artist_num and album_popularity"



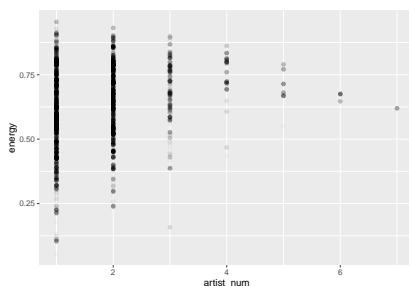
[1] "artist_num and artist_popularity"



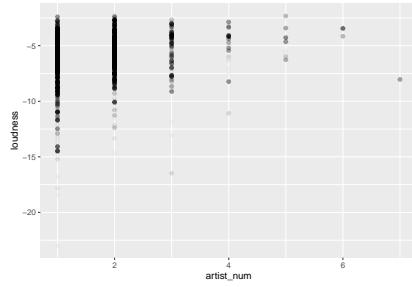
[1] "artist_num and artist_followers"



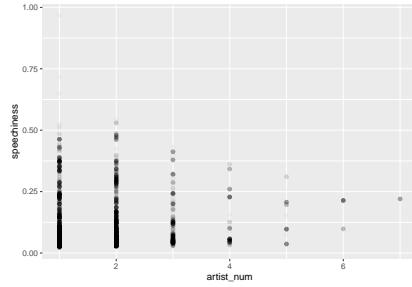
[1] "artist_num and energy"



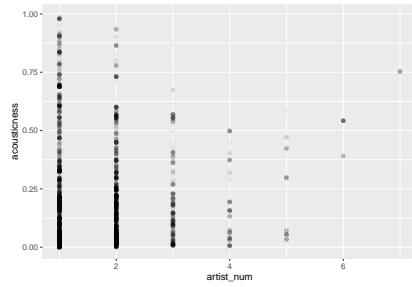
[1] "artist_num and loudness"



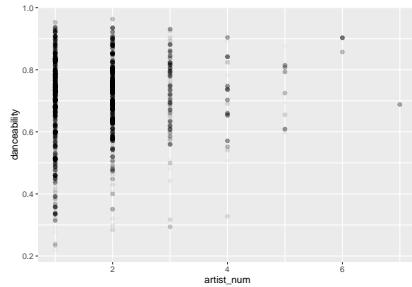
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[1] "artist_num and speechiness"
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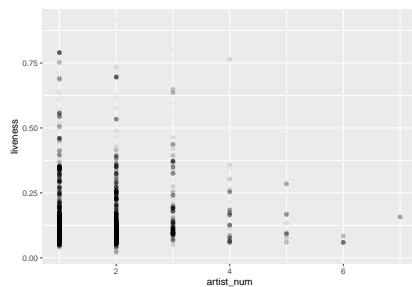
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[1] "artist_num and acousticness"
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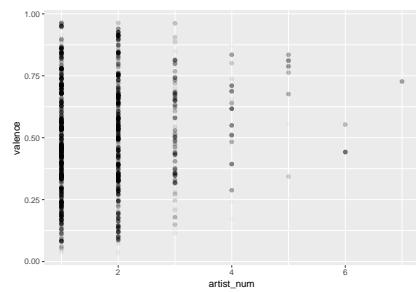
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[1] "artist_num and danceability"
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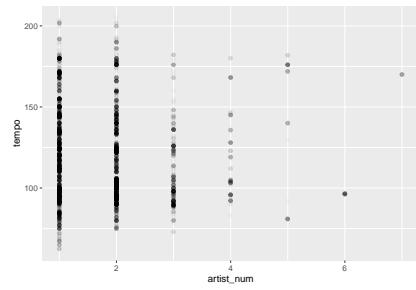
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[1] "artist_num and liveness"
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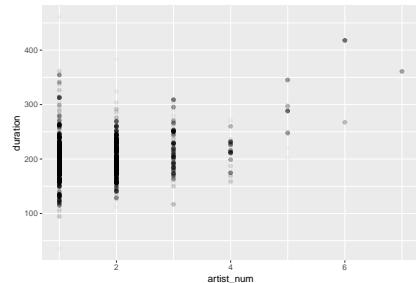
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[1] "artist_num and valence"
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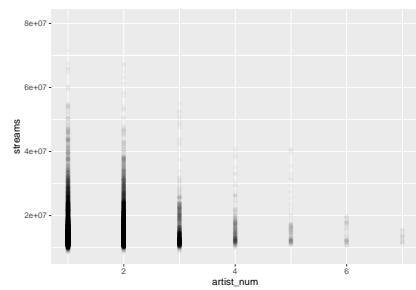
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[1] "artist_num and tempo"
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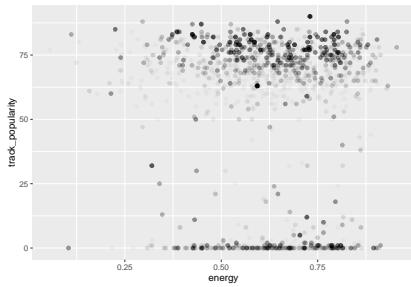
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[1] "artist_num and duration"
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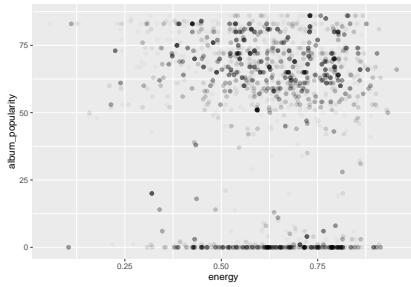
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[1] "artist_num and streams"
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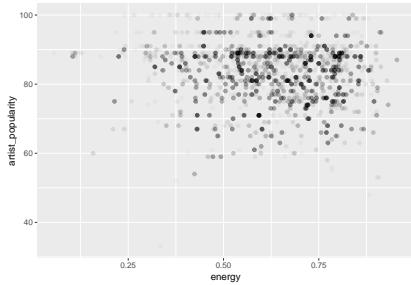
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[1] "energy and track_popularity"
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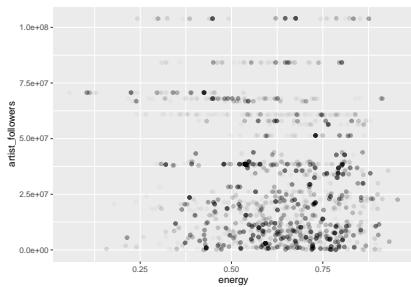
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[1] "energy and album_popularity"
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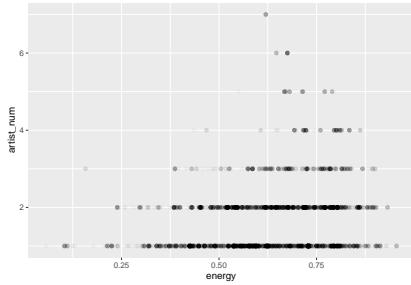
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[1] "energy and artist_popularity"
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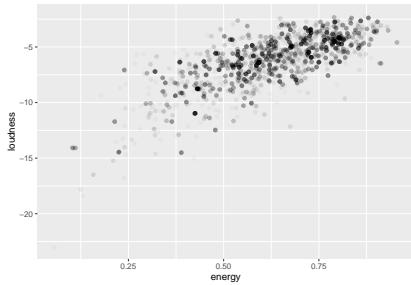
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[1] "energy and artist_followers"
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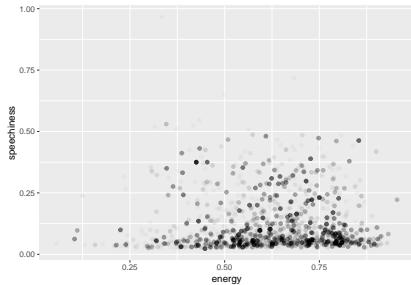
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[1] "energy and artist_num"
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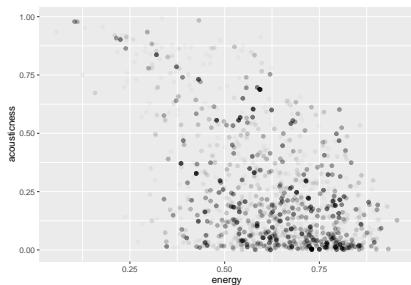
[1] "energy and loudness"



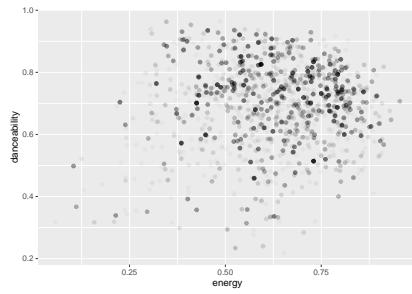
[1] "energy and speechiness"



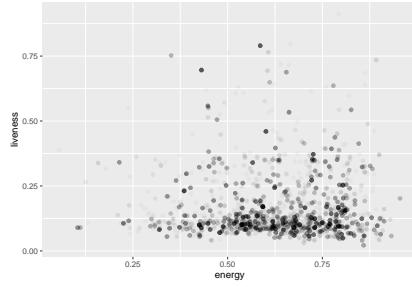
[1] "energy and acousticness"



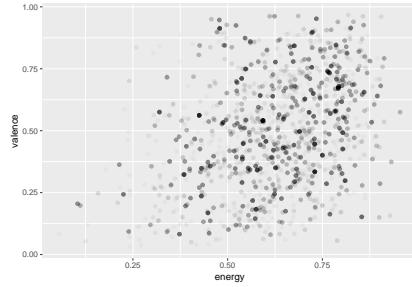
[1] "energy and danceability"



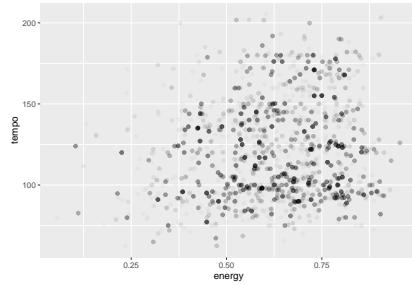
[1] "energy and liveness"



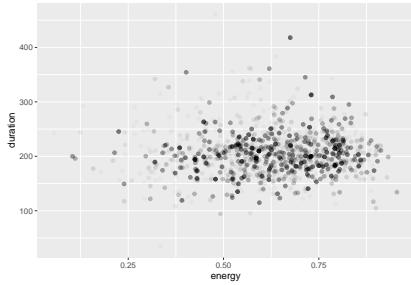
[1] "energy and valence"



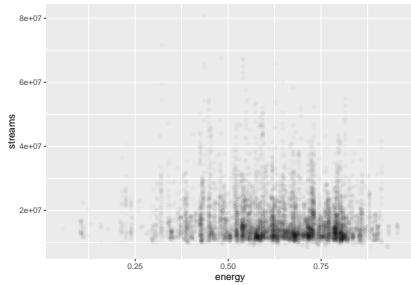
[1] "energy and tempo"



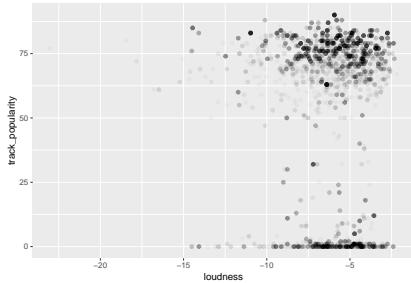
[1] "energy and duration"



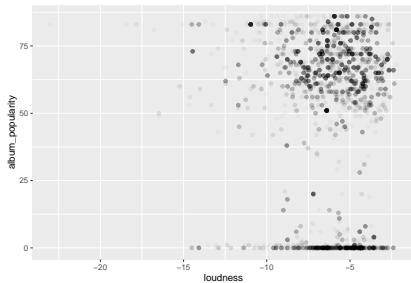
[1] "energy and streams"



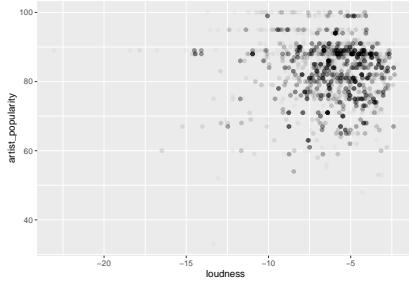
[1] "loudness and track_popularity"



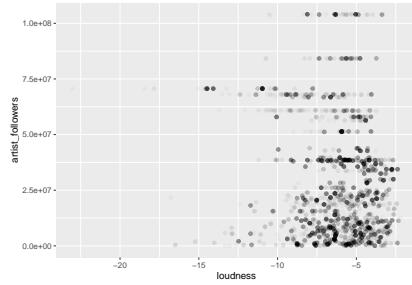
[1] "loudness and album_popularity"



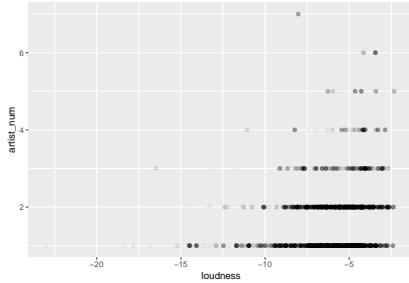
[1] "loudness and artist_popularity"



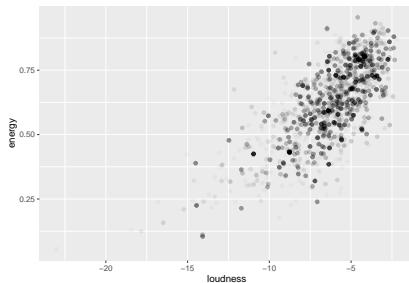
[1] "loudness and artist_followers"



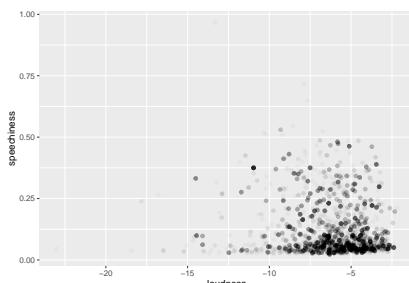
[1] "loudness and artist_num"



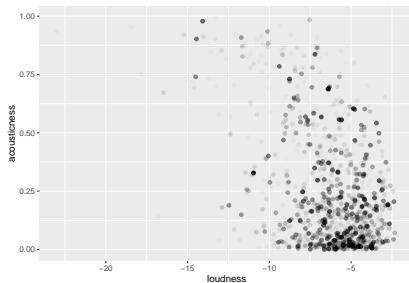
[1] "loudness and energy"



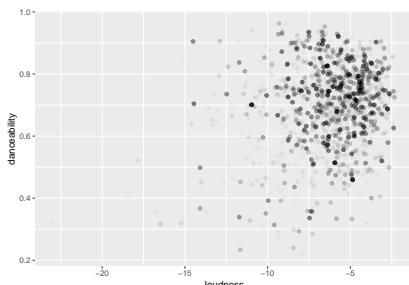
[1] "loudness and speechiness"



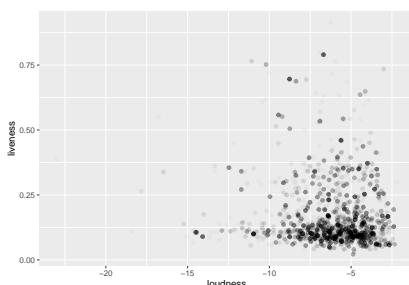
[1] "loudness and acousticness"



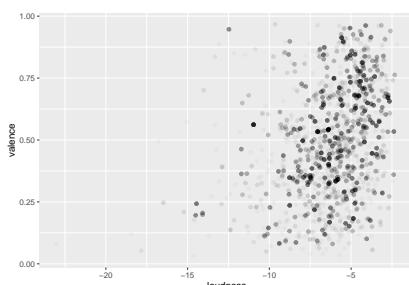
[1] "loudness and danceability"



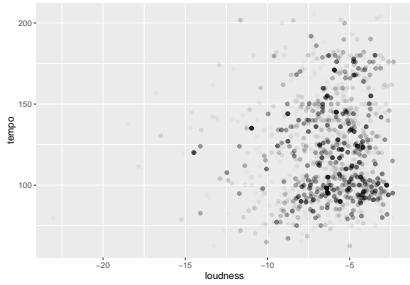
[1] "loudness and liveness"



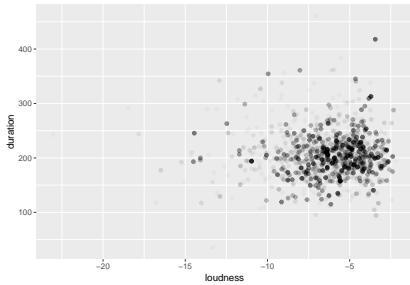
[1] "loudness and valence"



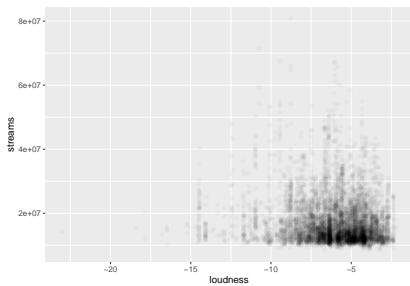
[1] "loudness and tempo"



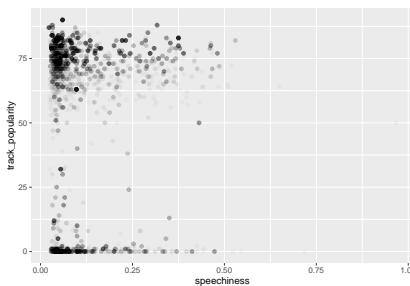
[1] "loudness and duration"



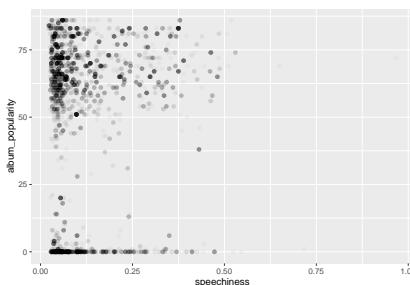
[1] "loudness and streams"



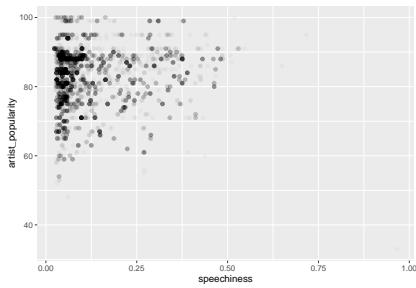
[1] "speechiness and track_popularity"



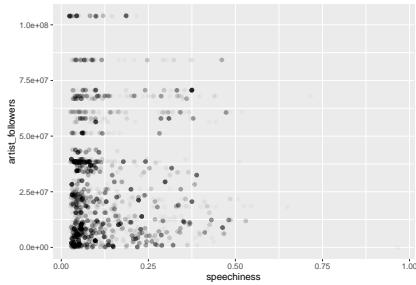
[1] "speechiness and album_popularity"



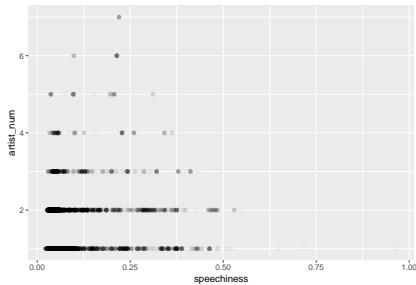
[1] "speechiness and artist_popularity"



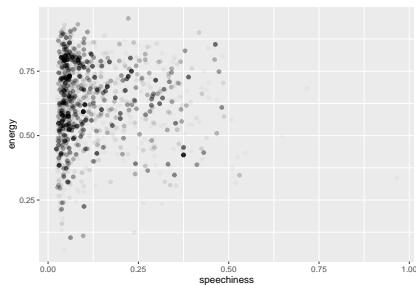
[1] "speechiness and artist_followers"



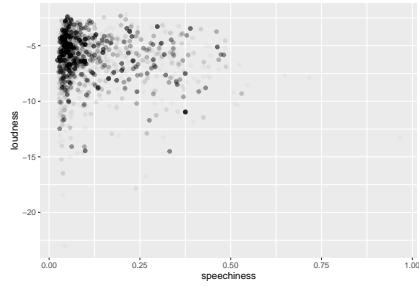
[1] "speechiness and artist_num"



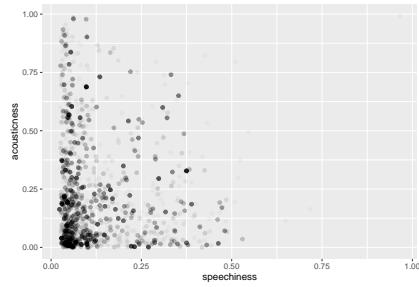
[1] "speechiness and energy"



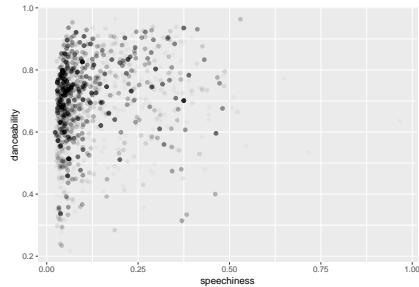
[1] "speechiness and loudness"



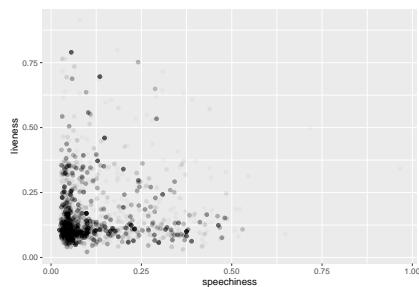
[1] "speechiness and acousticness"



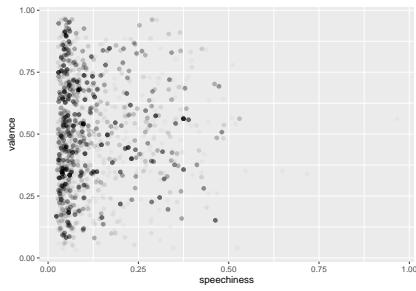
[1] "speechiness and danceability"



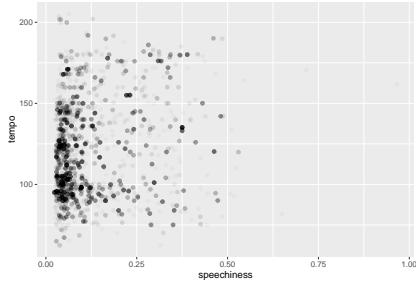
[1] "speechiness and liveness"



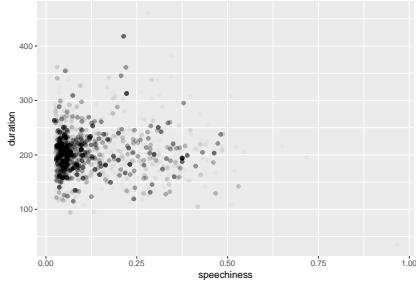
[1] "speechiness and valence"



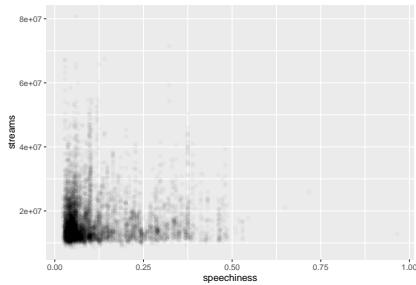
[1] "speechiness and tempo"



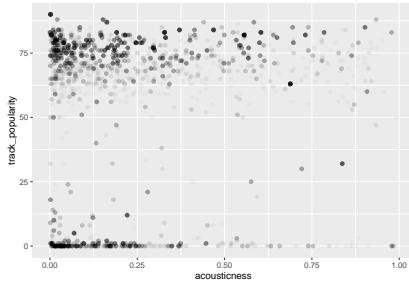
[1] "speechiness and duration"



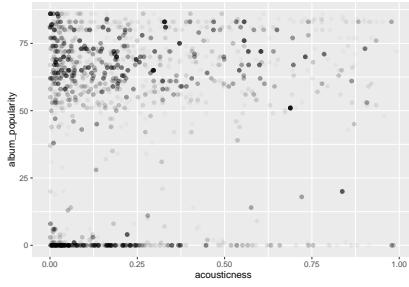
[1] "speechiness and streams"



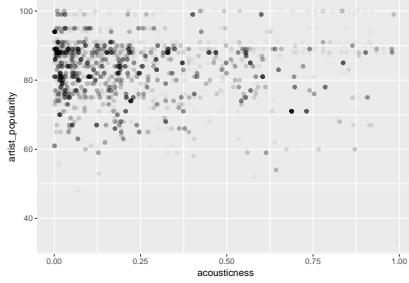
[1] "acousticness and track_popularity"



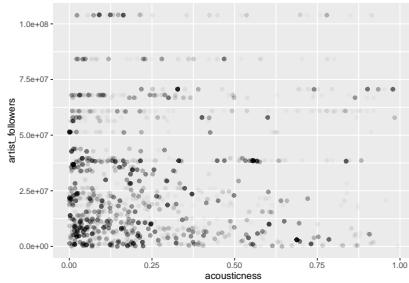
[1] "acousticness and album_popularity"



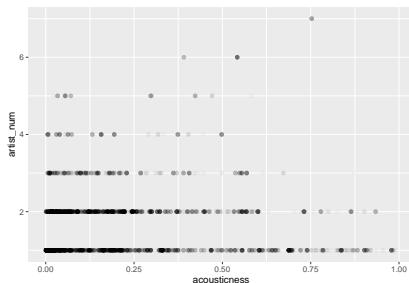
[1] "acousticness and artist_popularity"



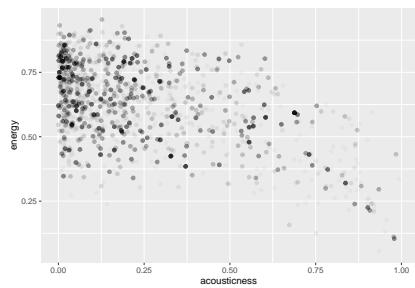
[1] "acousticness and artist_followers"



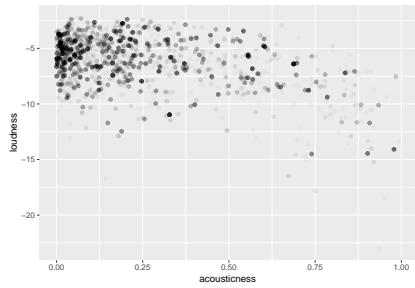
[1] "acousticness and artist_num"



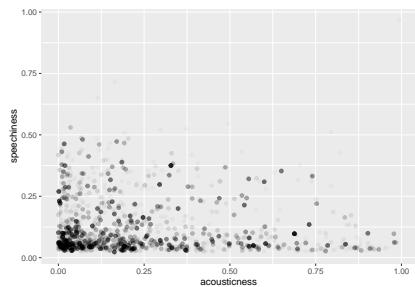
[1] "acousticness and energy"



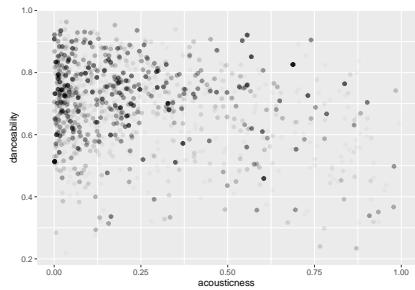
[1] "acousticness and loudness"



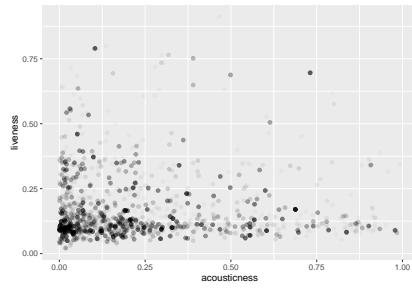
[1] "acousticness and speechiness"



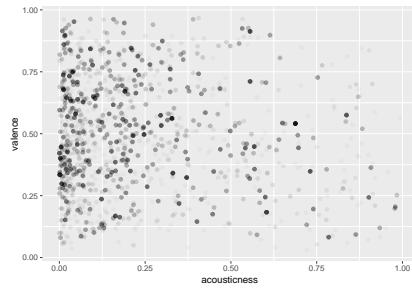
[1] "acousticness and danceability"



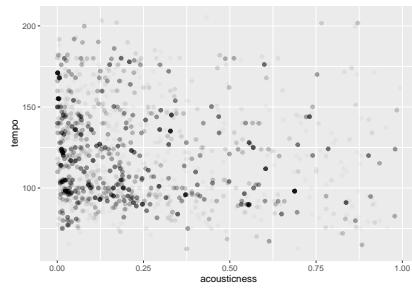
[1] "acousticness and liveness"



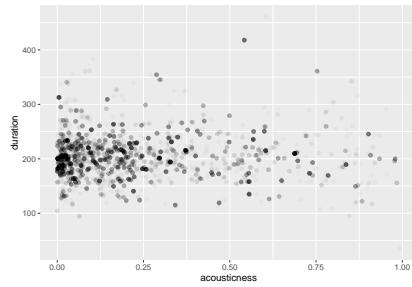
[1] "acousticness and valence"



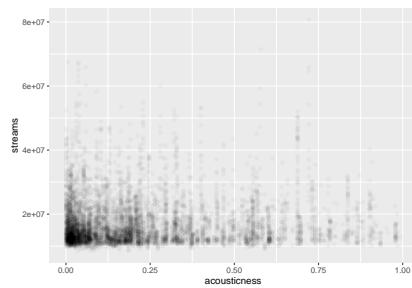
[1] "acousticness and tempo"



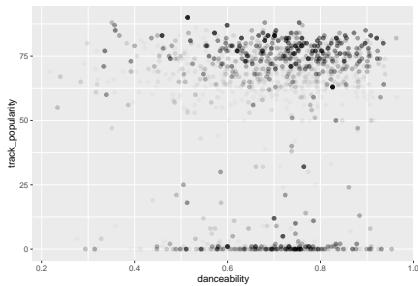
[1] "acousticness and duration"



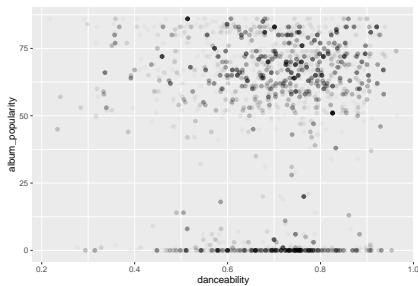
[1] "acousticness and streams"



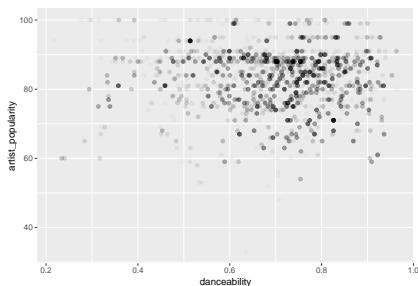
[1] "danceability and track_popularity"



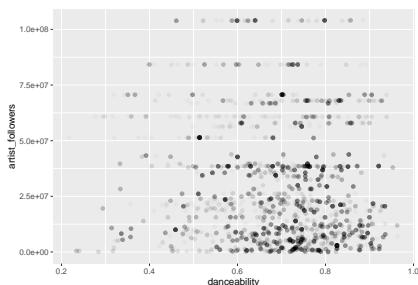
[1] "danceability and album_popularity"



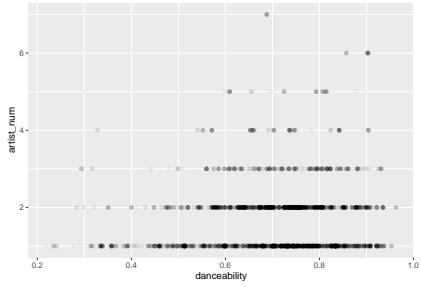
[1] "danceability and artist_popularity"



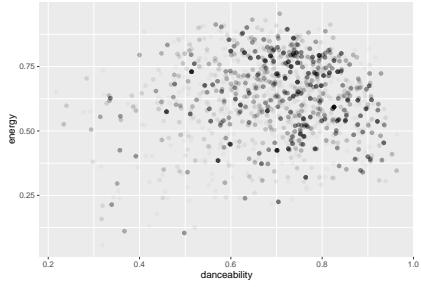
[1] "danceability and artist_followers"



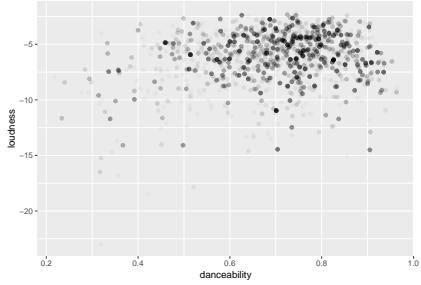
[1] "danceability and artist_num"



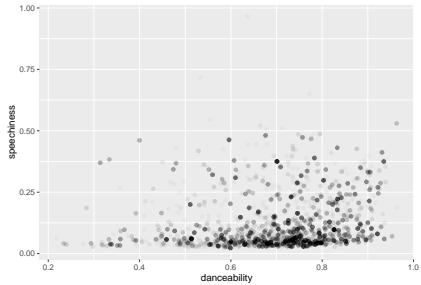
[1] "danceability and energy"



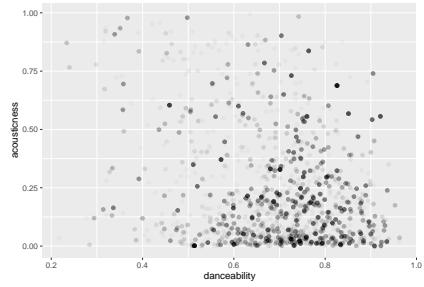
[1] "danceability and loudness"



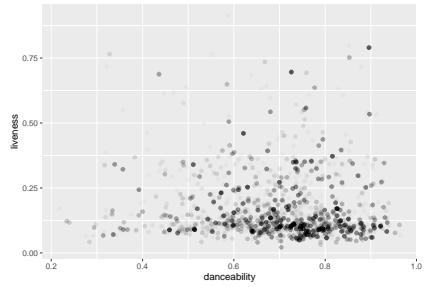
[1] "danceability and speechiness"



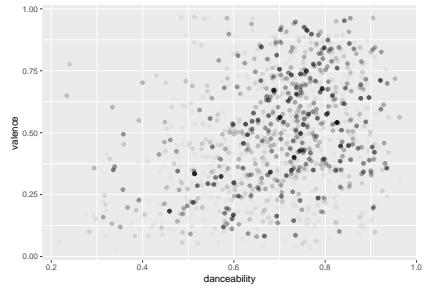
[1] "danceability and acousticness"



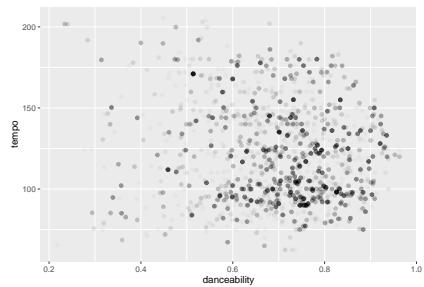
[1] "danceability and liveness"



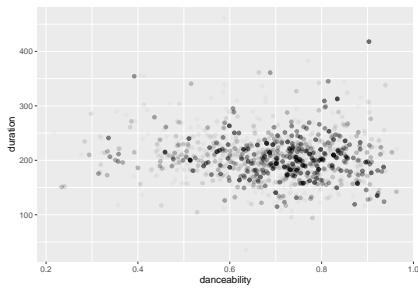
[1] "danceability and valence"



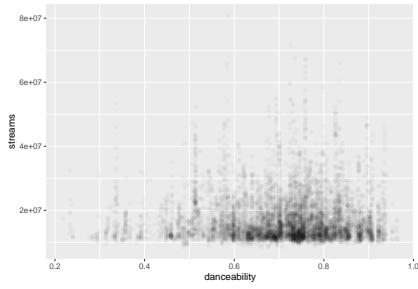
[1] "danceability and tempo"



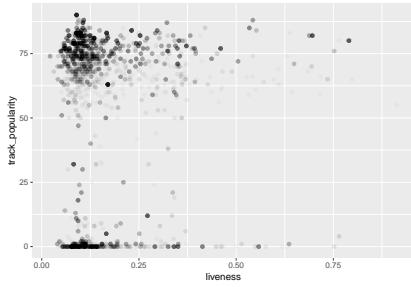
[1] "danceability and duration"



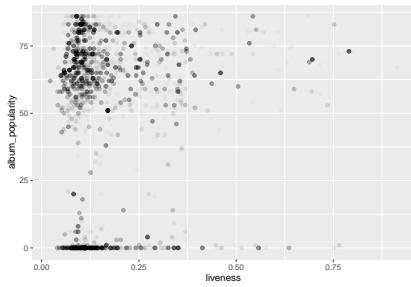
[1] "danceability and streams"



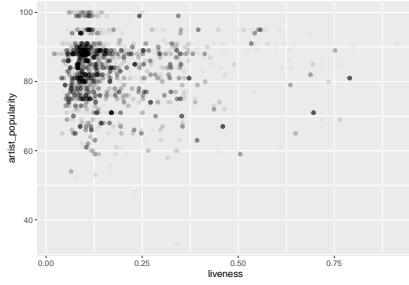
[1] "liveness and track_popularity"



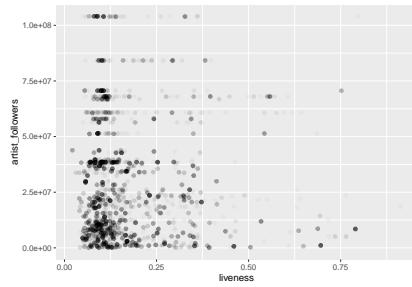
[1] "liveness and album_popularity"



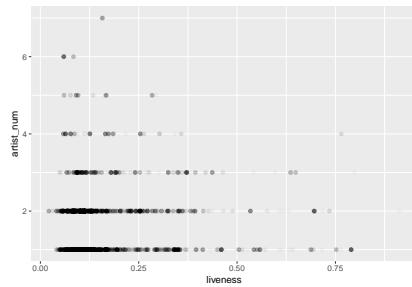
[1] "liveness and artist_popularity"



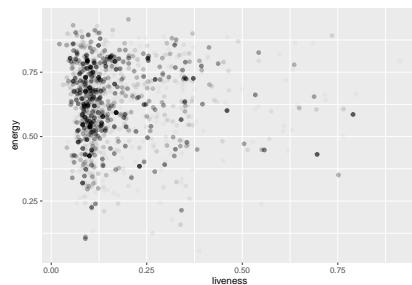
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[1] "liveness and artist_followers"
```



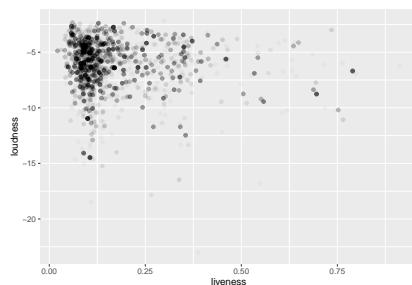
```
[1] "liveness and artist_num"
```



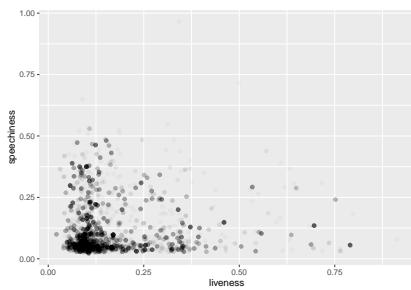
```
[1] "liveness and energy"
```



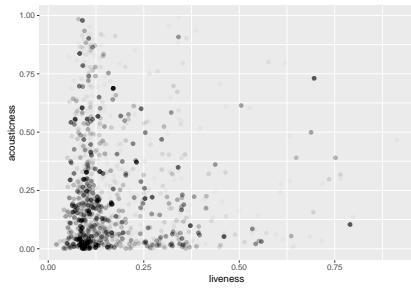
```
[1] "liveness and loudness"
```



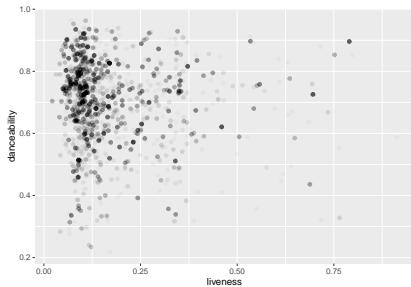
[1] "liveness and speechiness"



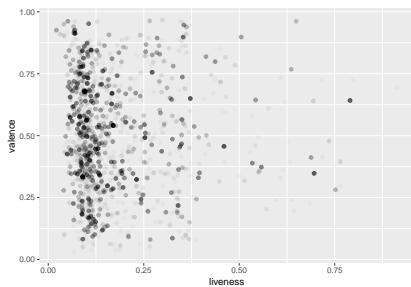
[1] "liveness and acousticness"



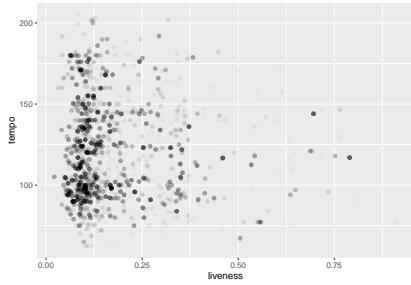
[1] "liveness and danceability"



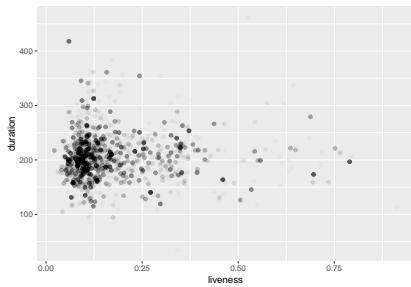
[1] "liveness and valence"



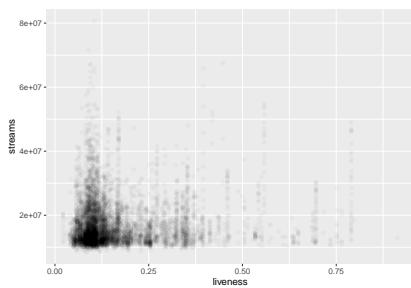
[1] "liveness and tempo"



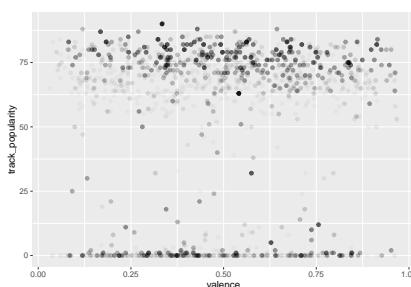
[1] "liveness and duration"



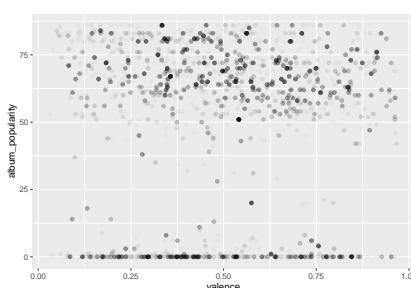
[1] "liveness and streams"



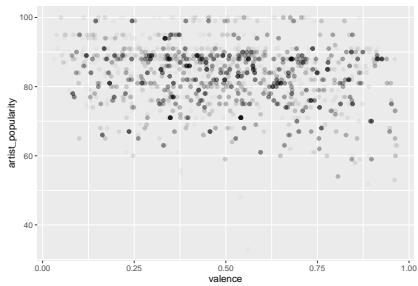
[1] "valence and track_popularity"



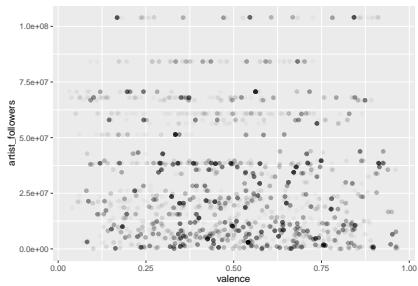
[1] "valence and album_popularity"



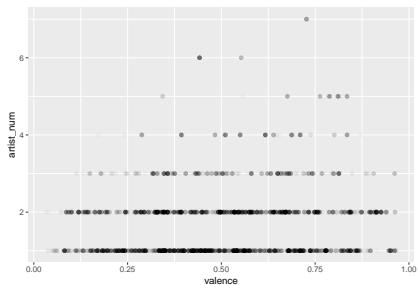
```
[1] "valence and artist_popularity"
```



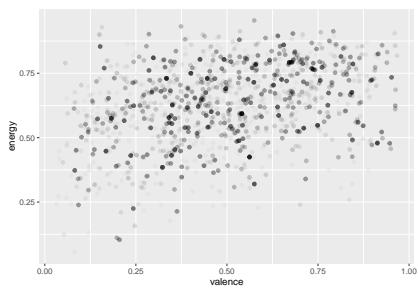
```
[1] "valence and artist_followers"
```



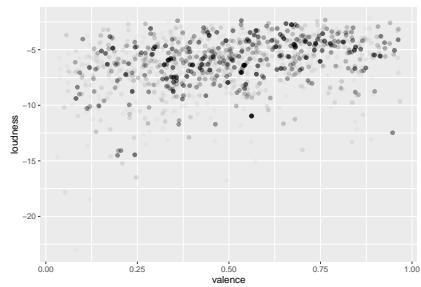
```
[1] "valence and artist_num"
```



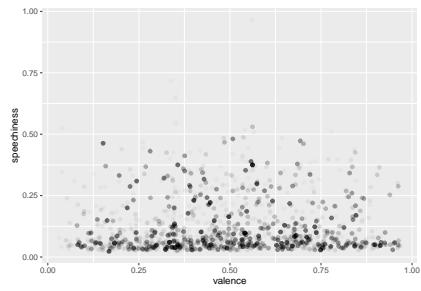
```
[1] "valence and energy"
```



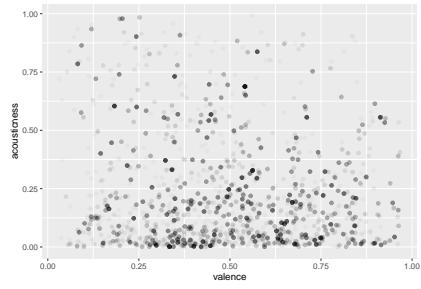
```
[1] "valence and loudness"
```



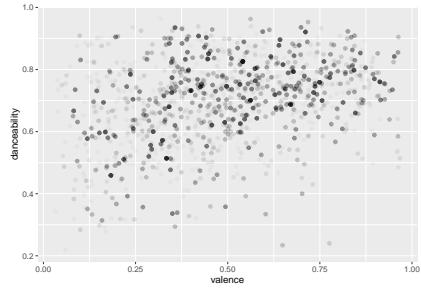
[1] "valence and speechiness"



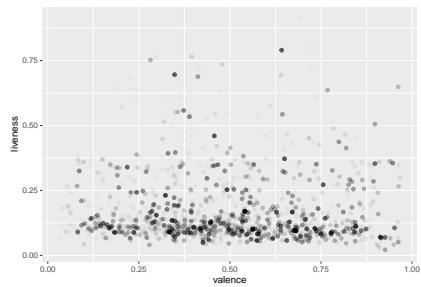
[1] "valence and acousticness"



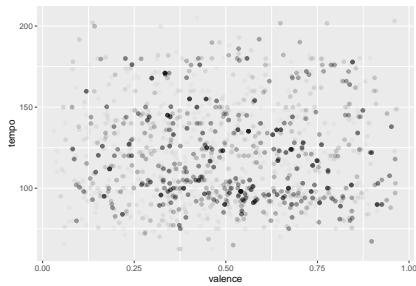
[1] "valence and danceability"



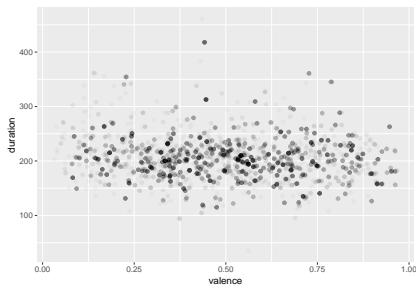
[1] "valence and liveness"



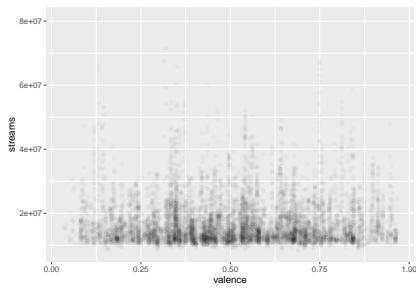
[1] "valence and tempo"



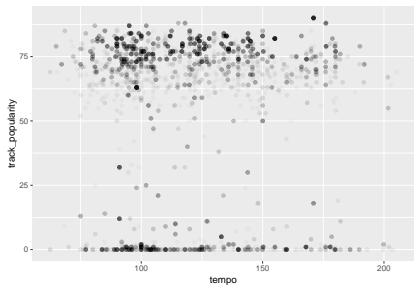
[1] "valence and duration"



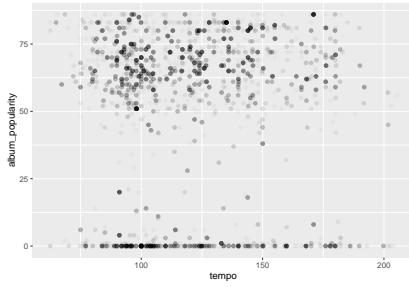
[1] "valence and streams"



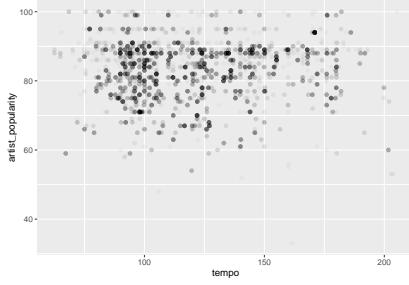
[1] "tempo and track_popularity"



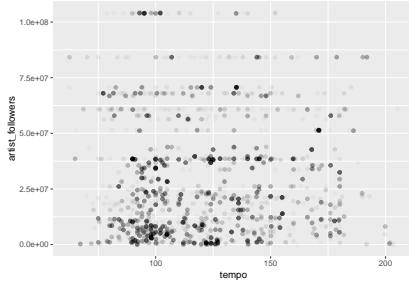
[1] "tempo and album_popularity"



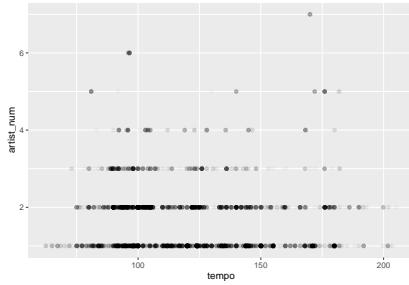
[1] "tempo and artist_popularity"



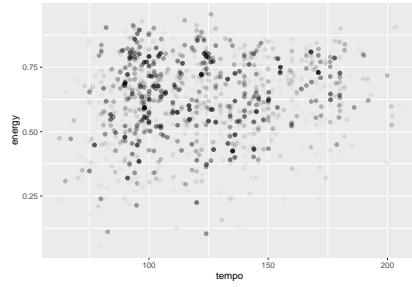
[1] "tempo and artist_followers"



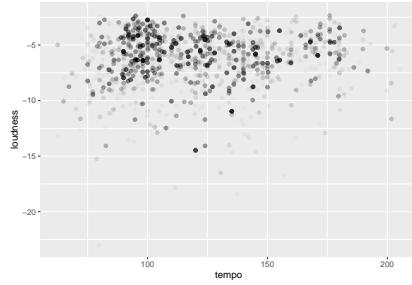
[1] "tempo and artist_num"



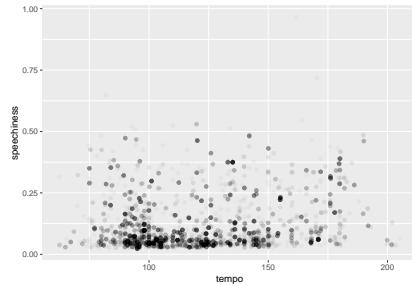
[1] "tempo and energy"



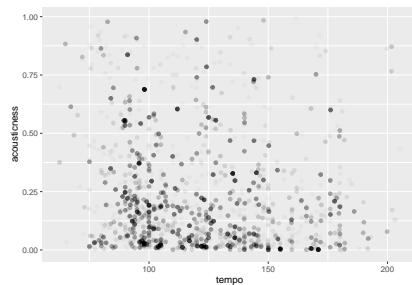
[1] "tempo and loudness"



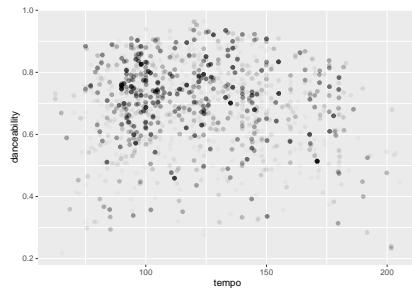
[1] "tempo and speechiness"



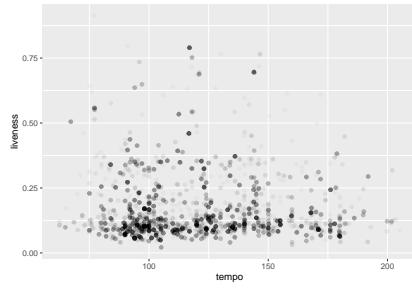
[1] "tempo and acousticness"



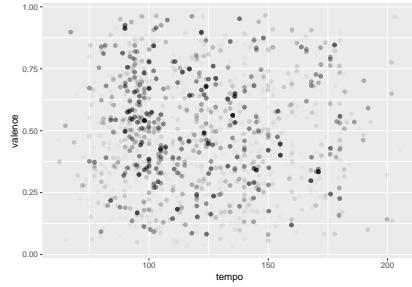
[1] "tempo and danceability"



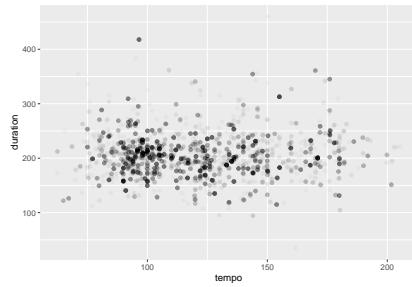
[1] "tempo and liveness"



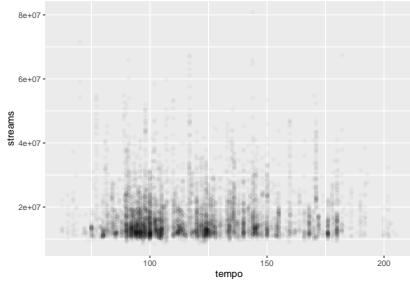
[1] "tempo and valence"



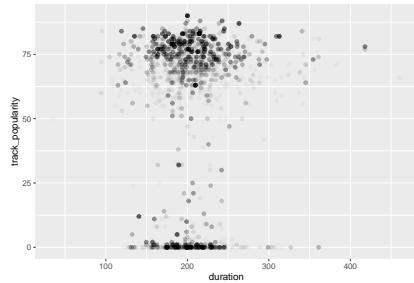
[1] "tempo and duration"



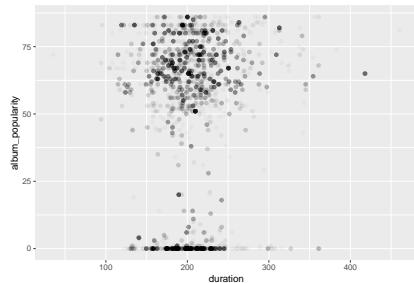
[1] "tempo and streams"



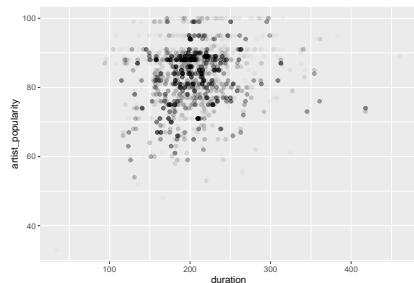
[1] "duration and track_popularity"



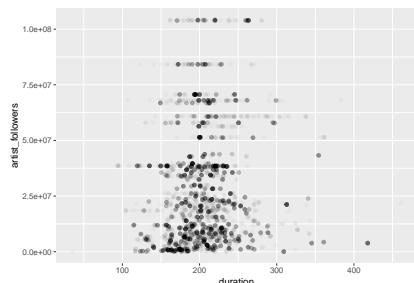
[1] "duration and album_popularity"



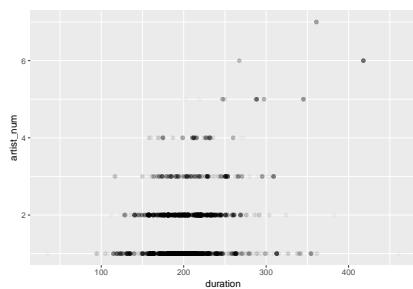
[1] "duration and artist_popularity"



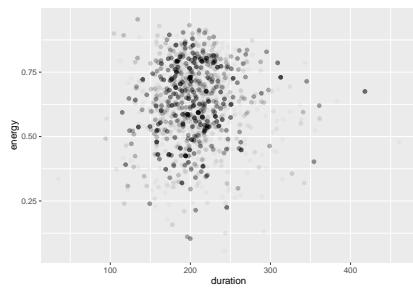
[1] "duration and artist_followers"



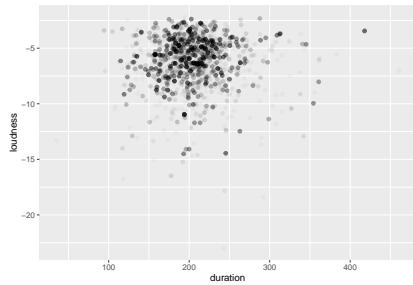
[1] "duration and artist_num"



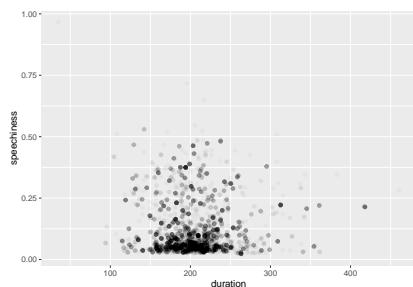
[1] "duration and energy"



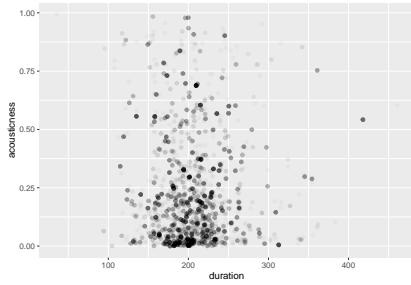
[1] "duration and loudness"



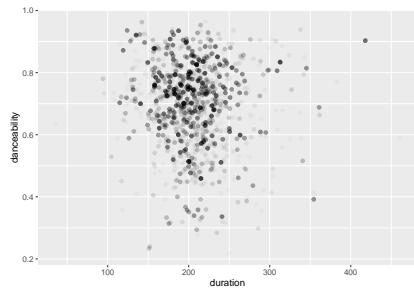
[1] "duration and speechiness"



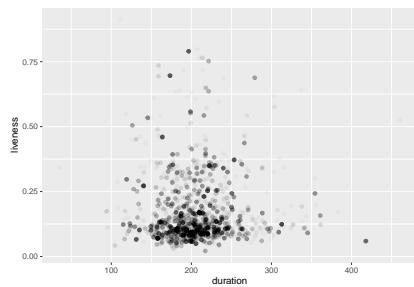
[1] "duration and acousticness"



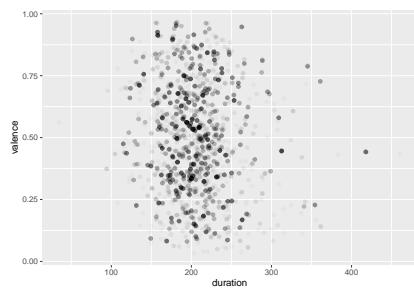
[1] "duration and danceability"



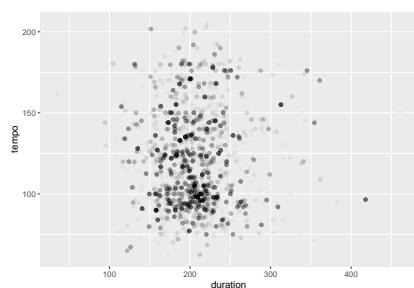
[1] "duration and liveness"



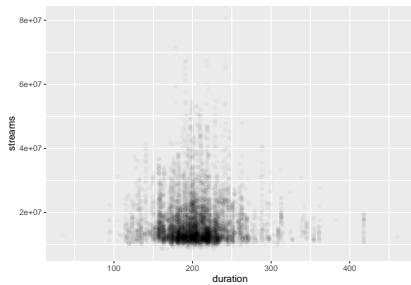
[1] "duration and valence"



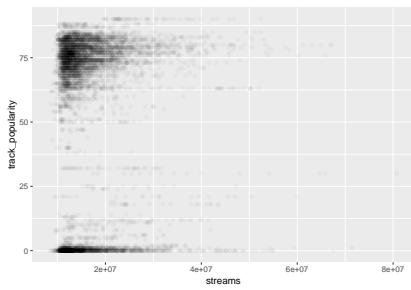
[1] "duration and tempo"



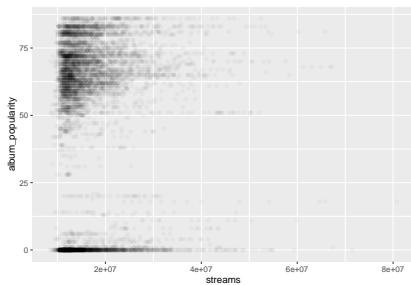
[1] "duration and streams"



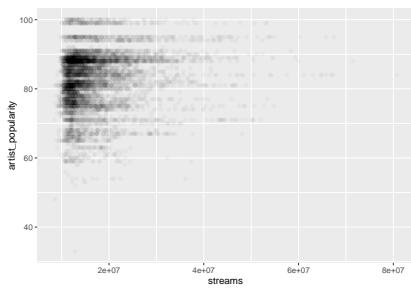
[1] "streams and track_popularity"



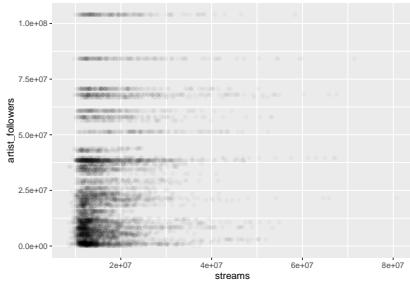
[1] "streams and album_popularity"



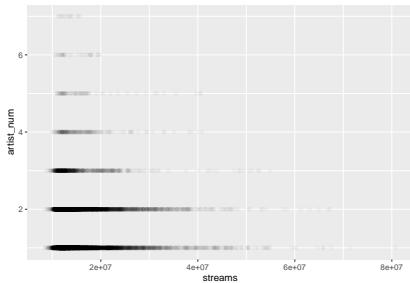
[1] "streams and artist_popularity"



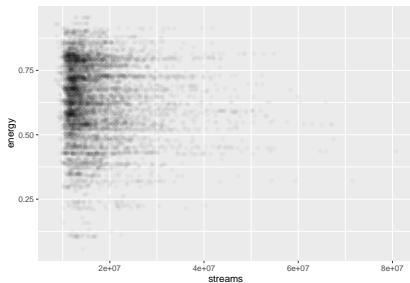
[1] "streams and artist_followers"



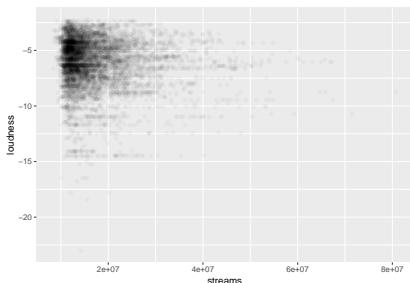
[1] "streams and artist_num"



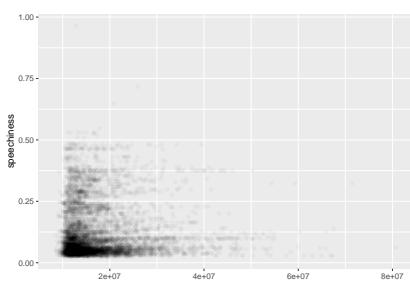
[1] "streams and energy"



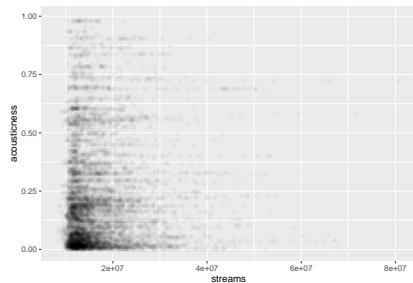
[1] "streams and loudness"



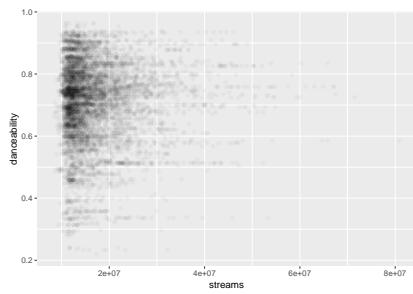
[1] "streams and speechiness"



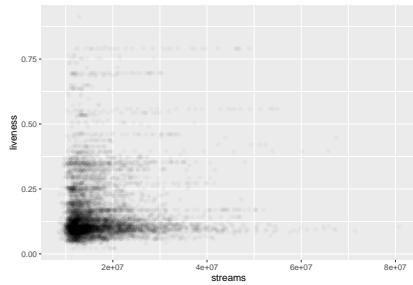
[1] "streams and acousticness"



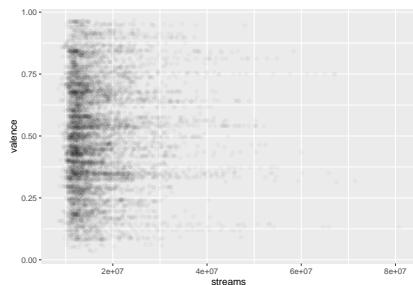
[1] "streams and danceability"



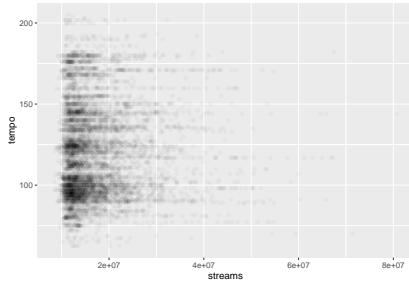
[1] "streams and liveness"



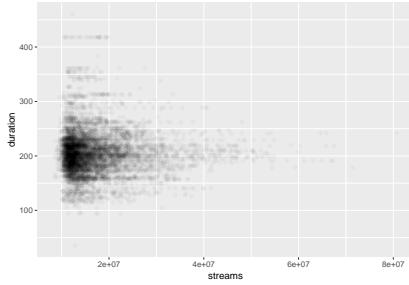
[1] "streams and valence"



[1] "streams and tempo"



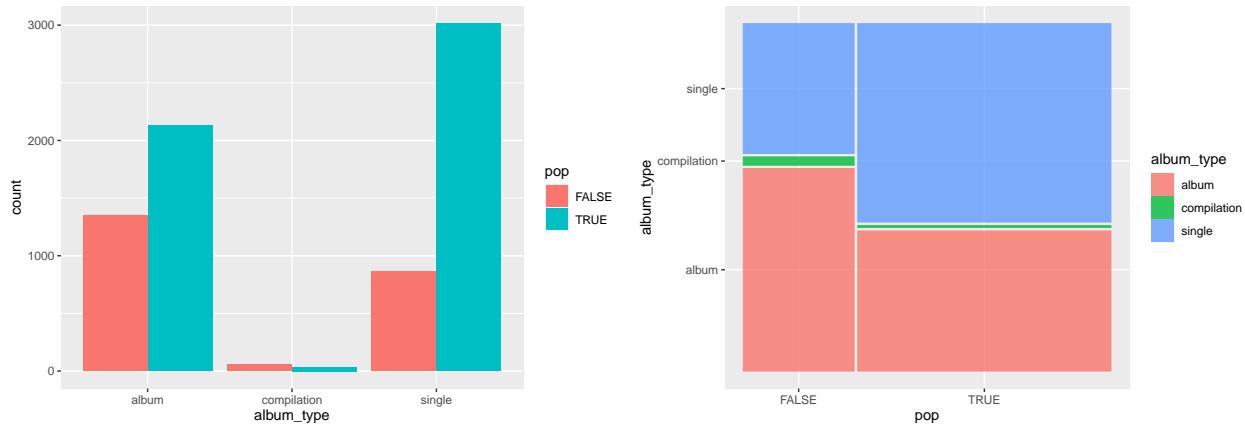
[1] "streams and duration"



3. Dues variables categòriques

Finalment, es fa un chisquared test per a cada parell de variables categòriques, i també gràfics de barres:

[1] "album_type and pop"



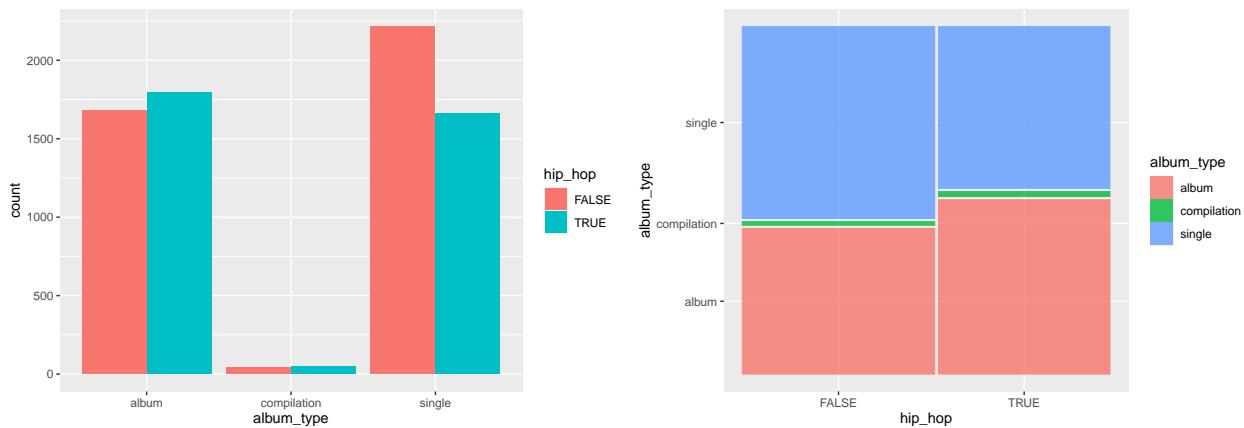
	FALSE	TRUE
album	1347	2128
compilation	55	35
single	864	3013

[1] "Chi-square test for album_type and pop"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 275.38, df = 2, p-value < 2.2e-16
```

[1] "album_type and hip_hop"



```

      FALSE  TRUE
album      1681 1794
compilation  40   50
single     2214 1663
[1] "Chi-square test for album_type and hip_hop"

```

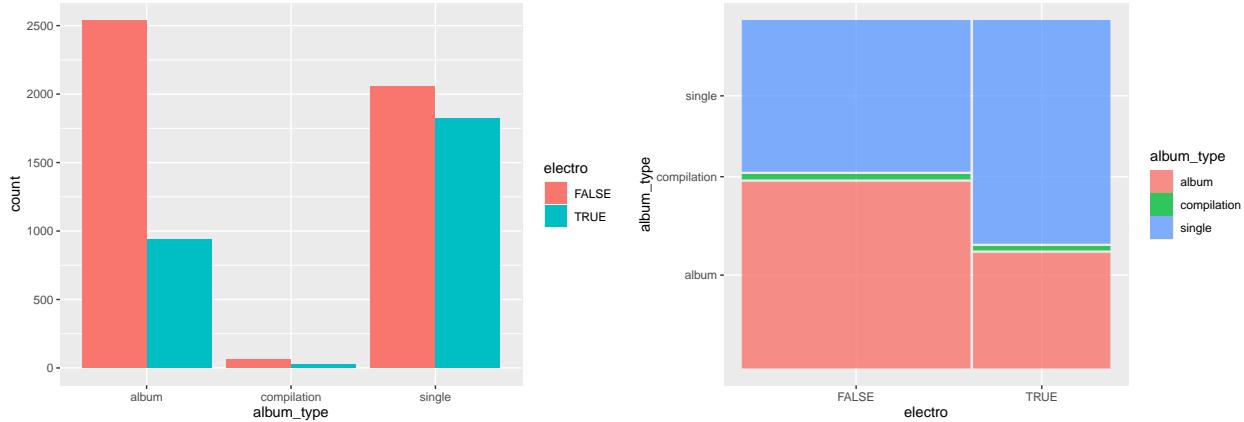
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 58.673, df = 2, p-value = 1.817e-13

```

```
[1] "album_type and electro"
```



```

      FALSE  TRUE
album      2537  938
compilation  61   29
single     2057 1820
[1] "Chi-square test for album_type and electro"

```

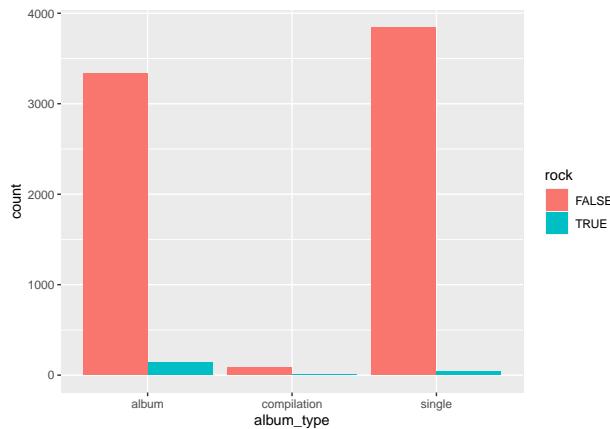
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 312.44, df = 2, p-value < 2.2e-16

```

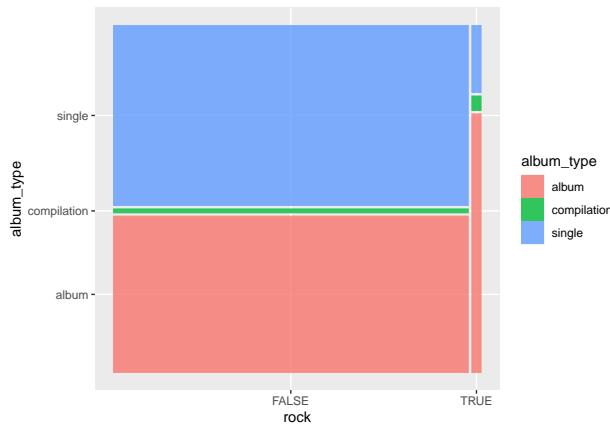
```
[1] "album_type and rock"
```



FALSE TRUE

	FALSE	TRUE
album	3333	142
compilation	82	8
single	3840	37

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

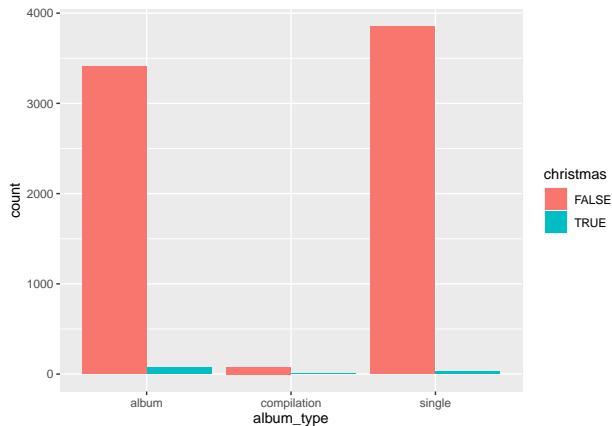


```
[1] "Chi-square test for album_type and rock"
```

Pearson's Chi-squared test

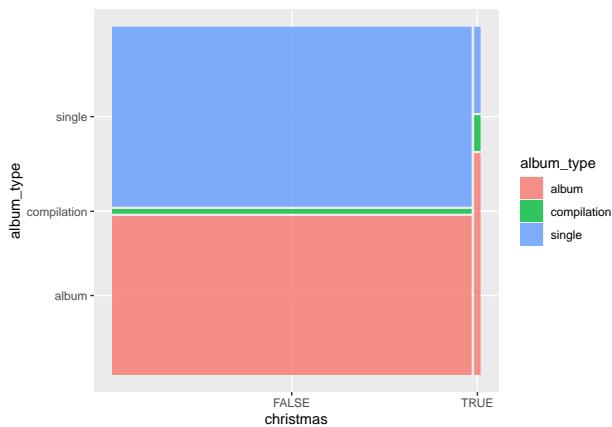
```
data: table(cat_var1, cat_var2)
X-squared = 88.501, df = 2, p-value < 2.2e-16
```

```
[1] "album_type and christmas"
```



	FALSE	TRUE
album	3405	70
compilation	79	11
single	3850	27

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

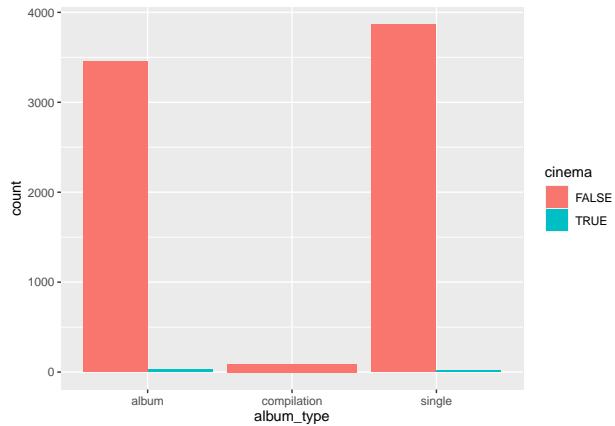


[1] "Chi-square test for album_type and christmas"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 96.159, df = 2, p-value < 2.2e-16
```

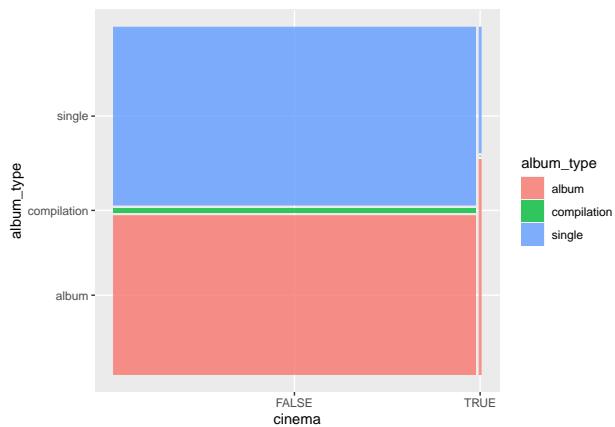
[1] "album_type and cinema"



FALSE TRUE

	FALSE	TRUE
album	3451	24
compilation	90	0
single	3863	14

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

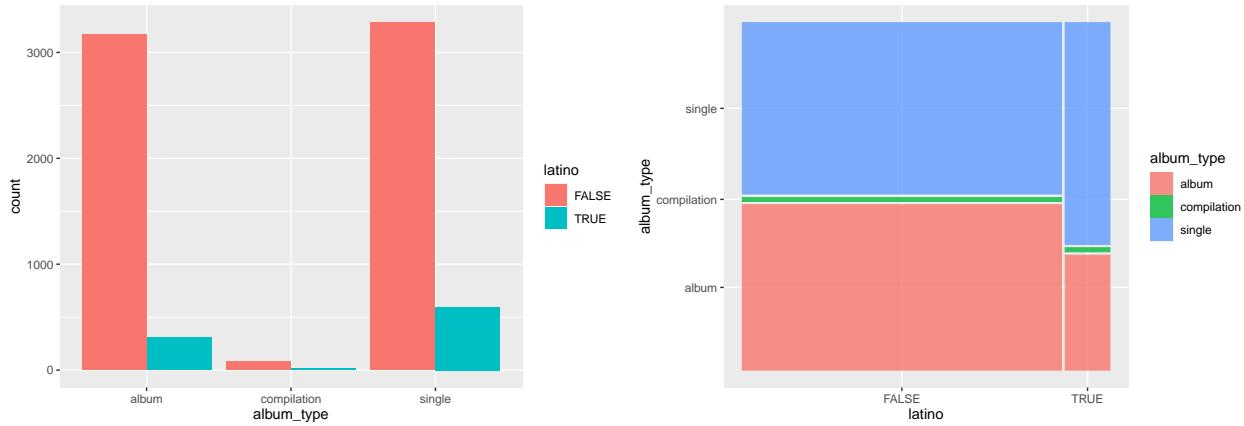


[1] "Chi-square test for album_type and cinema"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 4.385, df = 2, p-value = 0.1116
```

[1] "album_type and latino"



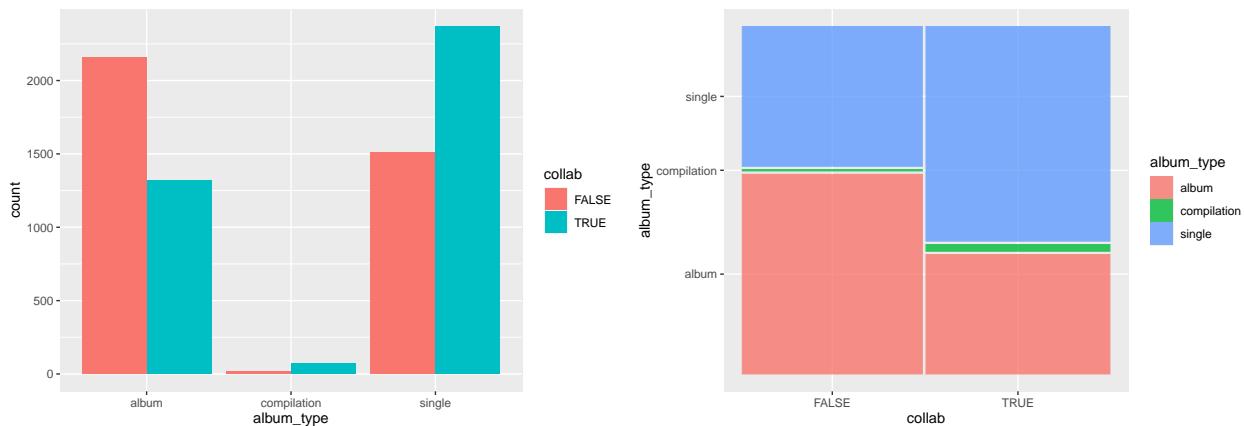
	FALSE	TRUE
album	3166	309
compilation	79	11
single	3281	596

[1] "Chi-square test for album_type and latino"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 71.305, df = 2, p-value = 3.283e-16
```

[1] "album_type and collab"



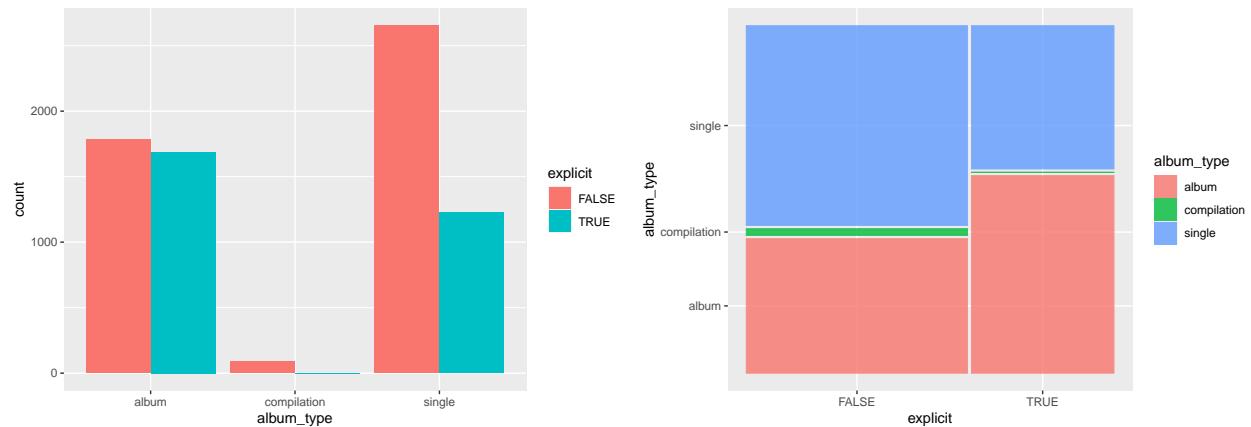
	FALSE	TRUE
album	2157	1318
compilation	15	75
single	1509	2368

[1] "Chi-square test for album_type and collab"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 432.08, df = 2, p-value < 2.2e-16
```

[1] "album_type and explicit"



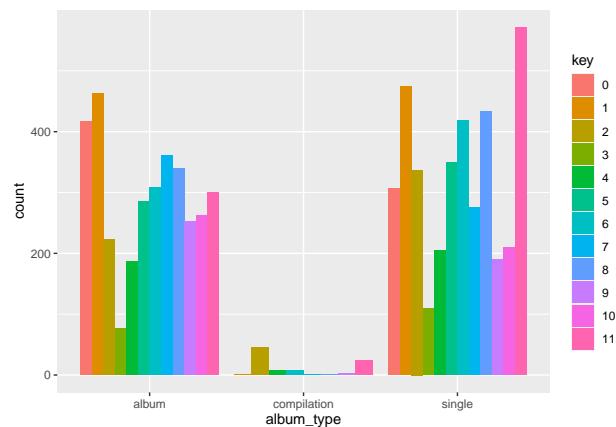
	FALSE	TRUE
album	1786	1689
compilation	89	1
single	2652	1225

[1] "Chi-square test for album_type and explicit"

Pearson's Chi-squared test

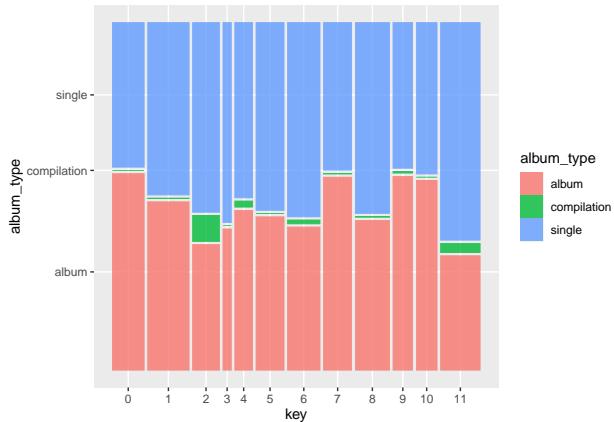
```
data: table(cat_var1, cat_var2)
X-squared = 277.85, df = 2, p-value < 2.2e-16
```

[1] "album_type and key"



	0	1	2	3	4	5	6	7	8	9	10	11
album	416	463	223	77	187	285	308	361	340	253	262	300
compilation	0	1	46	0	7	0	8	1	1	2	0	24
single	306	474	337	109	205	349	418	276	433	190	209	571

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

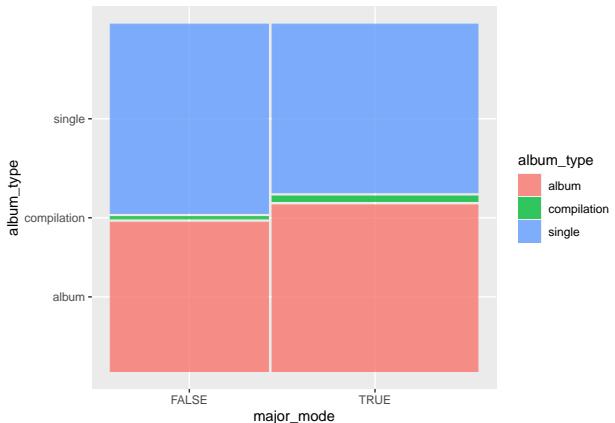
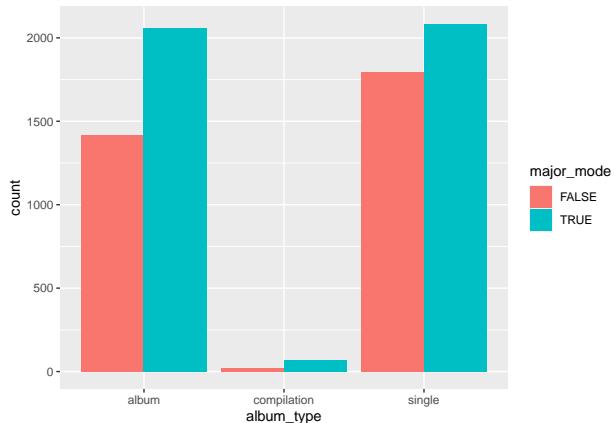


[1] "Chi-square test for album_type and key"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 442.91, df = 22, p-value < 2.2e-16
```

[1] "album_type and major_mode"



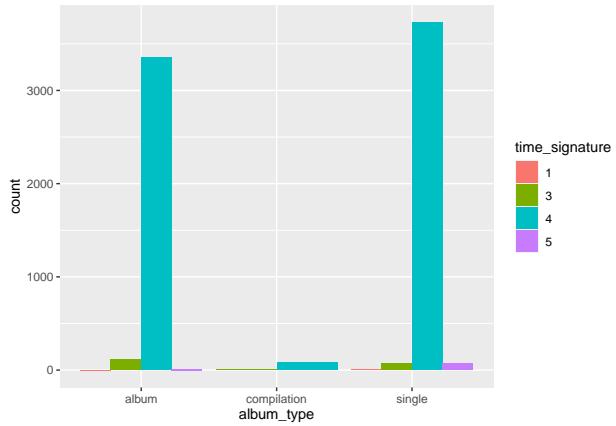
	FALSE	TRUE
album	1417	2058
compilation	21	69
single	1795	2082

[1] "Chi-square test for album_type and major_mode"

Pearson's Chi-squared test

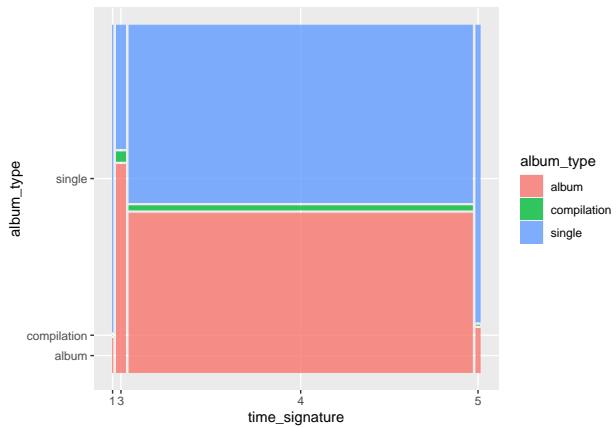
```
data: table(cat_var1, cat_var2)
X-squared = 37.734, df = 2, p-value = 6.401e-09
```

[1] "album_type and time_signature"



	1	3	4	5
album	1	113	3350	11
compilation	0	5	85	0
single	9	67	3727	74

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

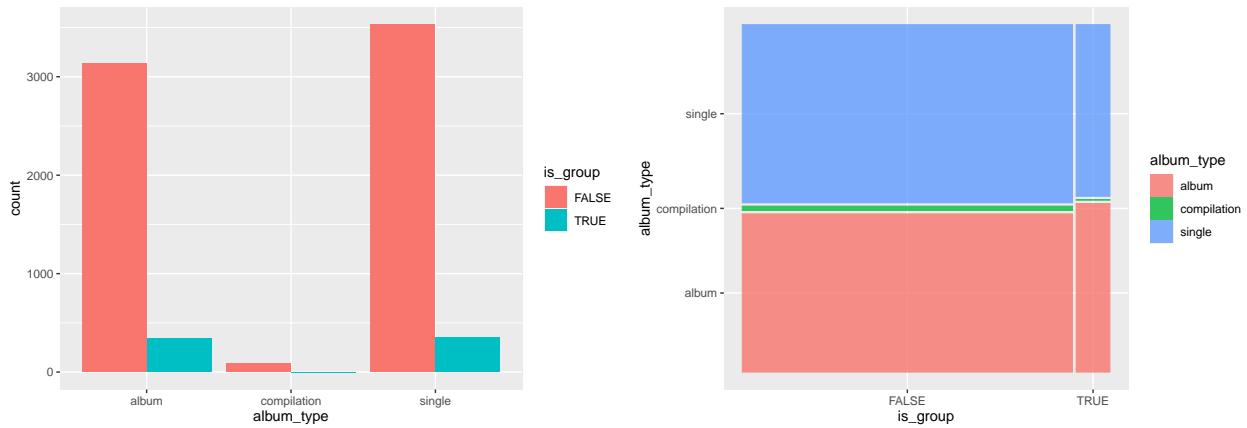


[1] "Chi-square test for album_type and time_signature"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 68.085, df = 6, p-value = 1.009e-12
```

[1] "album_type and is_group"



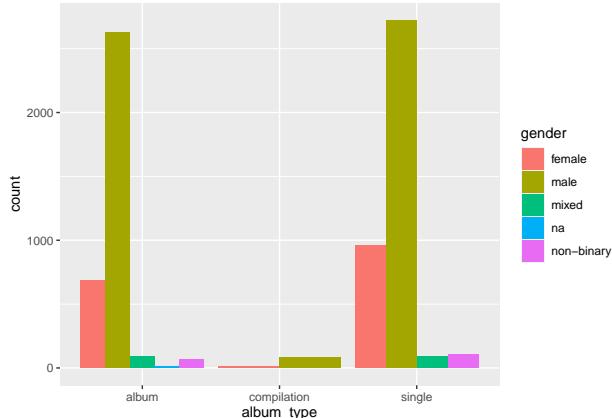
	FALSE	TRUE
album	3133	342
compilation	89	1
single	3529	348

[1] "Chi-square test for album_type and is_group"

```
Pearson's Chi-squared test

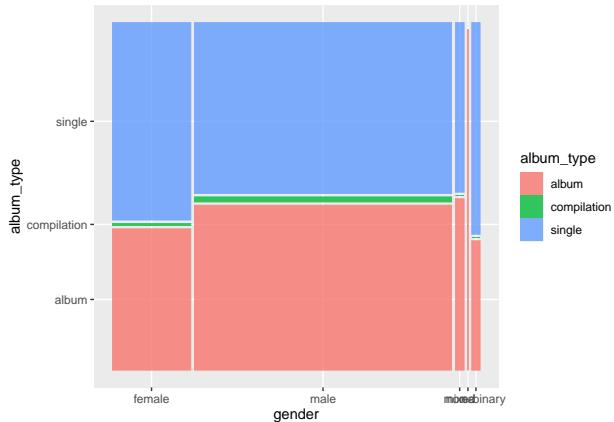
data: table(cat_var1, cat_var2)
X-squared = 8.8571, df = 2, p-value = 0.01193
```

[1] "album_type and gender"



	female	male	mixed	na	non-binary
album	685	2623	93	8	66
compilation	11	79	0	0	0
single	957	2720	92	0	108

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

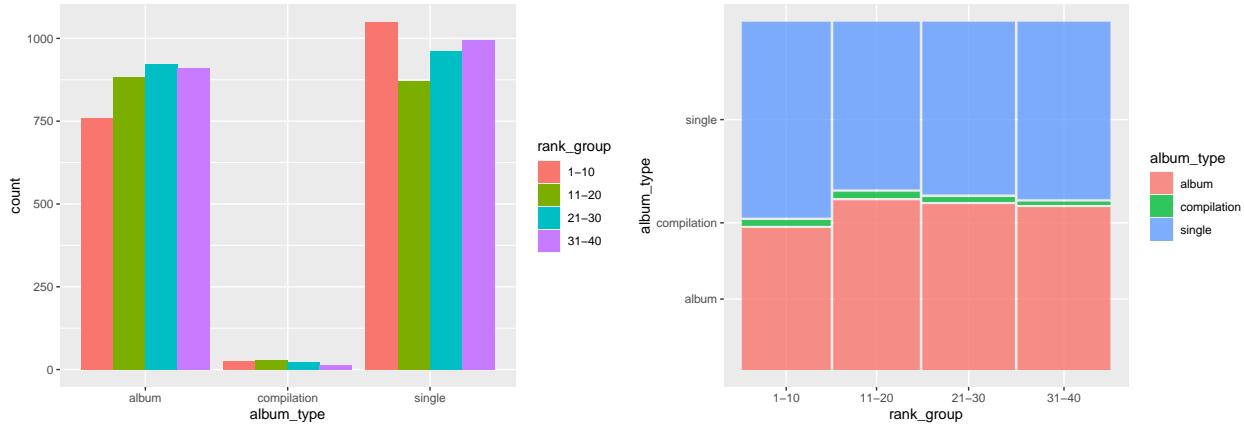


```
[1] "Chi-square test for album_type and gender"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 54.765, df = 8, p-value = 4.905e-09
```

```
[1] "album_type and rank_group"
```



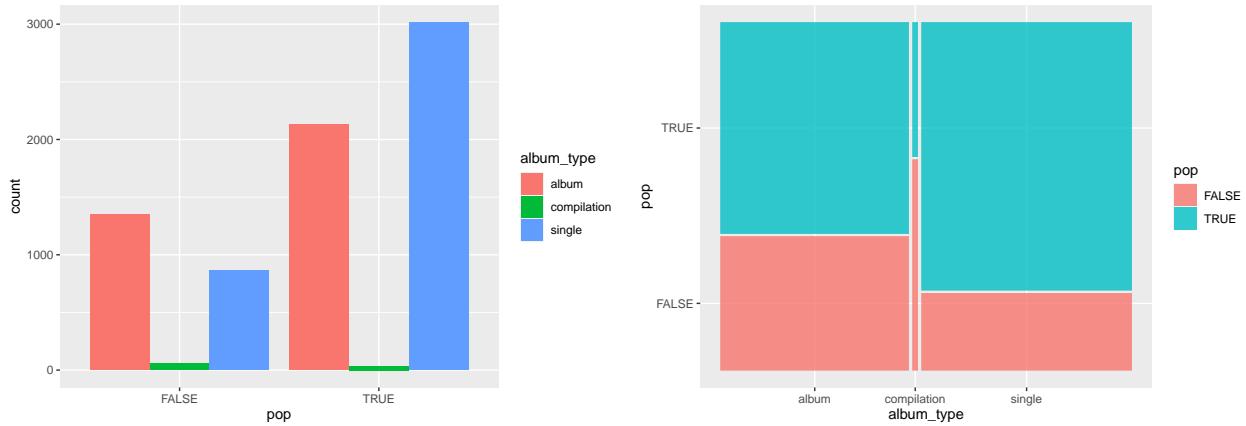
	1-10	11-20	21-30	31-40
album	759	882	923	911
compilation	26	28	23	13
single	1049	872	962	994

```
[1] "Chi-square test for album_type and rank_group"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 36.193, df = 6, p-value = 2.528e-06
```

```
[1] "pop and album_type"
```



```

      album compilation single
pop
  FALSE    1347        55     864
  TRUE     2128        35    3013
[1] "Chi-square test for pop and album_type"

```

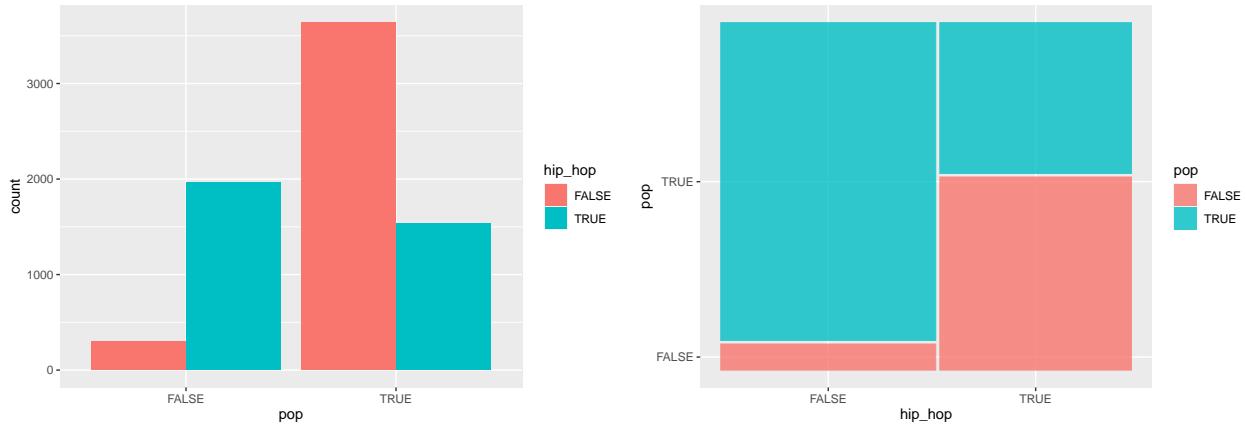
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 275.38, df = 2, p-value < 2.2e-16

```

[1] "pop and hip_hop"



```

      FALSE TRUE
pop
  FALSE    298 1968
  TRUE    3637 1539
[1] "Chi-square test for pop and hip_hop"

```

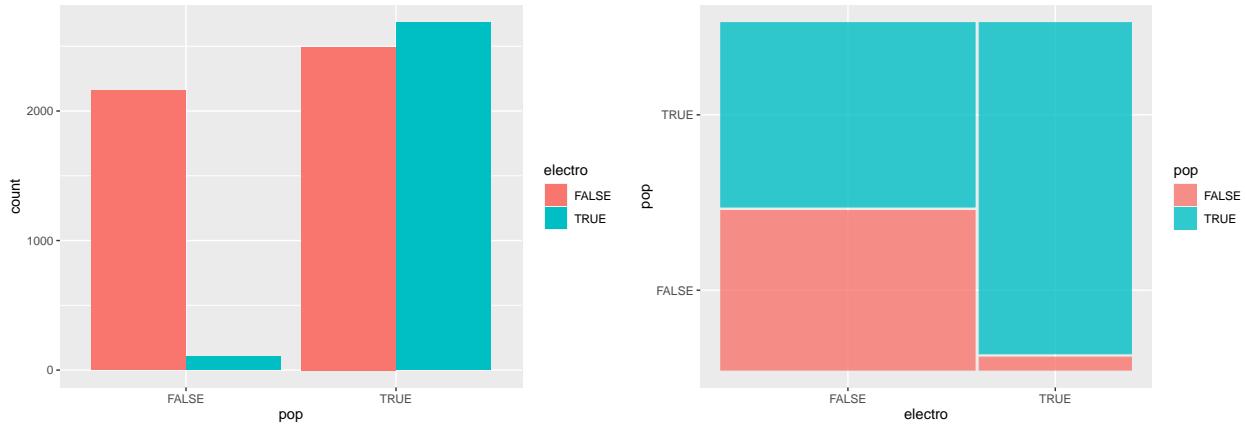
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 2063.4, df = 1, p-value < 2.2e-16

```

[1] "pop and electro"



```

      FALSE  TRUE
FALSE   2161  105
TRUE    2494 2682
[1] "Chi-square test for pop and electro"

```

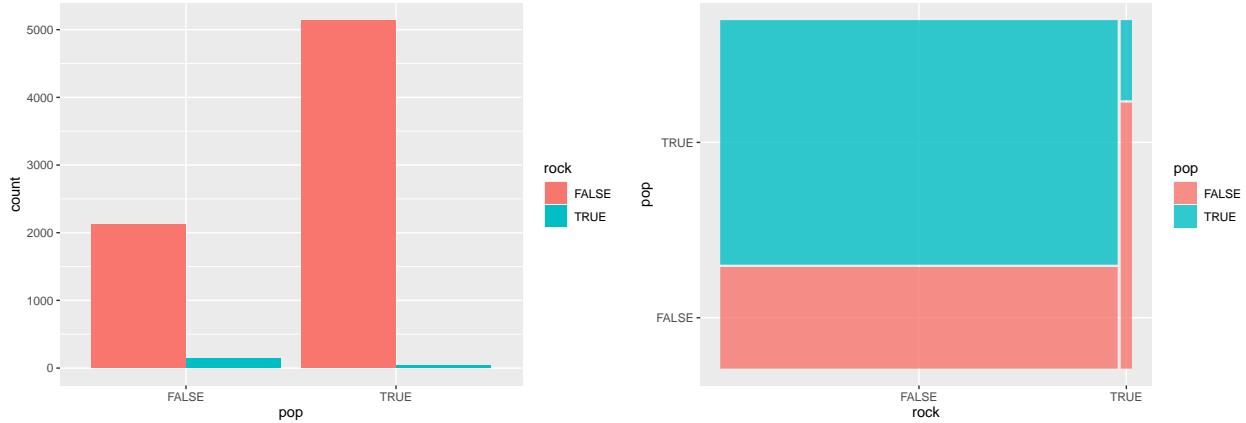
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1497.8, df = 1, p-value < 2.2e-16

```

[1] "pop and rock"



```

      FALSE  TRUE
FALSE   2122  144
TRUE    5133  43
[1] "Chi-square test for pop and rock"

```

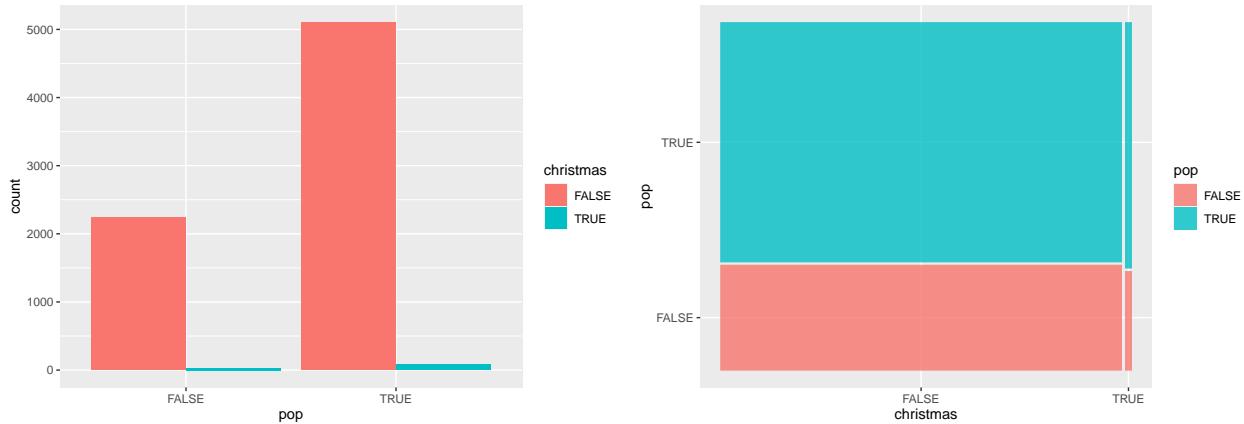
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 196.33, df = 1, p-value < 2.2e-16

```

[1] "pop and christmas"



```

      FALSE  TRUE
FALSE  2235   31
TRUE   5099   77
[1] "Chi-square test for pop and christmas"

```

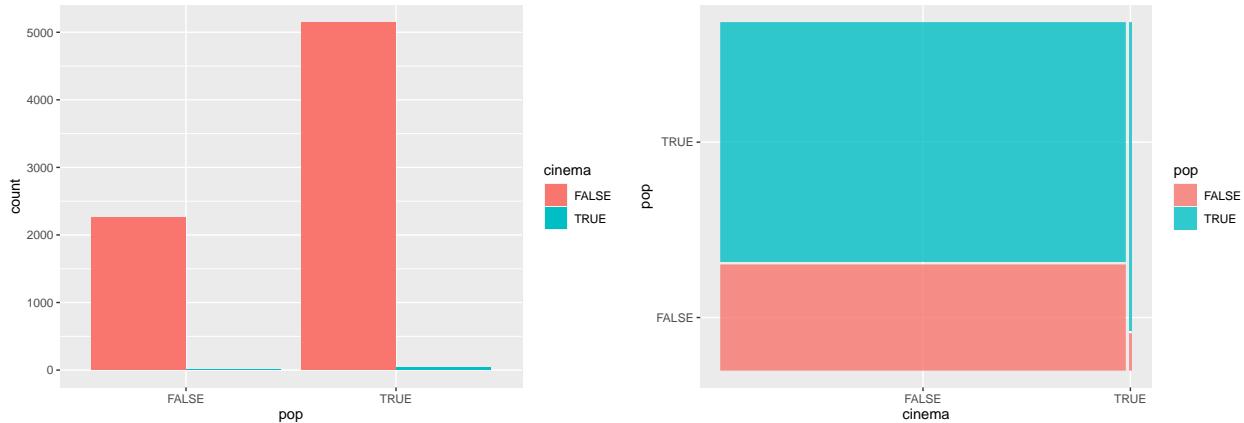
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 0.15759, df = 1, p-value = 0.6914

```

[1] "pop and cinema"



```

      FALSE  TRUE
FALSE  2262    4
TRUE   5142   34
[1] "Chi-square test for pop and cinema"

```

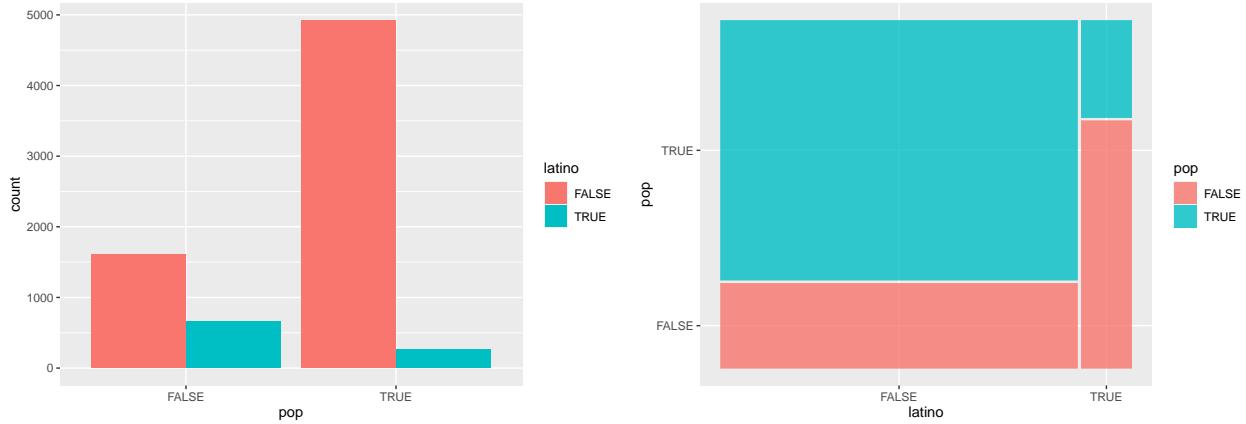
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 7.1585, df = 1, p-value = 0.007461

```

[1] "pop and latino"



```

      FALSE  TRUE
pop
FALSE  1608  658
TRUE   4918  258
[1] "Chi-square test for pop and latino"

```

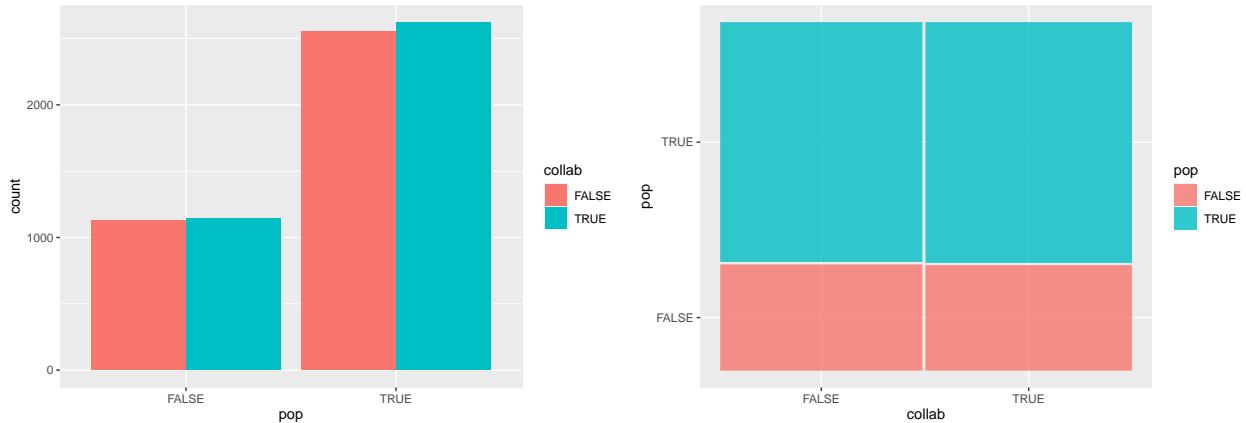
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 844.8, df = 1, p-value < 2.2e-16

```

```
[1] "pop and collab"
```



```

      FALSE  TRUE
pop
FALSE  1125  1141
TRUE   2556  2620
[1] "Chi-square test for pop and collab"

```

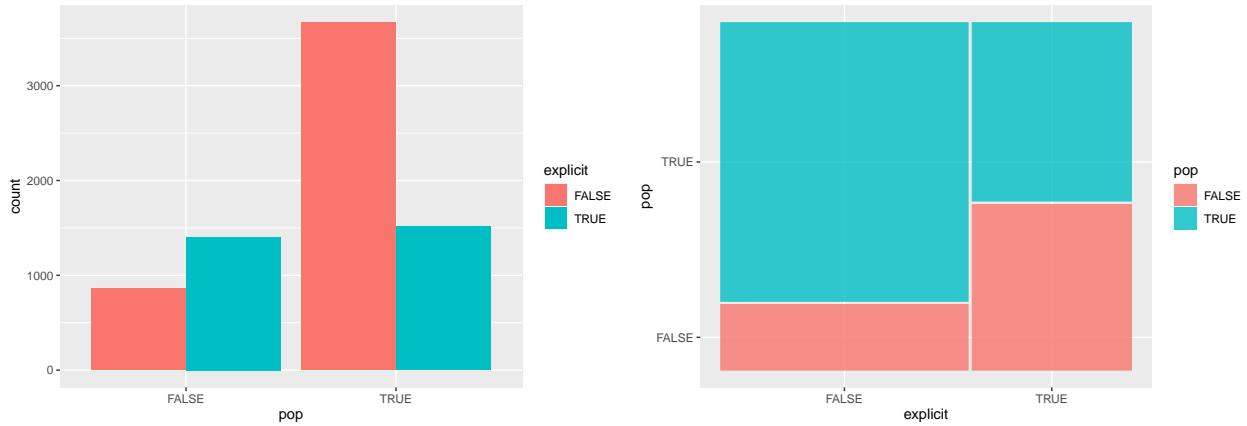
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 0.04434, df = 1, p-value = 0.8332

```

```
[1] "pop and explicit"
```



```

      FALSE  TRUE
FALSE    862 1404
TRUE     3665 1511
[1] "Chi-square test for pop and explicit"

```

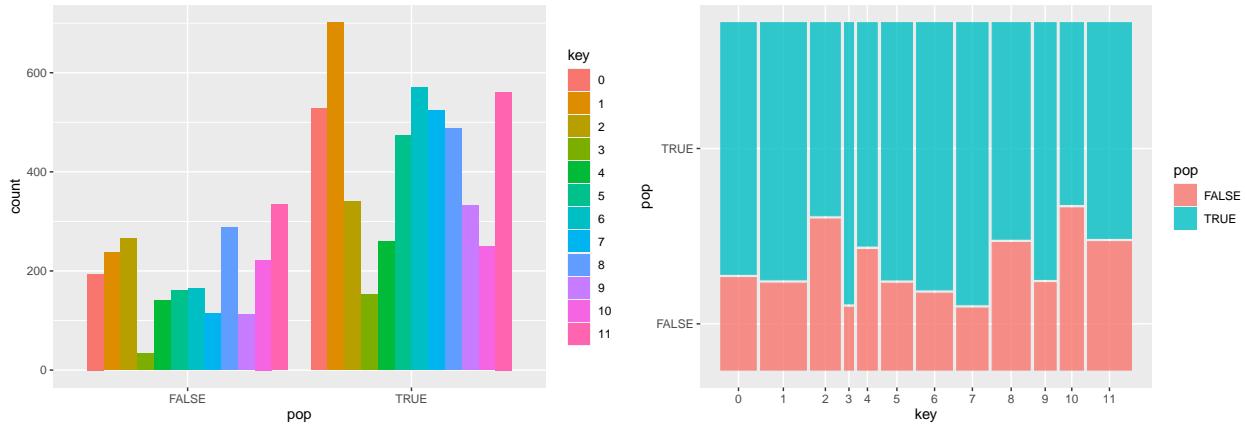
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 710.18, df = 1, p-value < 2.2e-16

```

[1] "pop and key"



```

      0   1   2   3   4   5   6   7   8   9   10  11
FALSE 194 237 266 34 140 160 164 115 287 113 222 334
TRUE  528 701 340 152 259 474 570 523 487 332 249 561
[1] "Chi-square test for pop and key"

```

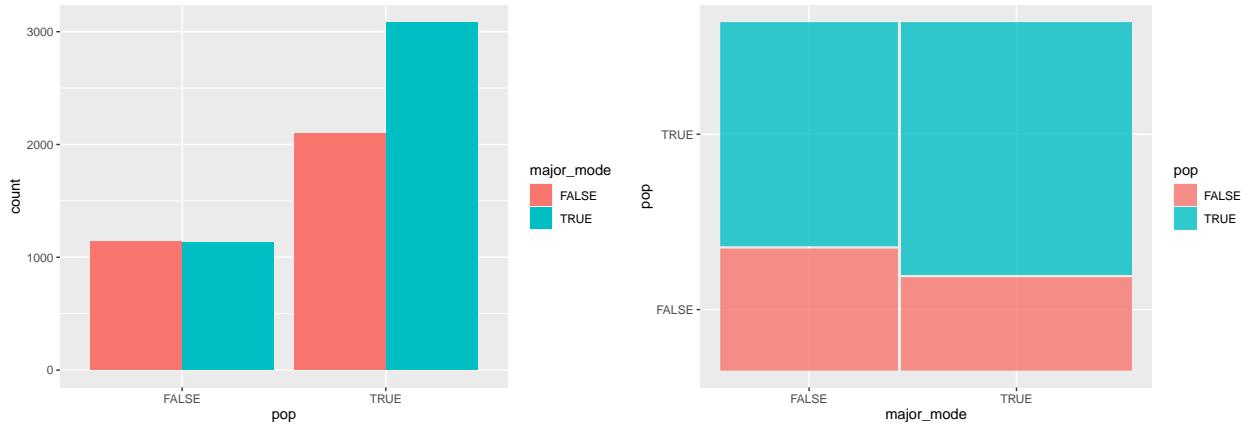
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 265.76, df = 11, p-value < 2.2e-16

```

[1] "pop and major_mode"



```

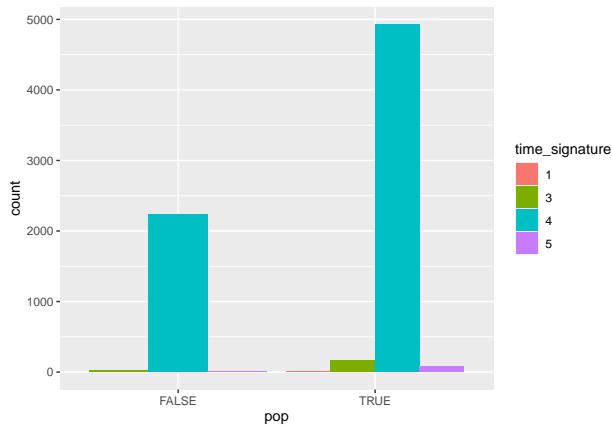
      FALSE  TRUE
FALSE   1137 1129
TRUE    2096 3080
[1] "Chi-square test for pop and major_mode"

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 60.129, df = 1, p-value = 8.884e-15

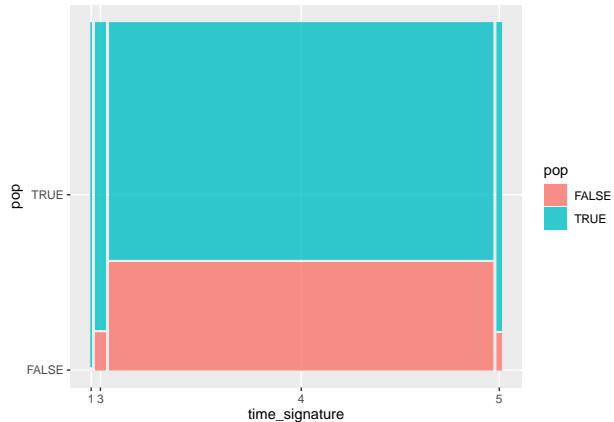
```

[1] "pop and time_signature"



	1	3	4	5
FALSE	0	20	2237	9
TRUE	10	165	4925	76

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

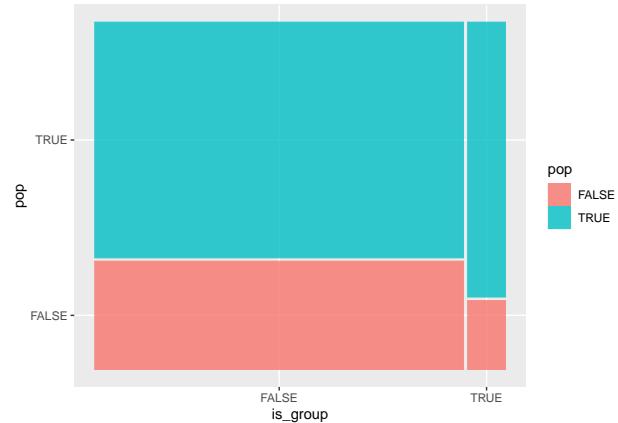
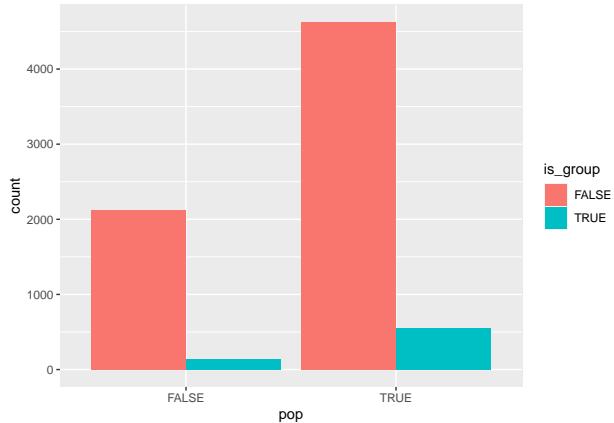


```
[1] "Chi-square test for pop and time_signature"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 55.985, df = 3, p-value = 4.231e-12
```

```
[1] "pop and is_group"
```

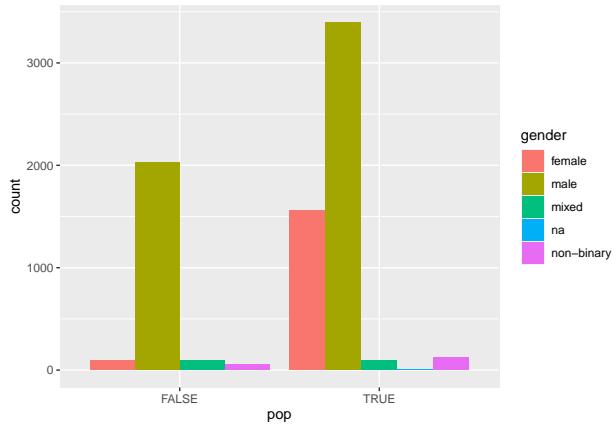


```
      FALSE  TRUE
FALSE  2127  139
TRUE   4624  552
[1] "Chi-square test for pop and is_group"
```

Pearson's Chi-squared test

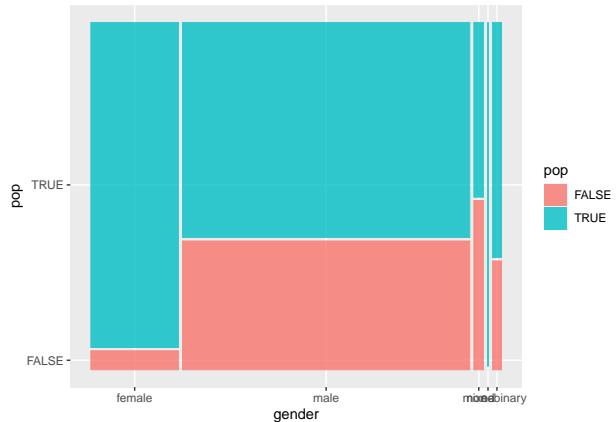
```
data: table(cat_var1, cat_var2)
X-squared = 38.404, df = 1, p-value = 5.75e-10
```

```
[1] "pop and gender"
```



	female	male	mixed	na	non-binary
FALSE	91	2029	91	0	55
TRUE	1562	3393	94	8	119

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

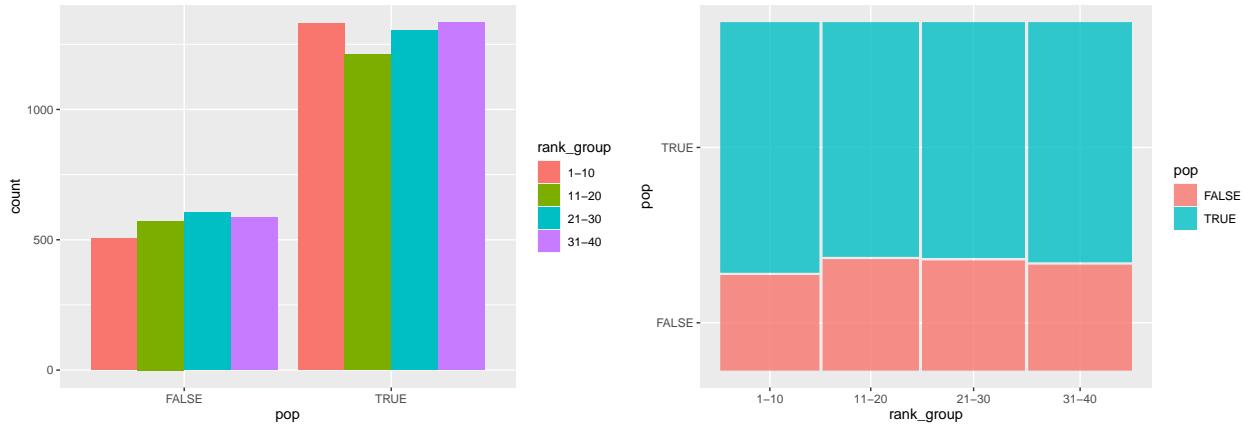


[1] "Chi-square test for pop and gender"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 644.42, df = 4, p-value < 2.2e-16
```

[1] "pop and rank_group"



```

1-10 11-20 21-30 31-40
FALSE 504    572    605    585
TRUE  1330   1210   1303   1333
[1] "Chi-square test for pop and rank_group"

```

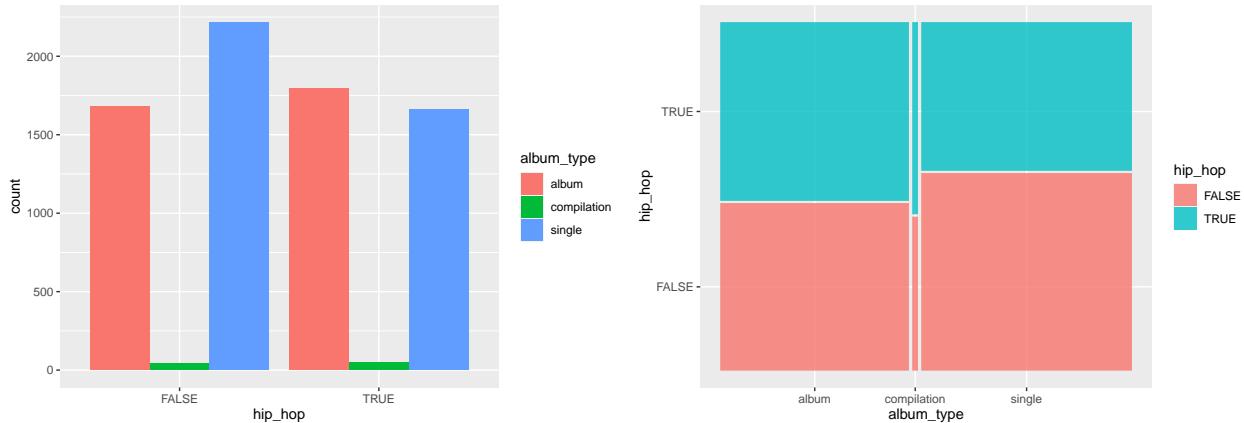
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 11.351, df = 3, p-value = 0.009971

```

[1] "hip_hop and album_type"



```

album compilation single
FALSE  1681          40    2214
TRUE   1794          50    1663
[1] "Chi-square test for hip_hop and album_type"

```

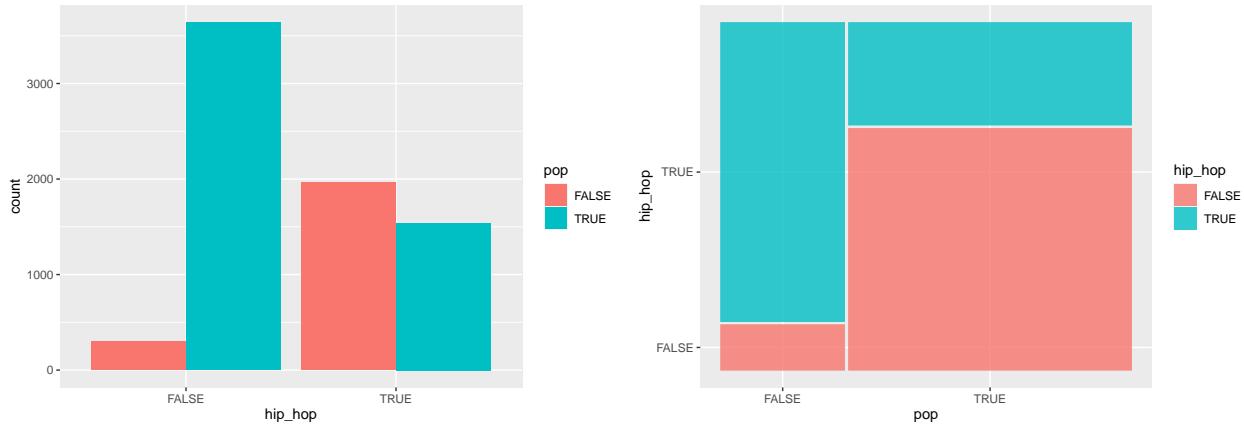
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 58.673, df = 2, p-value = 1.817e-13

```

[1] "hip_hop and pop"



```

      FALSE  TRUE
FALSE    298 3637
TRUE   1968 1539
[1] "Chi-square test for hip_hop and pop"

```

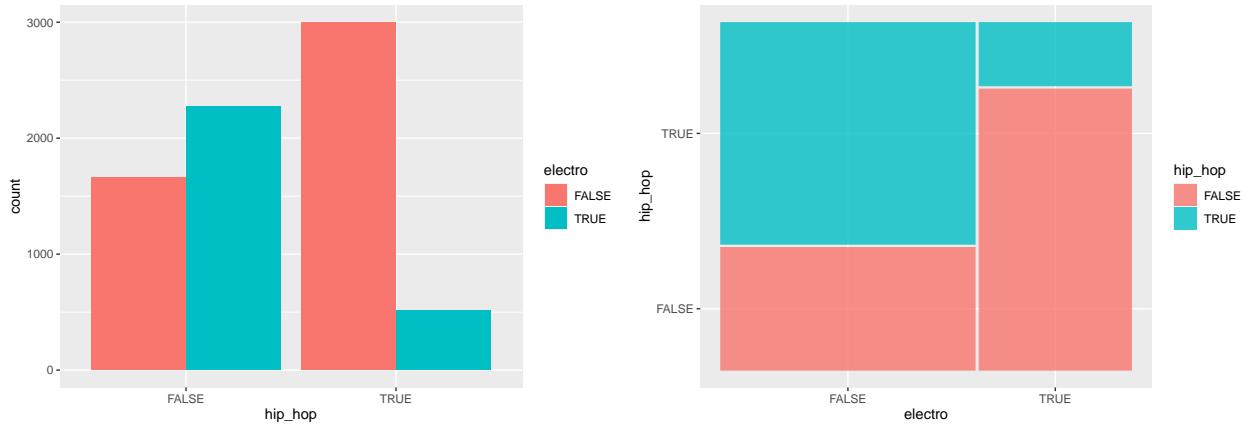
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 2063.4, df = 1, p-value < 2.2e-16

```

[1] "hip_hop and electro"



```

      FALSE  TRUE
FALSE   1659 2276
TRUE   2996  511
[1] "Chi-square test for hip_hop and electro"

```

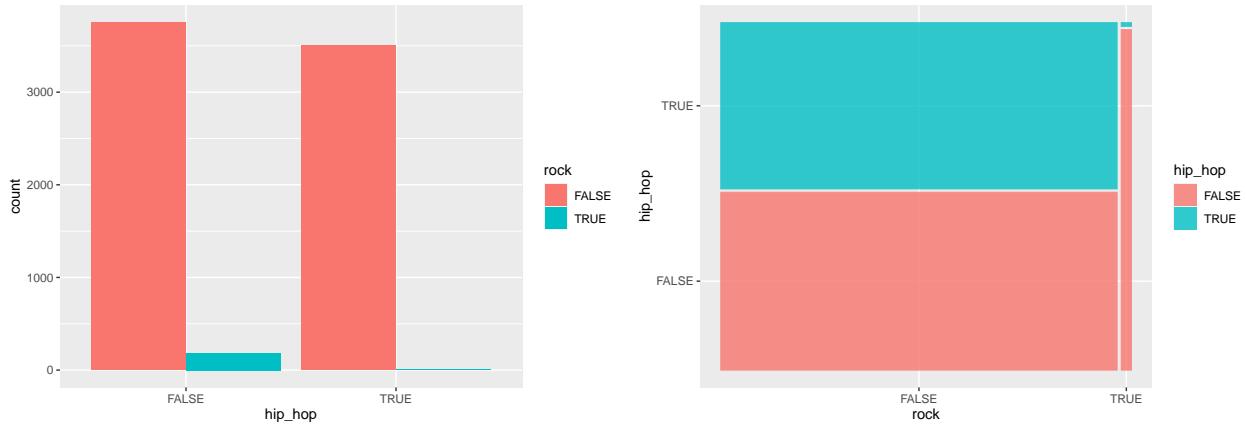
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1482.1, df = 1, p-value < 2.2e-16

```

[1] "hip_hop and rock"



```

      FALSE  TRUE
FALSE   3750  185
TRUE    3505   2
[1] "Chi-square test for hip_hop and rock"

```

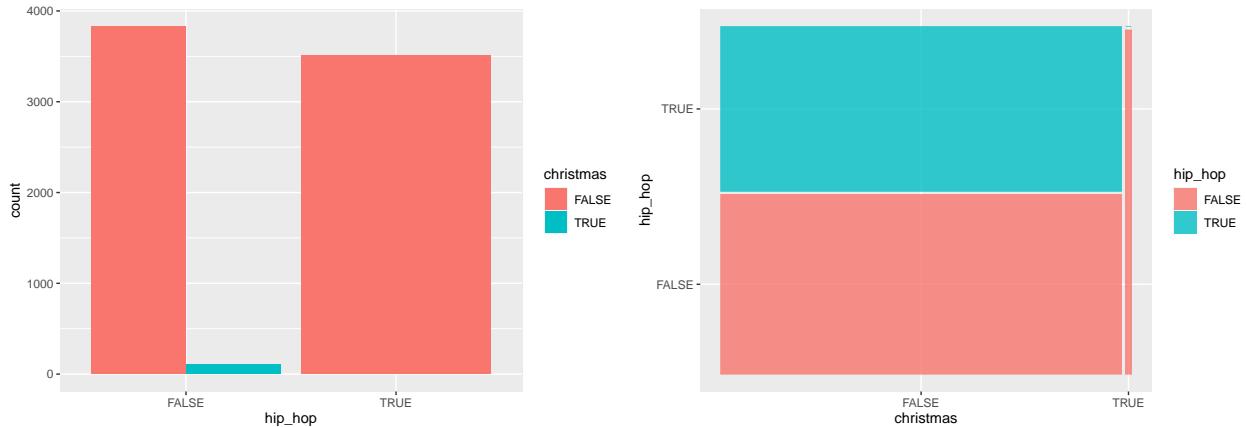
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 163.28, df = 1, p-value < 2.2e-16

```

```
[1] "hip_hop and christmas"
```



```

      FALSE  TRUE
FALSE   3827  108
TRUE    3507   0
[1] "Chi-square test for hip_hop and christmas"

```

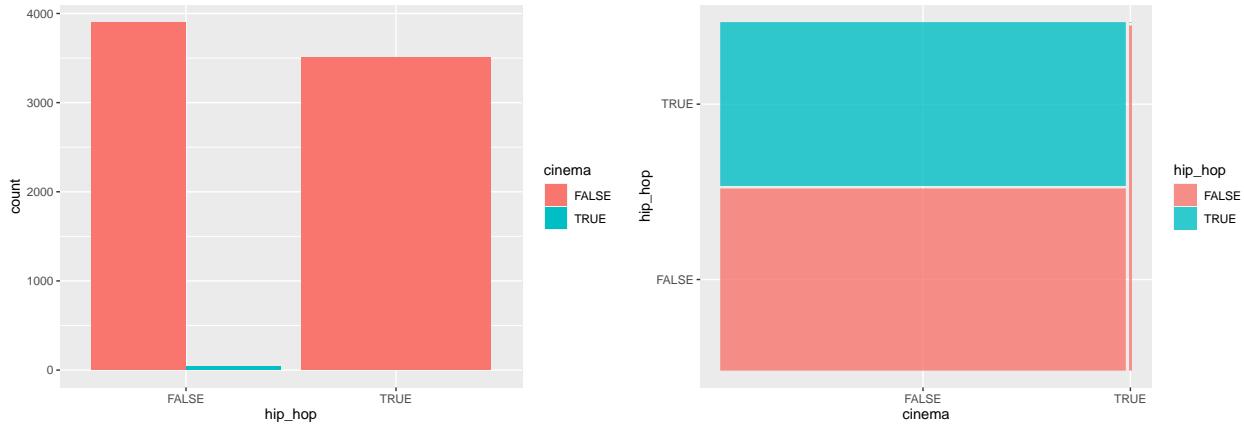
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 97.671, df = 1, p-value < 2.2e-16

```

```
[1] "hip_hop and cinema"
```



```

      FALSE  TRUE
FALSE   3897   38
TRUE    3507   0
[1] "Chi-square test for hip_hop and cinema"

```

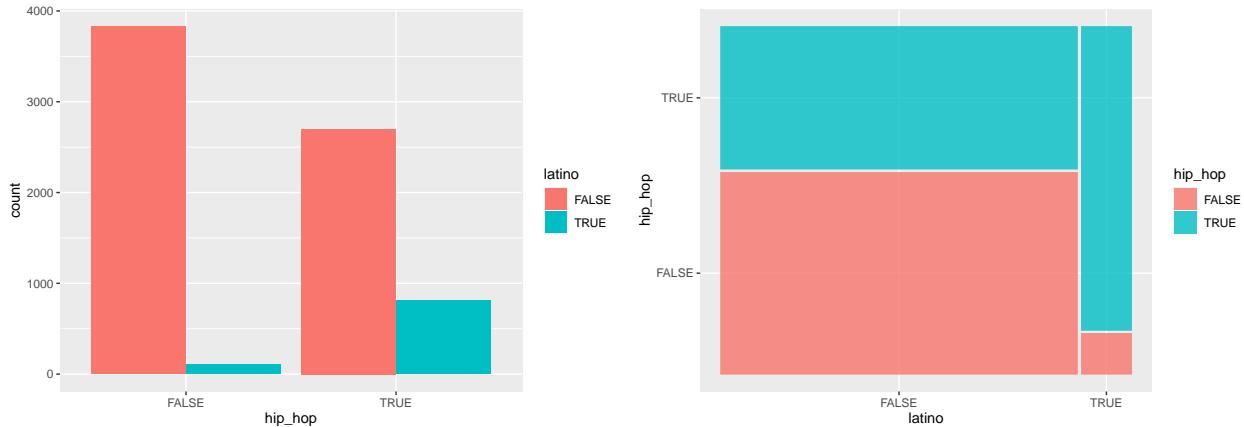
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 34.041, df = 1, p-value = 5.397e-09

```

[1] "hip_hop and latino"



```

      FALSE  TRUE
FALSE   3827  108
TRUE    2699  808
[1] "Chi-square test for hip_hop and latino"

```

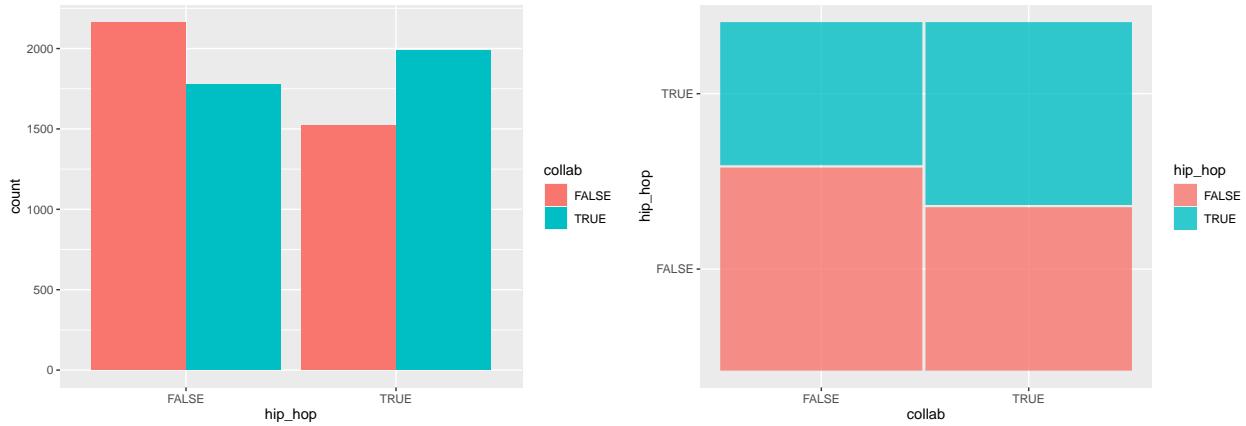
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 707.63, df = 1, p-value < 2.2e-16

```

[1] "hip_hop and collab"



```

      FALSE  TRUE
FALSE  2161 1774
TRUE   1520 1987
[1] "Chi-square test for hip_hop and collab"

```

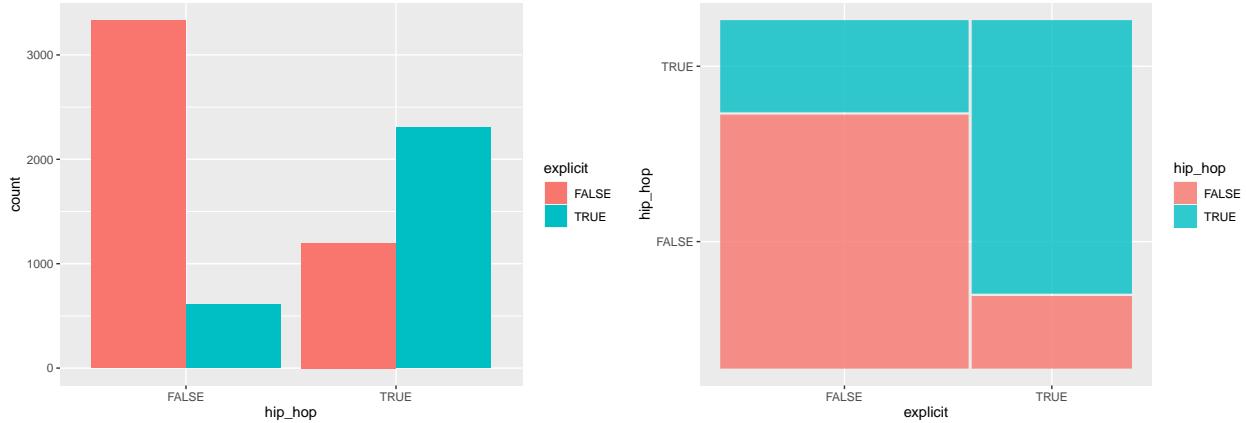
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 99.399, df = 1, p-value < 2.2e-16

```

[1] "hip_hop and explicit"



```

      FALSE  TRUE
FALSE  3328  607
TRUE   1199 2308
[1] "Chi-square test for hip_hop and explicit"

```

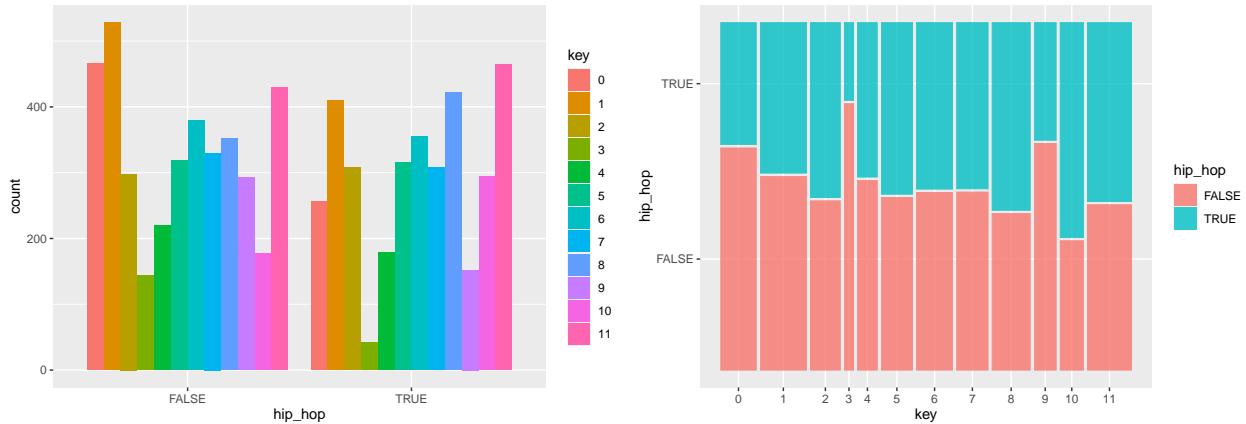
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1975.8, df = 1, p-value < 2.2e-16

```

[1] "hip_hop and key"



```

0   1   2   3   4   5   6   7   8   9   10  11
FALSE 466 528 298 144 220 318 379 330 352 293 177 430
TRUE  256 410 308 42 179 316 355 308 422 152 294 465
[1] "Chi-square test for hip_hop and key"

```

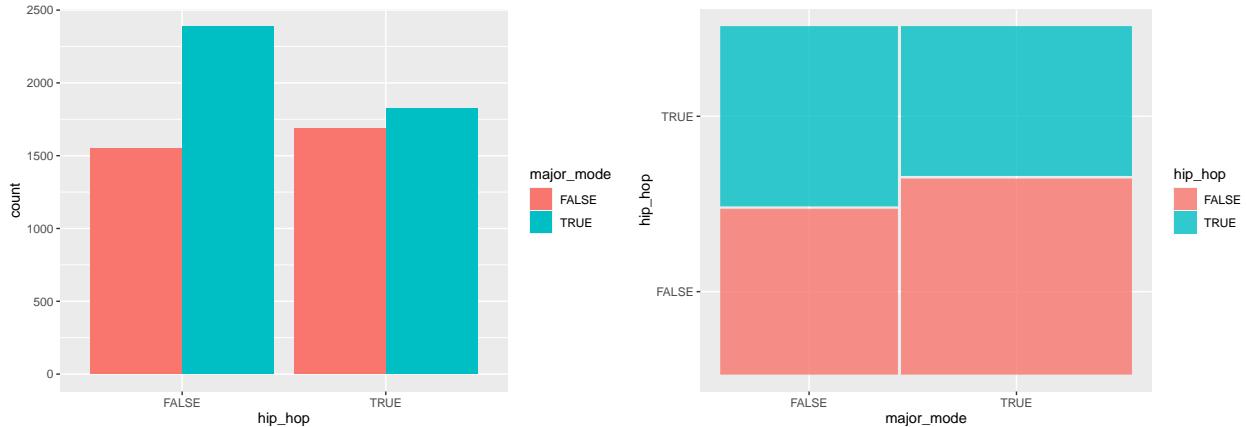
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 195.26, df = 11, p-value < 2.2e-16

```

```
[1] "hip_hop and major_mode"
```



```

FALSE  TRUE
FALSE  1549 2386
TRUE   1684 1823
[1] "Chi-square test for hip_hop and major_mode"

```

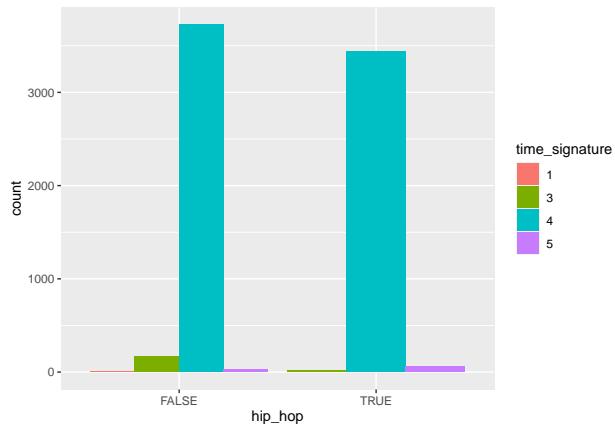
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 56.517, df = 1, p-value = 5.572e-14

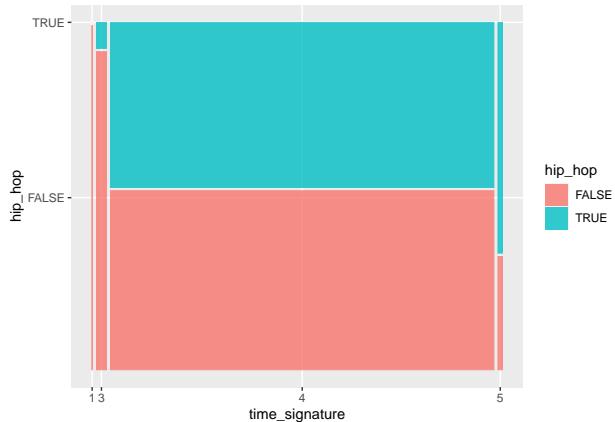
```

```
[1] "hip_hop and time_signature"
```



	1	3	4	5
FALSE	10	171	3726	28
TRUE	0	14	3436	57

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

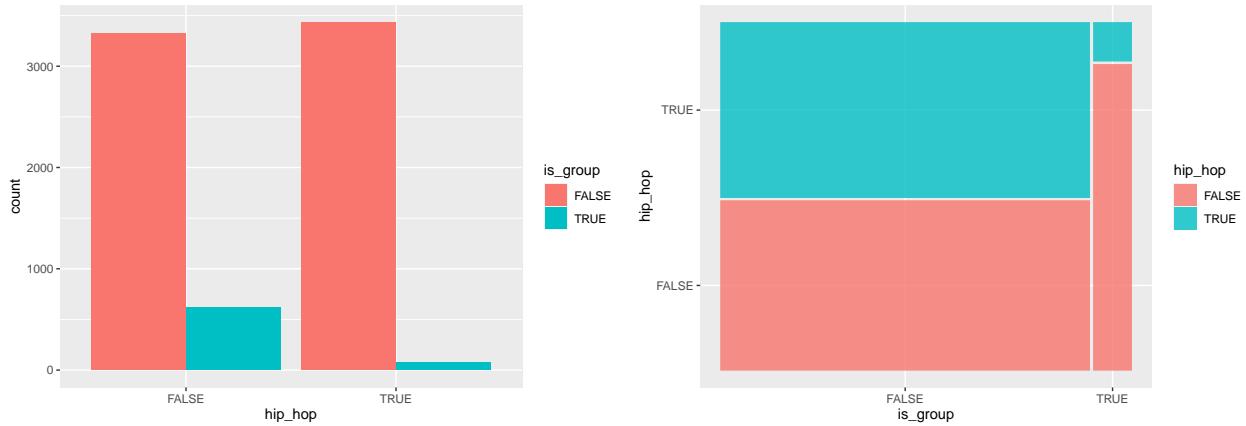


```
[1] "Chi-square test for hip_hop and time_signature"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 140.73, df = 3, p-value < 2.2e-16
```

```
[1] "hip_hop and is_group"
```



```

      FALSE  TRUE
FALSE  3321   614
TRUE   3430    77
[1] "Chi-square test for hip_hop and is_group"

```

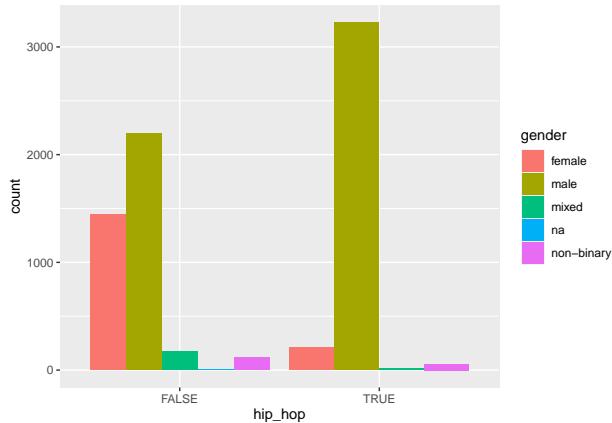
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 395.78, df = 1, p-value < 2.2e-16

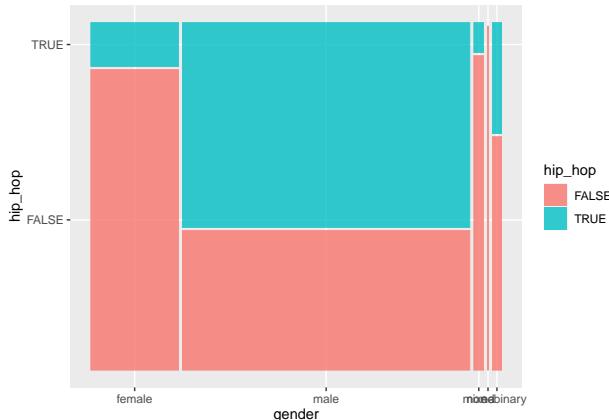
```

```
[1] "hip_hop and gender"
```



	female	male	mixed	na	non-binary
FALSE	1443	2197	169	8	118
TRUE	210	3225	16	0	56

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

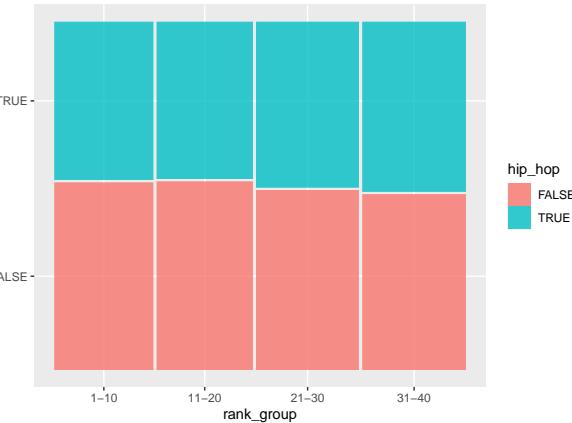
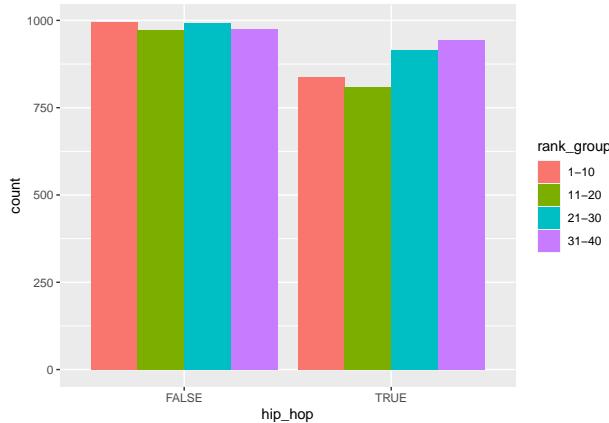


```
[1] "Chi-square test for hip_hop and gender"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 1250.8, df = 4, p-value < 2.2e-16
```

```
[1] "hip_hop and rank_group"
```



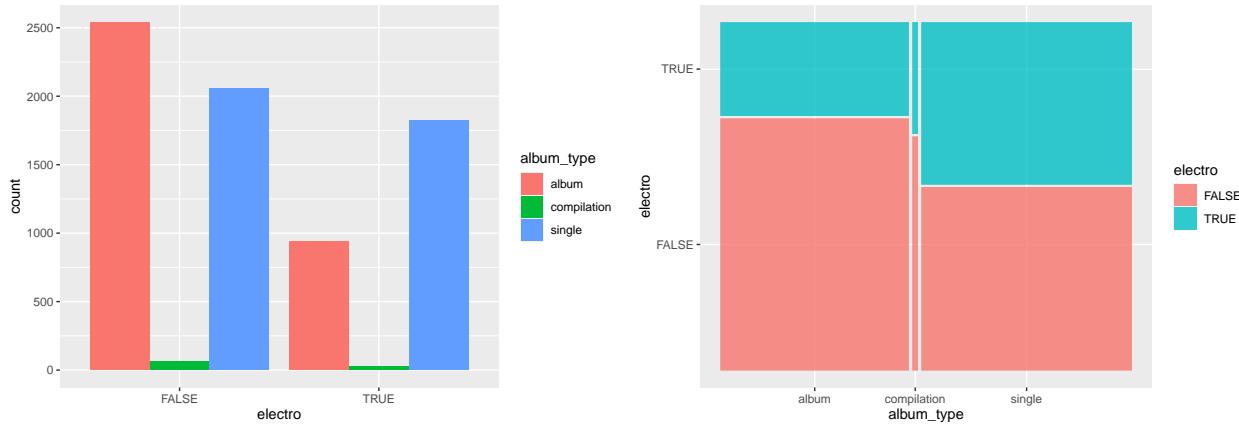
```
1-10 11-20 21-30 31-40
FALSE 995    972    993    975
TRUE   839    810    915    943
```

```
[1] "Chi-square test for hip_hop and rank_group"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 7.1279, df = 3, p-value = 0.06793
```

```
[1] "electro and album_type"
```



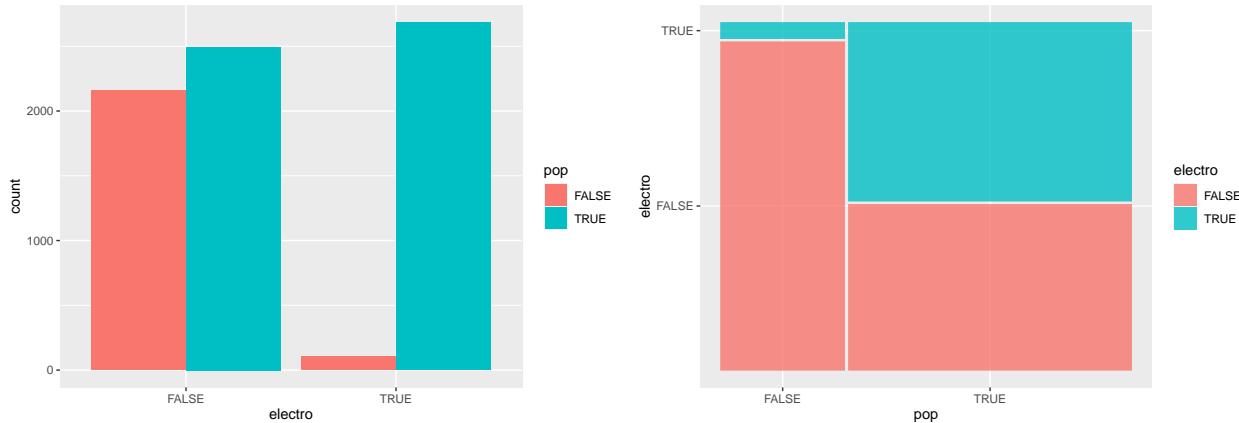
```

  album compilation single
FALSE    2537          61    2057
TRUE     938           29    1820
[1] "Chi-square test for electro and album_type"
Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 312.44, df = 2, p-value < 2.2e-16

```

[1] "electro and pop"



```

  FALSE TRUE
FALSE   2161 2494
TRUE     105 2682
[1] "Chi-square test for electro and pop"

```

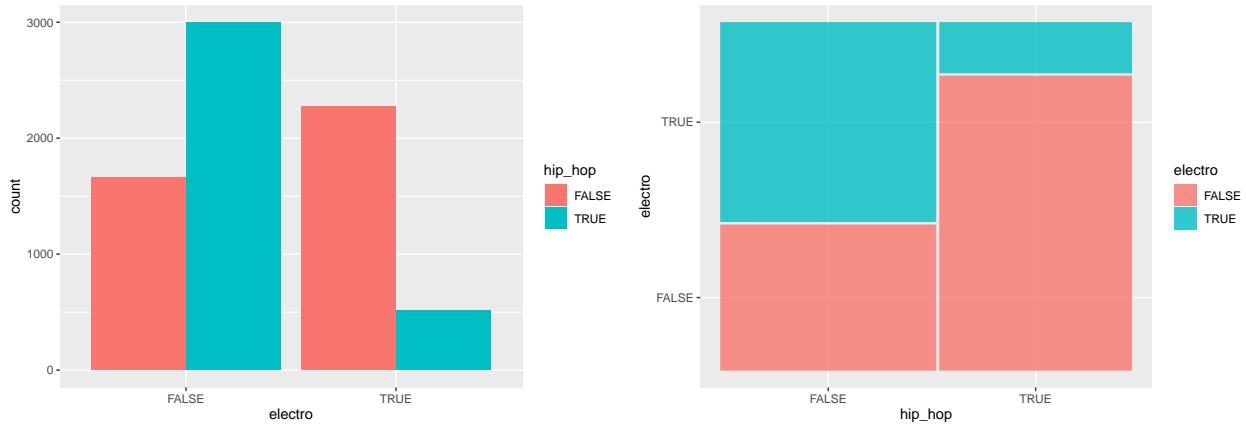
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1497.8, df = 1, p-value < 2.2e-16

```

[1] "electro and hip_hop"



```

      FALSE  TRUE
FALSE   1659 2996
TRUE    2276  511
[1] "Chi-square test for electro and hip_hop"

```

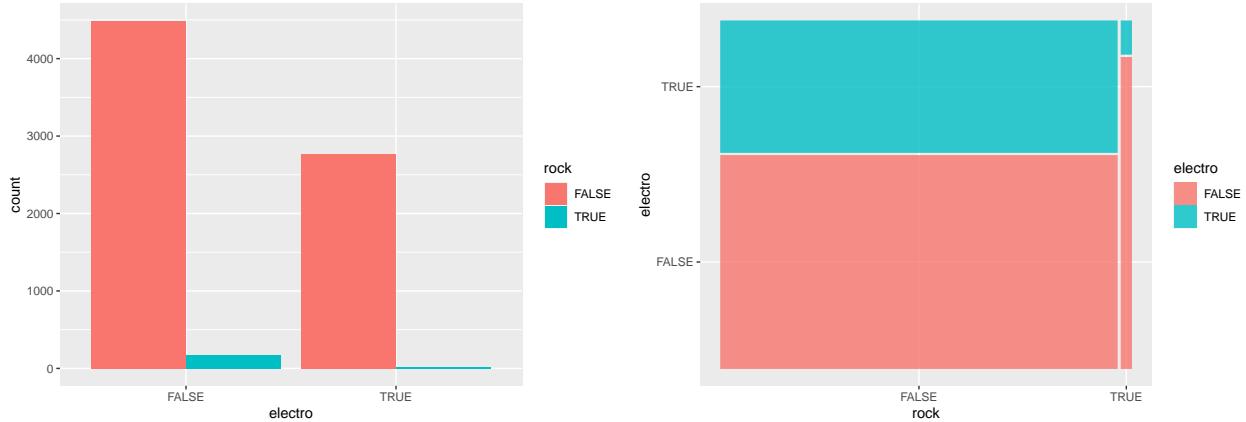
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1482.1, df = 1, p-value < 2.2e-16

```

[1] "electro and rock"



```

      FALSE  TRUE
FALSE   4486  169
TRUE    2769   18
[1] "Chi-square test for electro and rock"

```

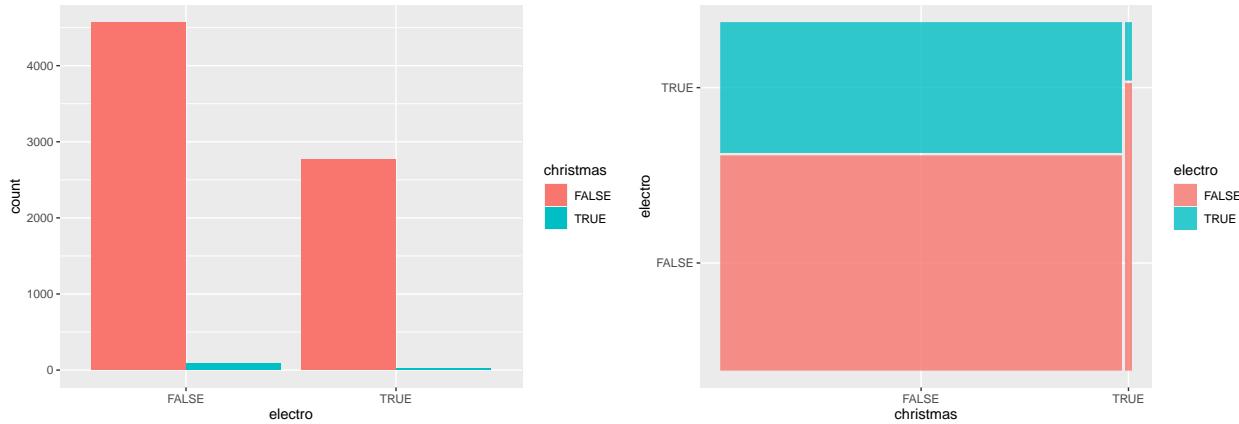
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 63.395, df = 1, p-value = 1.692e-15

```

[1] "electro and christmas"



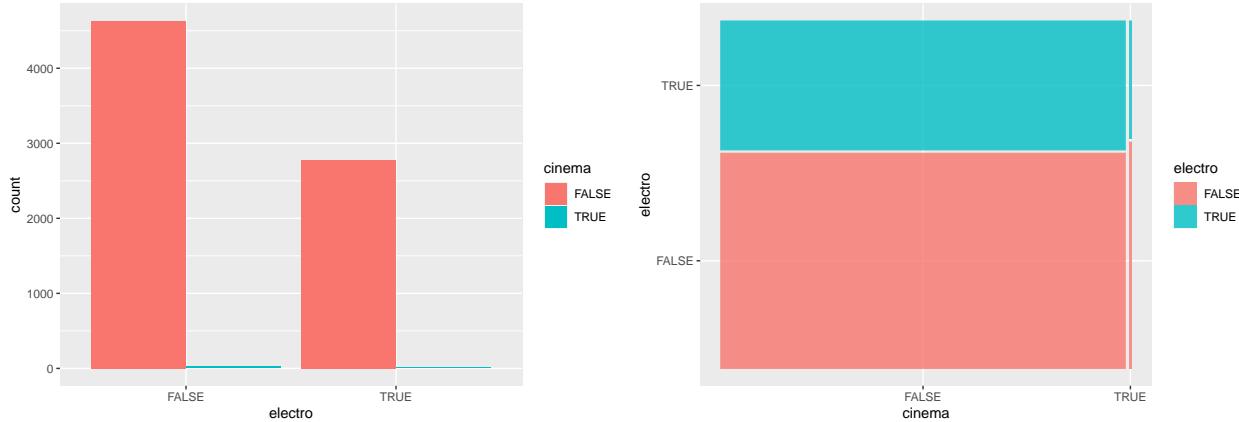
	FALSE	TRUE
FALSE	4565	90
TRUE	2769	18

[1] "Chi-square test for electro and christmas"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 20.207, df = 1, p-value = 6.949e-06
```

[1] "electro and cinema"



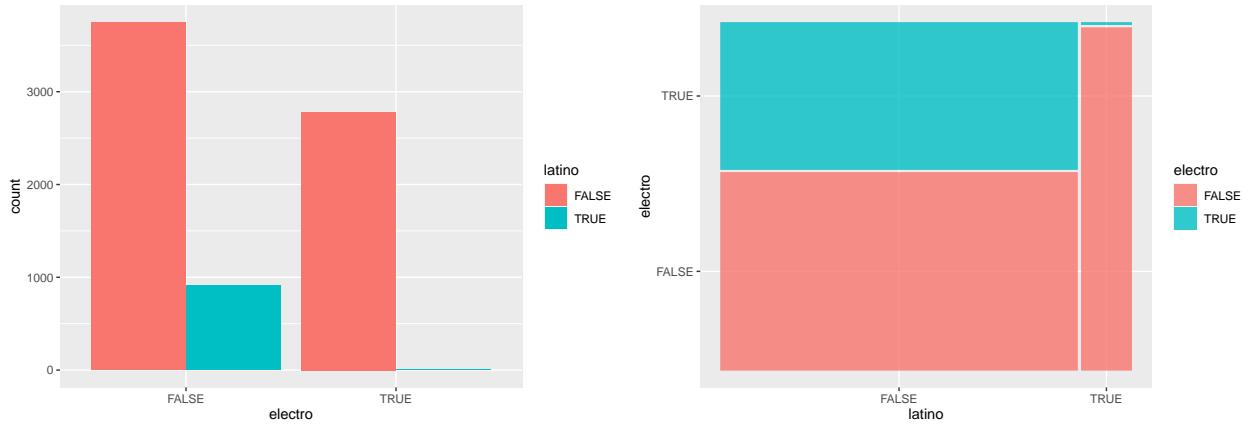
	FALSE	TRUE
FALSE	4630	25
TRUE	2774	13

[1] "Chi-square test for electro and cinema"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 0.17107, df = 1, p-value = 0.6792
```

[1] "electro and latino"



```

      FALSE  TRUE
FALSE  3744  911
TRUE   2782    5
[1] "Chi-square test for electro and latino"

```

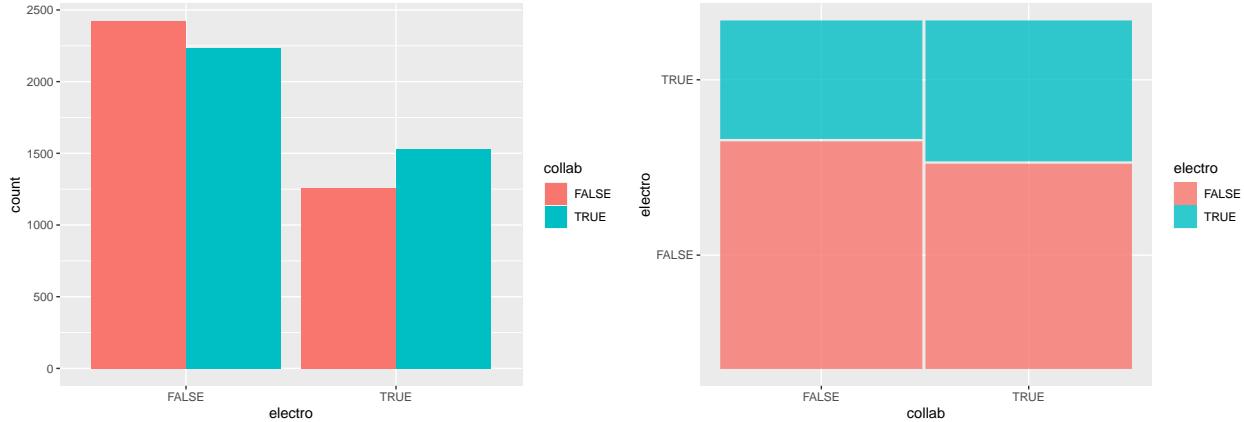
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 607.3, df = 1, p-value < 2.2e-16

```

[1] "electro and collab"



```

      FALSE  TRUE
FALSE  2423  2232
TRUE   1258  1529
[1] "Chi-square test for electro and collab"

```

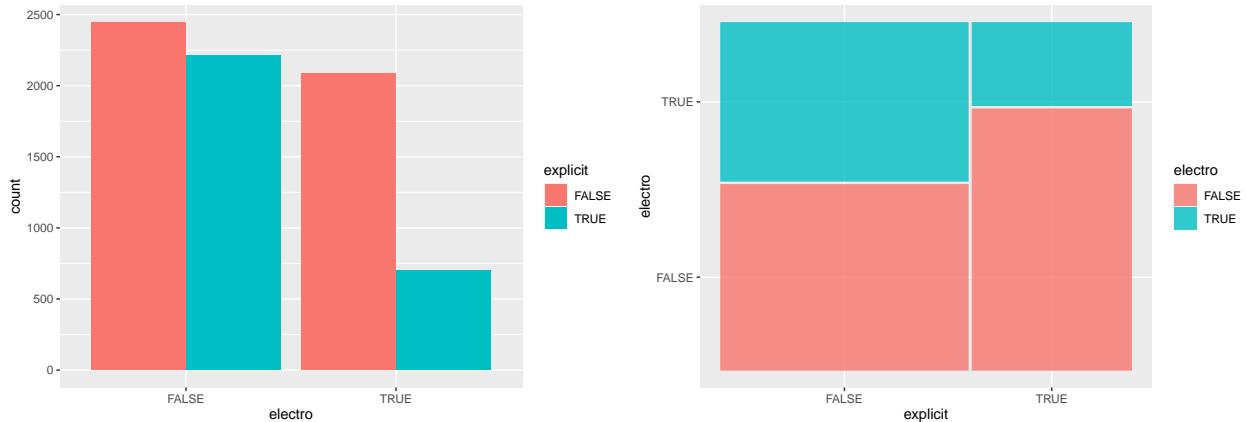
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 33.332, df = 1, p-value = 7.769e-09

```

[1] "electro and explicit"



```

      FALSE  TRUE
FALSE  2443 2212
TRUE   2084  703
[1] "Chi-square test for electro and explicit"

```

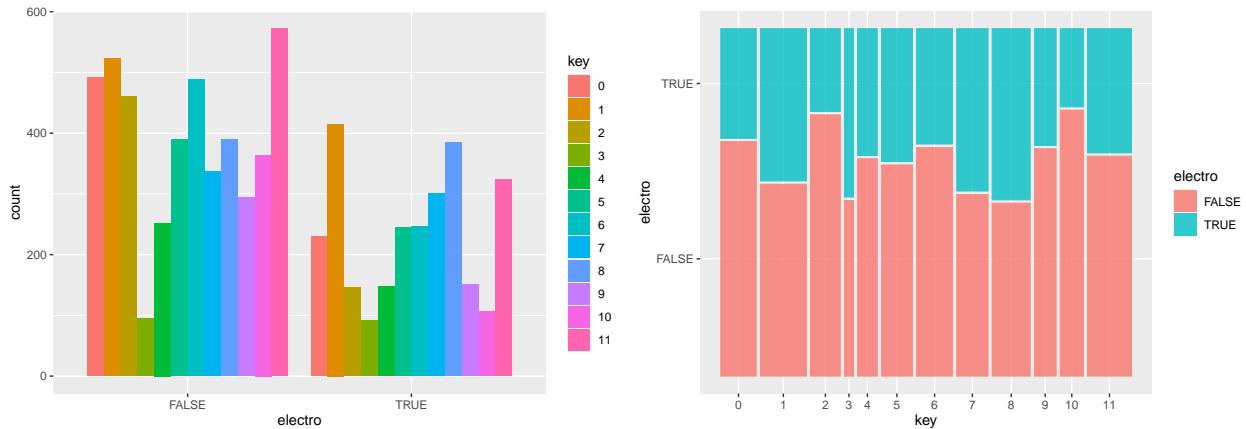
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 363.66, df = 1, p-value < 2.2e-16

```

[1] "electro and key"



```

      0   1   2   3   4   5   6   7   8   9   10  11
FALSE 492 523 460 95 252 389 488 337 389 294 364 572
TRUE  230 415 146 91 147 245 246 301 385 151 107 323
[1] "Chi-square test for electro and key"

```

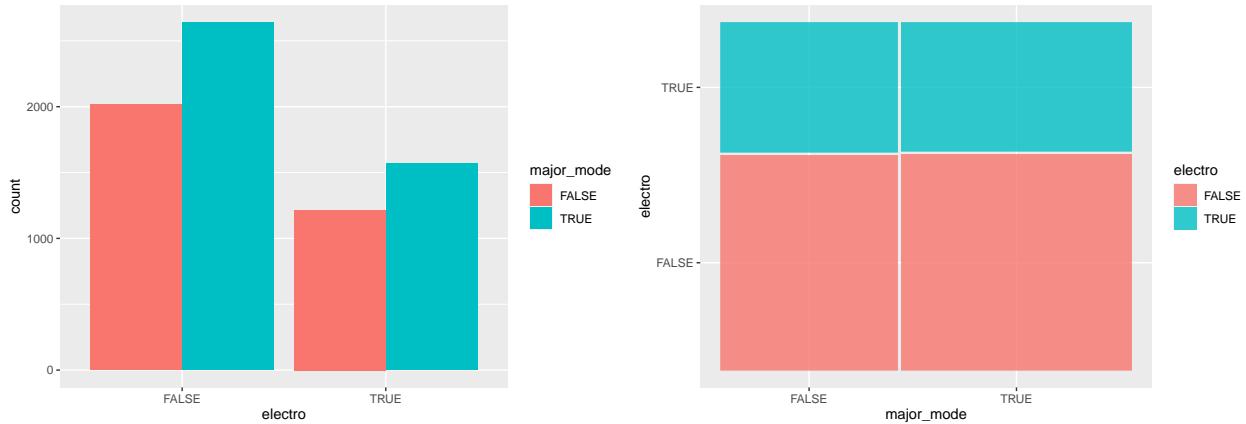
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 212.43, df = 11, p-value < 2.2e-16

```

[1] "electro and major_mode"



```

      FALSE  TRUE
FALSE   2017 2638
TRUE    1216 1571
[1] "Chi-square test for electro and major_mode"

```

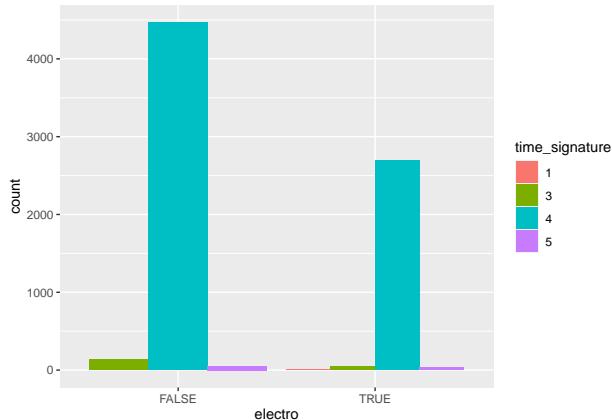
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 0.06445, df = 1, p-value = 0.7996

```

[1] "electro and time_signature"



```

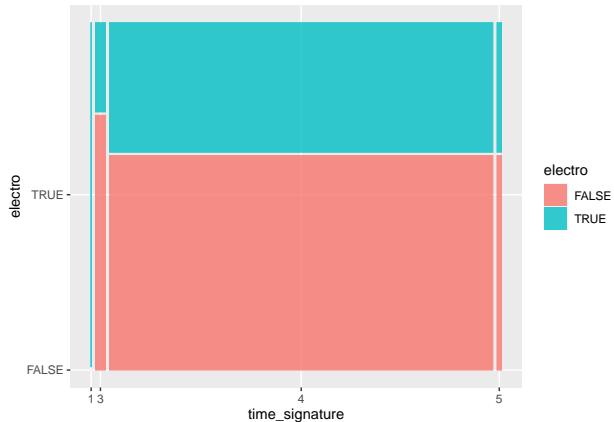
      1     3     4     5
FALSE   0    137  4465   53
TRUE    10    48   2697   32

```

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

```

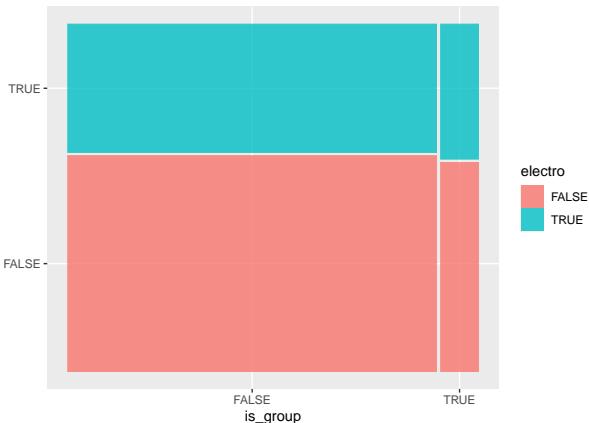
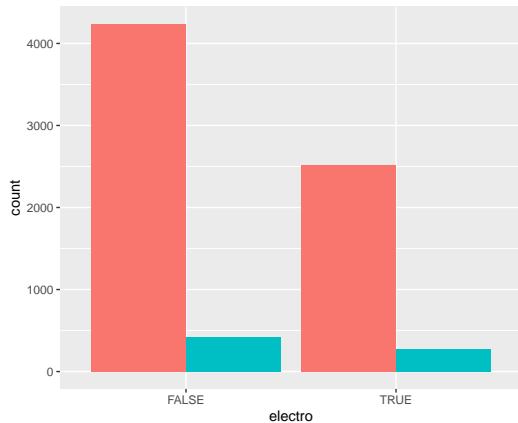


```
[1] "Chi-square test for electro and time_signature"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 27.287, df = 3, p-value = 5.126e-06
```

```
[1] "electro and is_group"
```



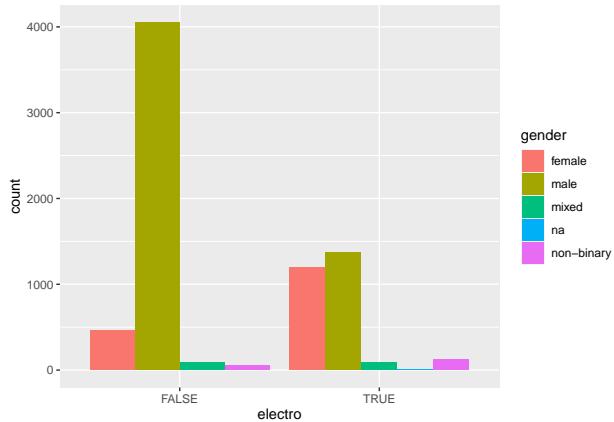
	FALSE	TRUE
FALSE	4235	420
TRUE	2516	271

```
[1] "Chi-square test for electro and is_group"
```

Pearson's Chi-squared test

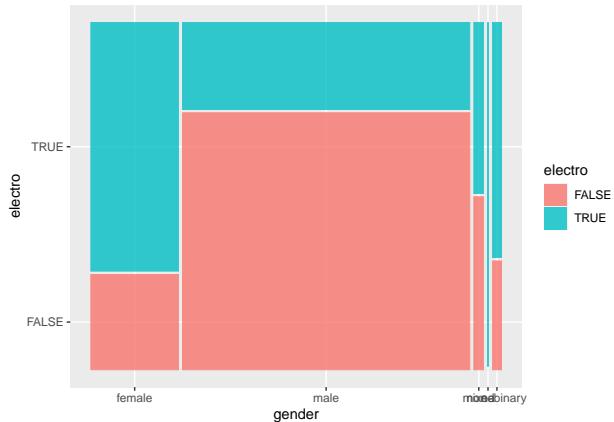
```
data: table(cat_var1, cat_var2)
X-squared = 1.0175, df = 1, p-value = 0.3131
```

```
[1] "electro and gender"
```



	female	male	mixed	na	non-binary
FALSE	458	4049	93	0	55
TRUE	1195	1373	92	8	119

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

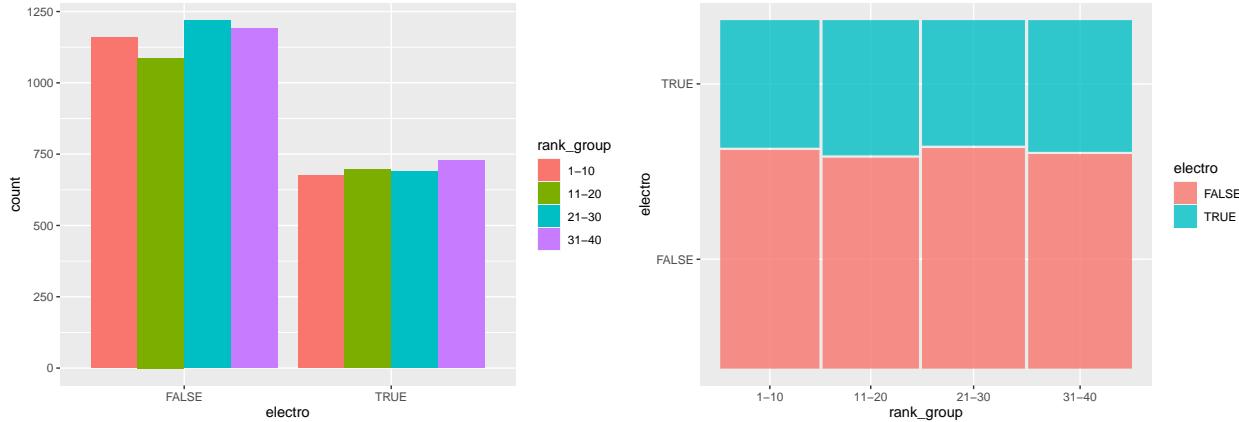


[1] "Chi-square test for electro and gender"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 1293.5, df = 4, p-value < 2.2e-16
```

[1] "electro and rank_group"



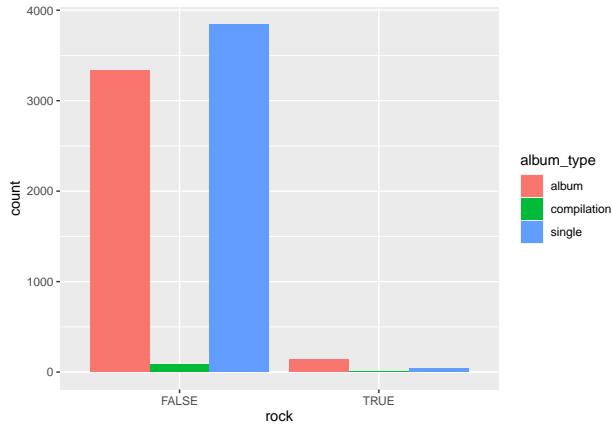
	1-10	11-20	21-30	31-40
FALSE	1160	1087	1218	1190
TRUE	674	695	690	728

```
[1] "Chi-square test for electro and rank_group"
```

Pearson's Chi-squared test

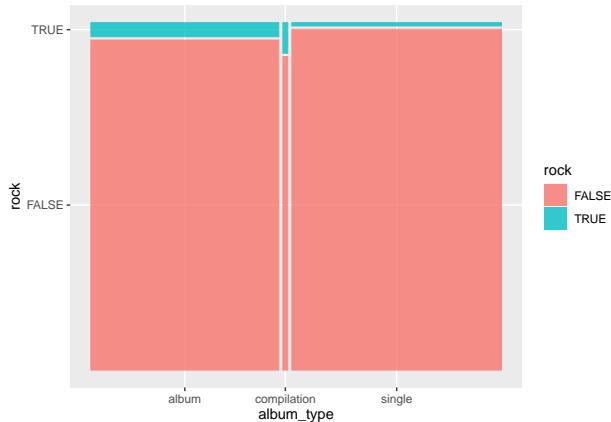
```
data: table(cat_var1, cat_var2)
X-squared = 3.7715, df = 3, p-value = 0.2872
```

```
[1] "rock and album_type"
```



	album	compilation	single
FALSE	3333	82	3840
TRUE	142	8	37

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

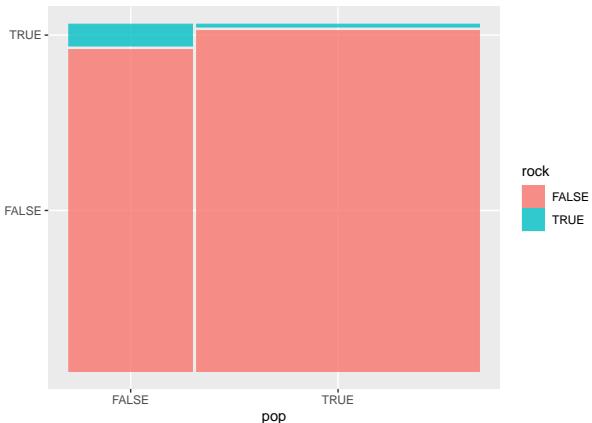
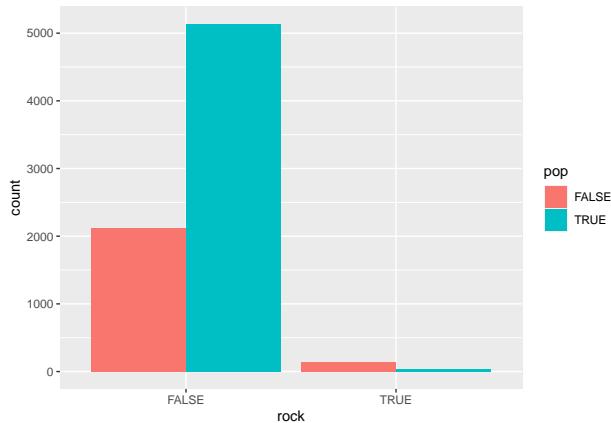


```
[1] "Chi-square test for rock and album_type"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 88.501, df = 2, p-value < 2.2e-16
```

```
[1] "rock and pop"
```



```
      FALSE  TRUE
FALSE  2122 5133
TRUE    144   43
[1] "Chi-square test for rock and pop"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 196.33, df = 1, p-value < 2.2e-16
```

```
[1] "rock and hip_hop"
```



```

      FALSE  TRUE
FALSE  3750 3505
TRUE    185   2
[1] "Chi-square test for rock and hip_hop"

```

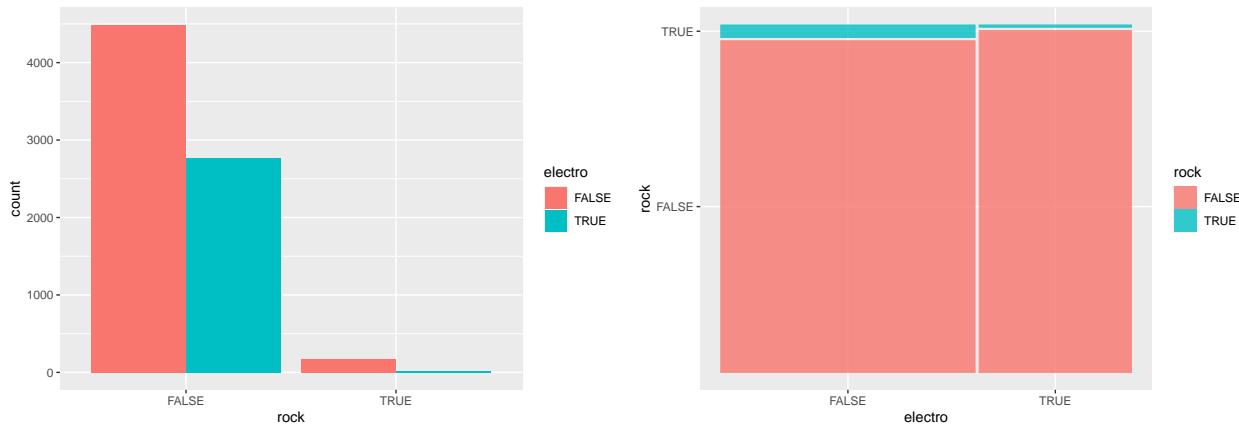
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 163.28, df = 1, p-value < 2.2e-16

```

[1] "rock and electro"



```

      FALSE  TRUE
FALSE  4486 2769
TRUE    169   18
[1] "Chi-square test for rock and electro"

```

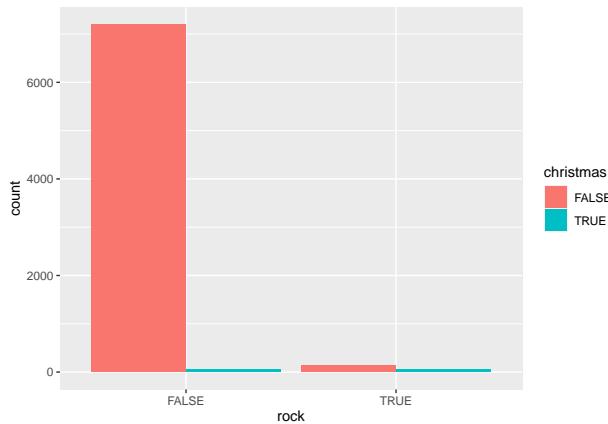
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 63.395, df = 1, p-value = 1.692e-15

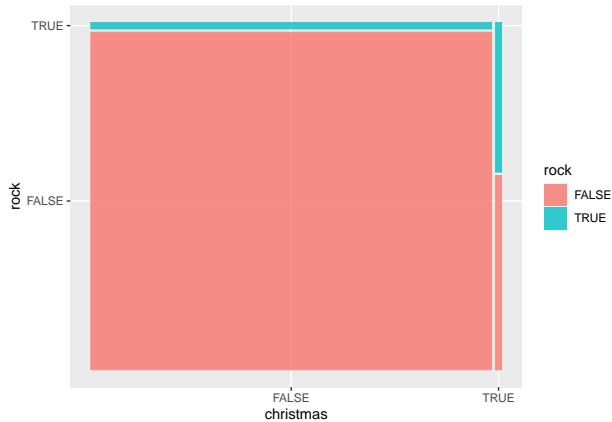
```

[1] "rock and christmas"



	FALSE	TRUE
FALSE	7194	61
TRUE	140	47

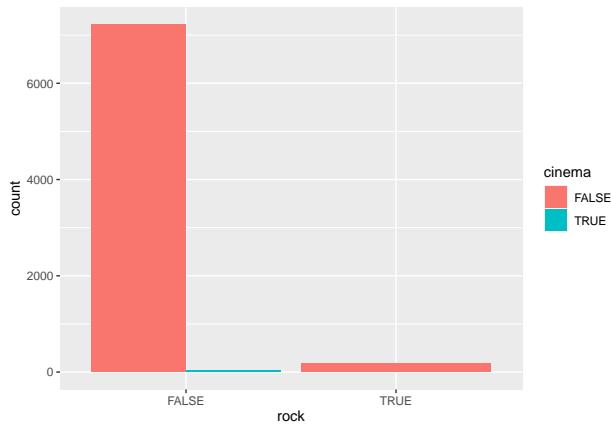
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect



```
[1] "Chi-square test for rock and christmas"
Pearson's Chi-squared test

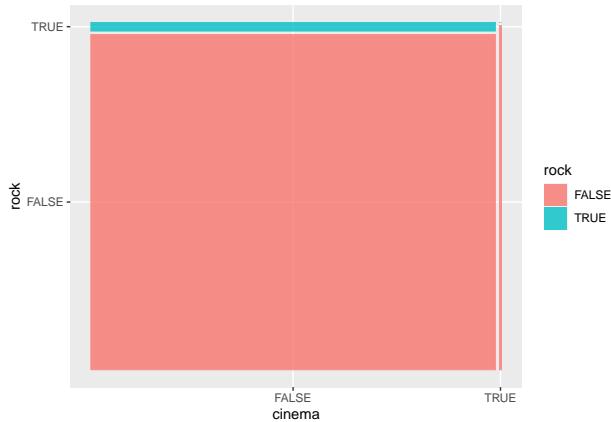
data: table(cat_var1, cat_var2)
X-squared = 752.25, df = 1, p-value < 2.2e-16

[1] "rock and cinema"
```



	FALSE	TRUE
FALSE	7217	38
TRUE	187	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

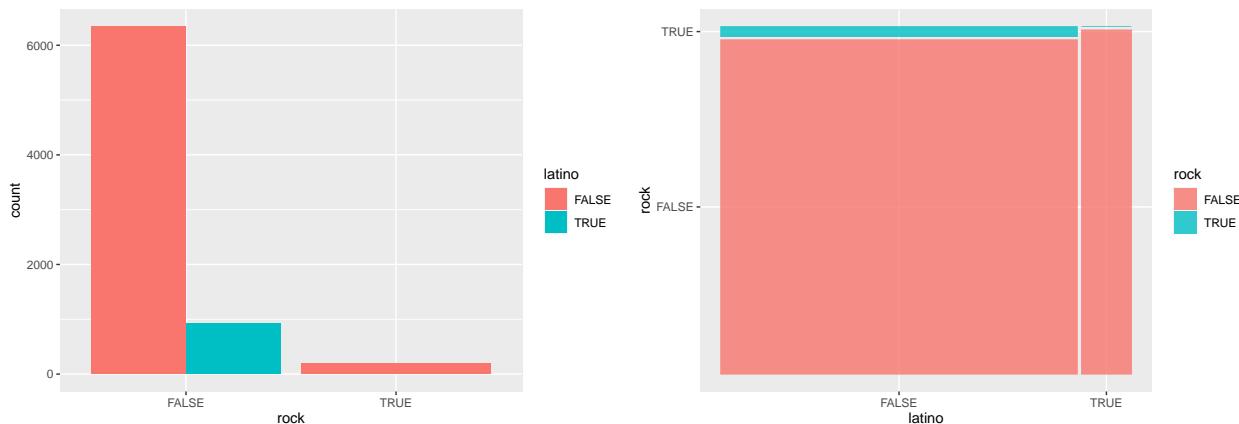


```
[1] "Chi-square test for rock and cinema"
```

```
Pearson's Chi-squared test
```

```
data: table(cat_var1, cat_var2)
X-squared = 0.98449, df = 1, p-value = 0.3211
```

```
[1] "rock and latino"
```



```

      FALSE  TRUE
FALSE  6339   916
TRUE     187    0
[1] "Chi-square test for rock and latino"

```

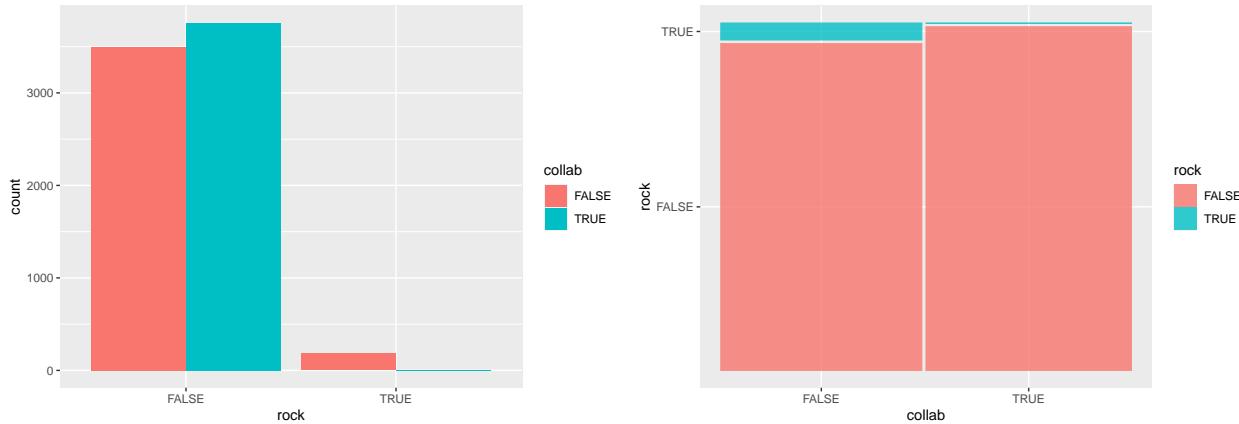
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 26.924, df = 1, p-value = 2.116e-07

```

[1] "rock and collab"



```

      FALSE  TRUE
FALSE  3499  3756
TRUE     182    5
[1] "Chi-square test for rock and collab"

```

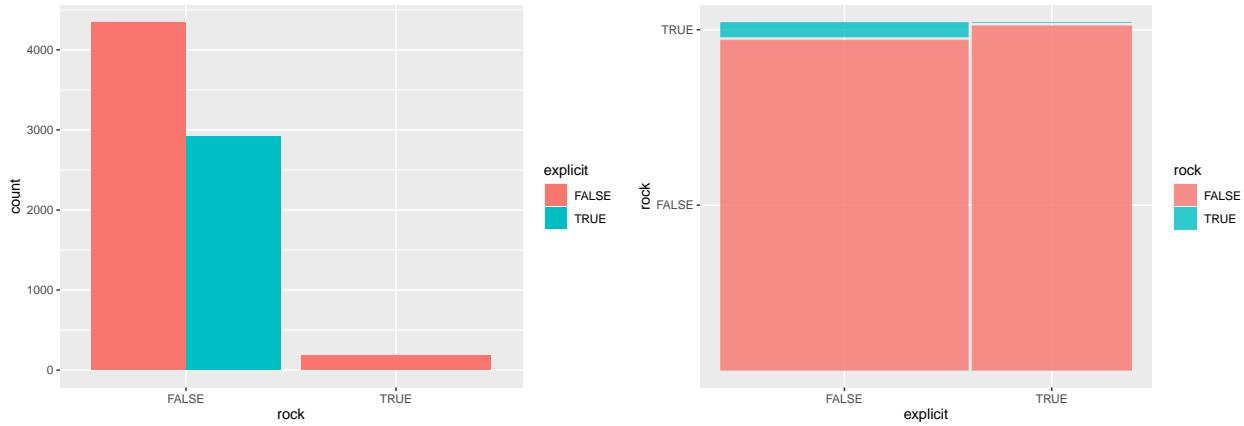
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 175.8, df = 1, p-value < 2.2e-16

```

[1] "rock and explicit"



```

      FALSE  TRUE
FALSE  4340 2915
TRUE    187   0
[1] "Chi-square test for rock and explicit"

```

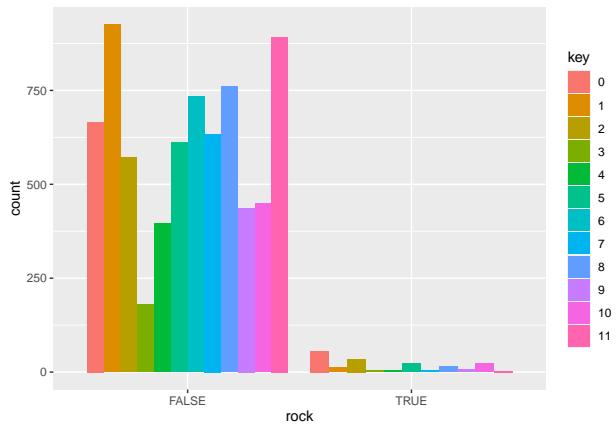
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 123.52, df = 1, p-value < 2.2e-16

```

[1] "rock and key"

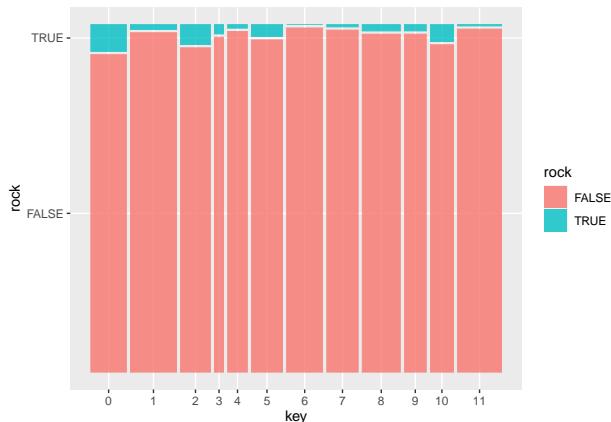


	0	1	2	3	4	5	6	7	8	9	10	11
FALSE	666	925	571	181	395	612	734	634	760	437	448	892
TRUE	56	13	35	5	4	22	0	4	14	8	23	3

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared
approximation may be incorrect

```

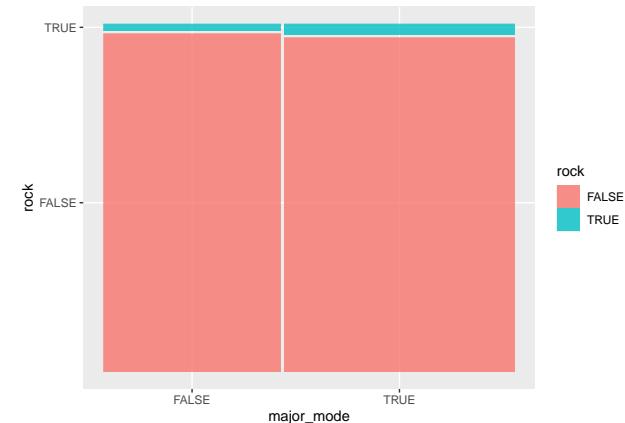
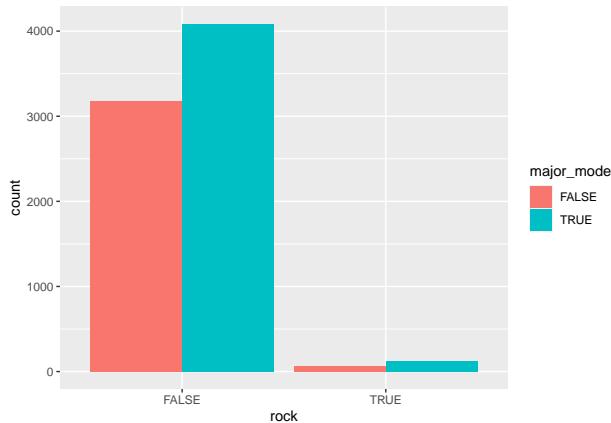


```
[1] "Chi-square test for rock and key"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 177.15, df = 11, p-value < 2.2e-16
```

```
[1] "rock and major_mode"
```

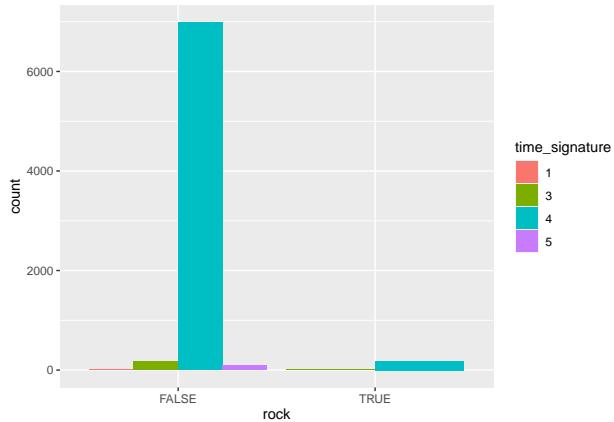


```
      FALSE  TRUE
FALSE  3173 4082
TRUE     60  127
[1] "Chi-square test for rock and major_mode"
```

Pearson's Chi-squared test

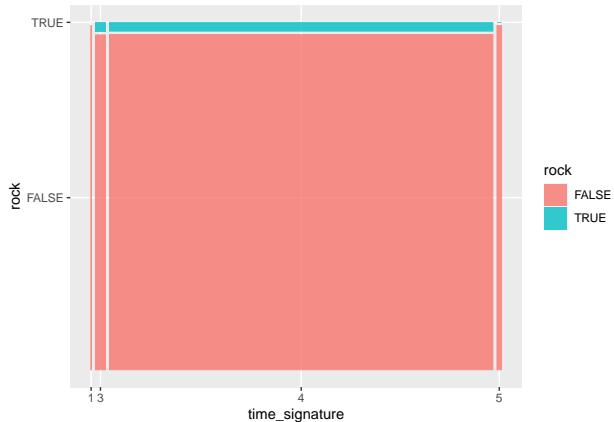
```
data: table(cat_var1, cat_var2)
X-squared = 10.07, df = 1, p-value = 0.001507
```

```
[1] "rock and time_signature"
```



	1	3	4	5
FALSE	10	180	6980	85
TRUE	0	5	182	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

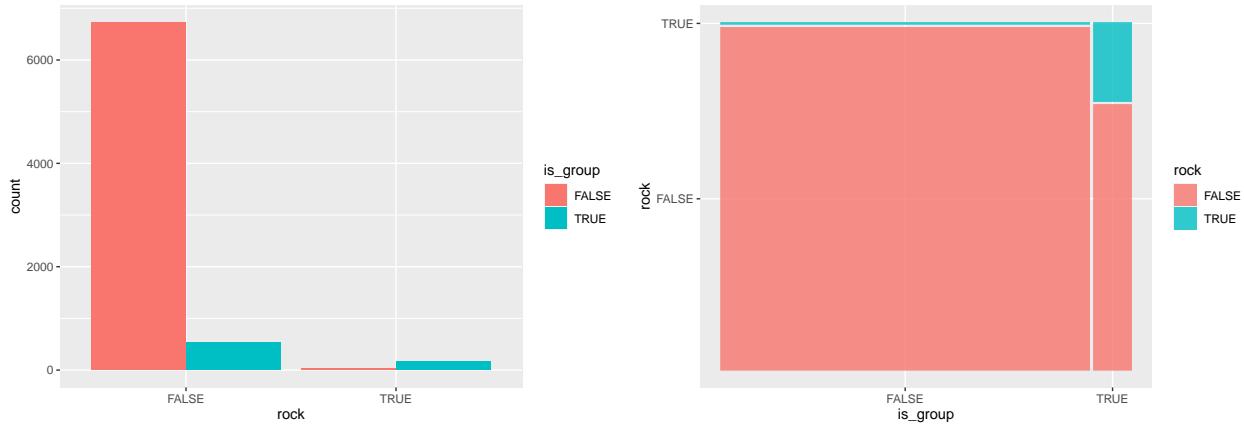


```
[1] "Chi-square test for rock and time_signature"
```

```
Pearson's Chi-squared test
```

```
data: table(cat_var1, cat_var2)
X-squared = 2.4995, df = 3, p-value = 0.4754
```

```
[1] "rock and is_group"
```



```

      FALSE  TRUE
FALSE  6722  533
TRUE     29  158
[1] "Chi-square test for rock and is_group"

```

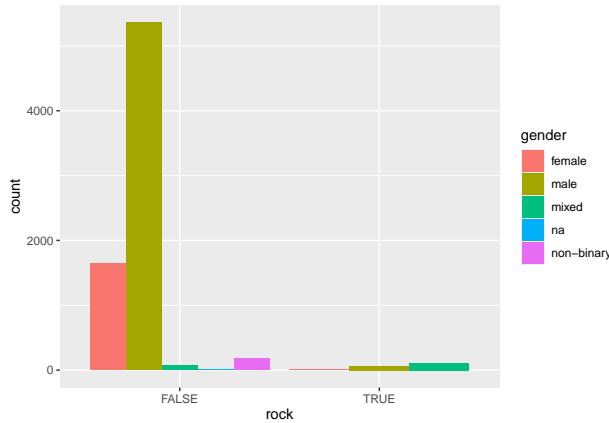
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1288.1, df = 1, p-value < 2.2e-16

```

[1] "rock and gender"

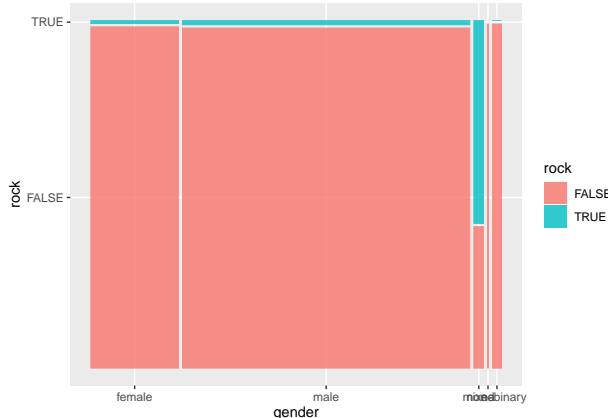


	female	male	mixed	na	non-binary
FALSE	1639	5358	76	8	174
TRUE	14	64	109	0	0

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared
approximation may be incorrect

```

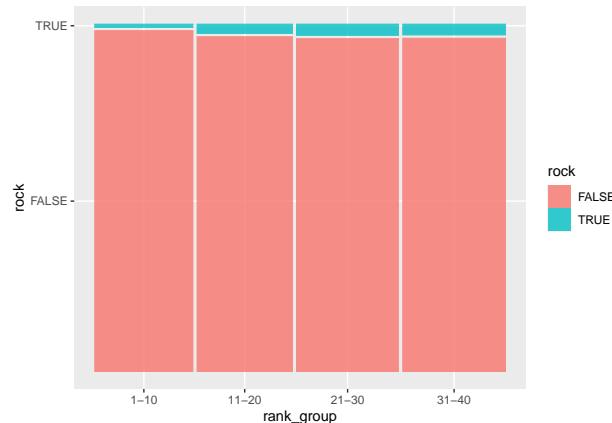
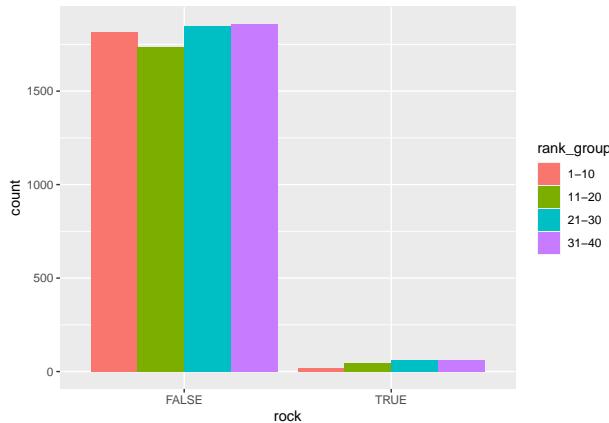


```
[1] "Chi-square test for rock and gender"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 2465.6, df = 4, p-value < 2.2e-16
```

```
[1] "rock and rank_group"
```



```
1-10 11-20 21-30 31-40
```

```
FALSE 1817 1734 1846 1858
```

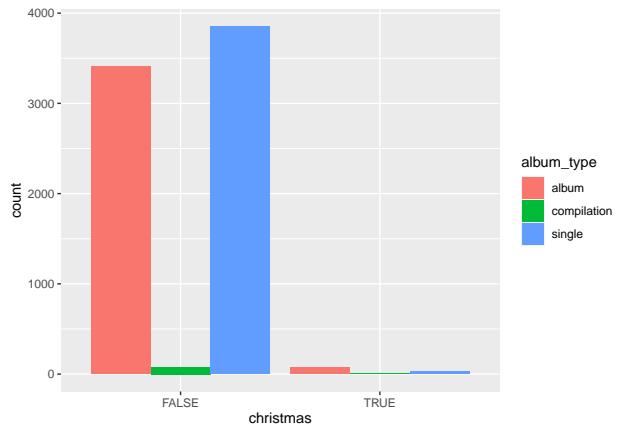
```
TRUE 17 48 62 60
```

```
[1] "Chi-square test for rock and rank_group"
```

Pearson's Chi-squared test

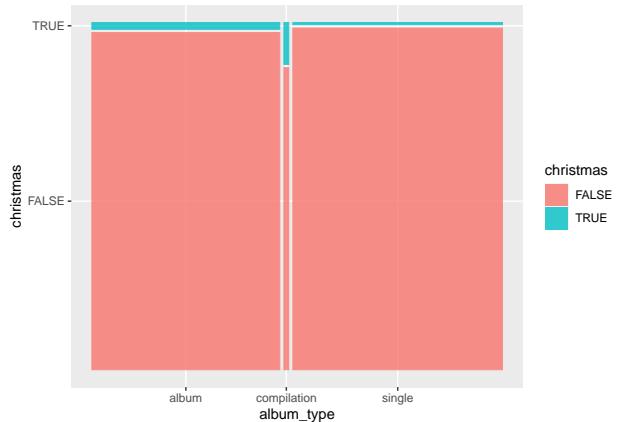
```
data: table(cat_var1, cat_var2)
X-squared = 26.26, df = 3, p-value = 8.414e-06
```

```
[1] "christmas and album_type"
```



```
  album compilation single
FALSE    3405          79    3850
TRUE      70          11     27
```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

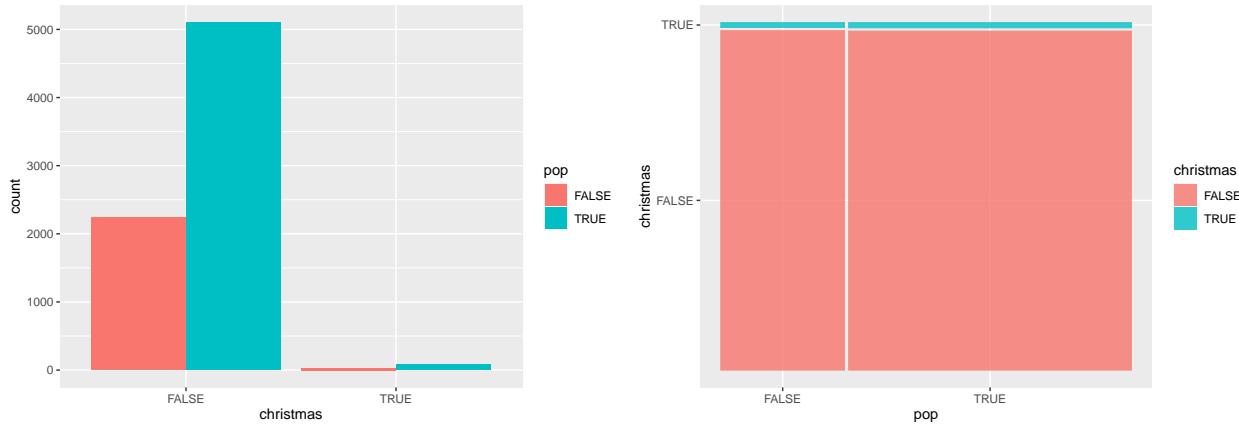


```
[1] "Chi-square test for christmas and album_type"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 96.159, df = 2, p-value < 2.2e-16
```

```
[1] "christmas and pop"
```



```

  FALSE  TRUE
FALSE  2235 5099
TRUE      31    77
[1] "Chi-square test for christmas and pop"

```

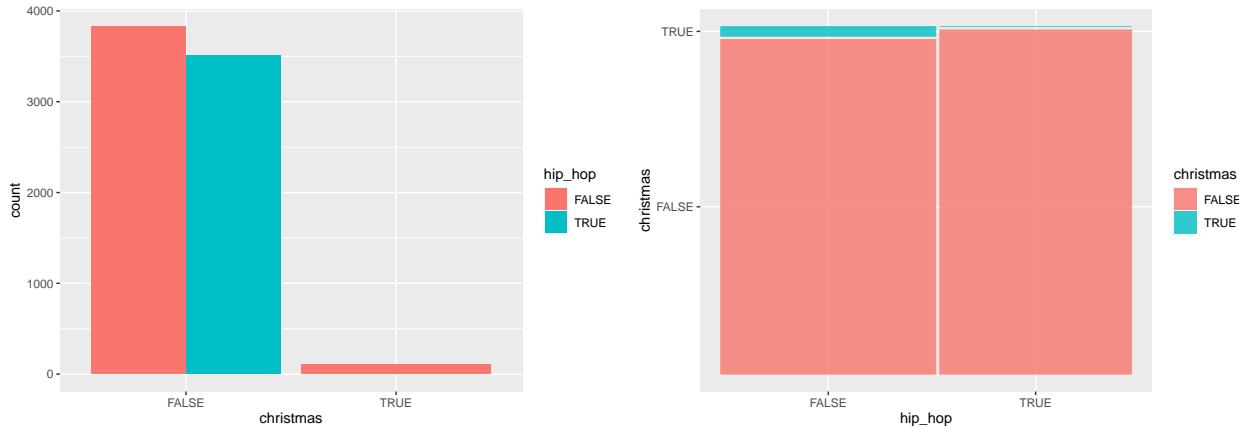
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 0.15759, df = 1, p-value = 0.6914

```

```
[1] "christmas and hip_hop"
```



```

  FALSE  TRUE
FALSE  3827 3507
TRUE     108   0
[1] "Chi-square test for christmas and hip_hop"

```

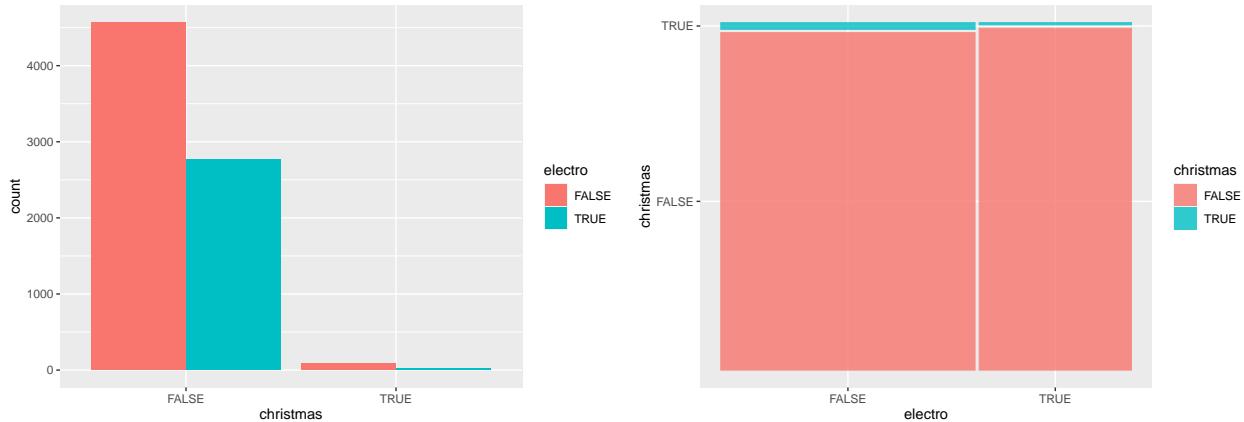
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 97.671, df = 1, p-value < 2.2e-16

```

```
[1] "christmas and electro"
```



```

      FALSE  TRUE
FALSE  4565 2769
TRUE     90   18
[1] "Chi-square test for christmas and electro"

```

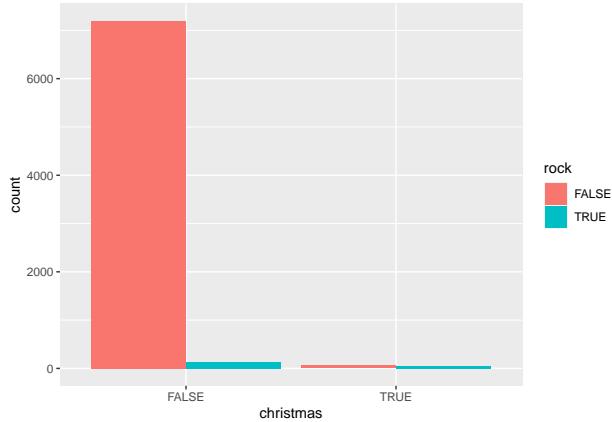
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 20.207, df = 1, p-value = 6.949e-06

```

[1] "christmas and rock"



```

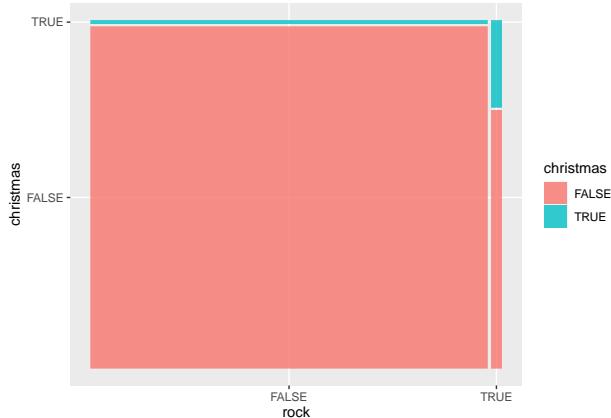
      FALSE  TRUE
FALSE  7194  140
TRUE     61   47

```

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

```

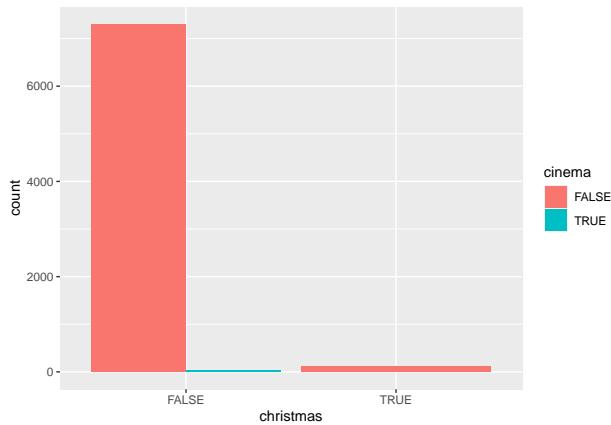


```
[1] "Chi-square test for christmas and rock"
```

Pearson's Chi-squared test

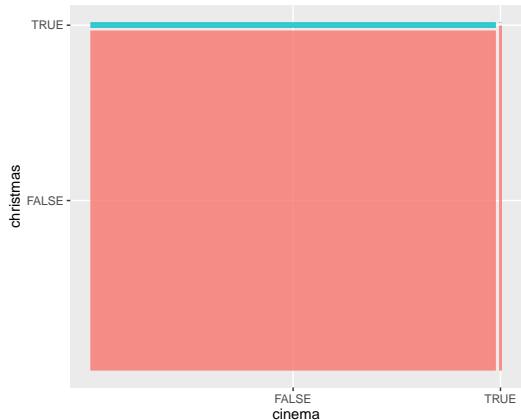
```
data: table(cat_var1, cat_var2)
X-squared = 752.25, df = 1, p-value < 2.2e-16
```

```
[1] "christmas and cinema"
```



	FALSE	TRUE
FALSE	7296	38
TRUE	108	0

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

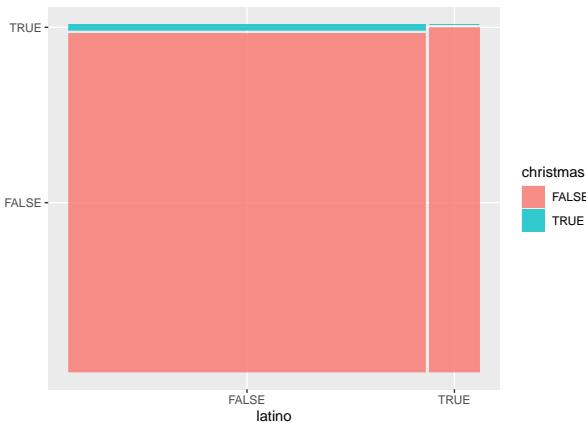
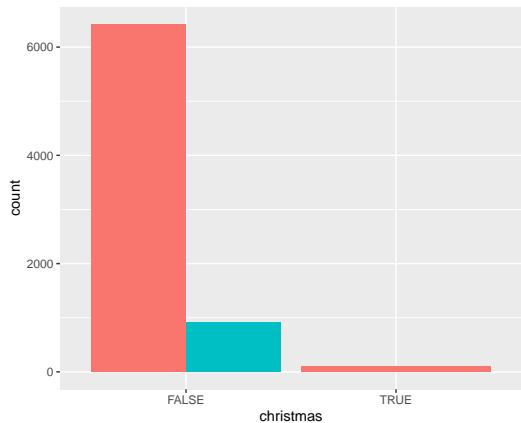


```
[1] "Chi-square test for christmas and cinema"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 0.56246, df = 1, p-value = 0.4533
```

```
[1] "christmas and latino"
```

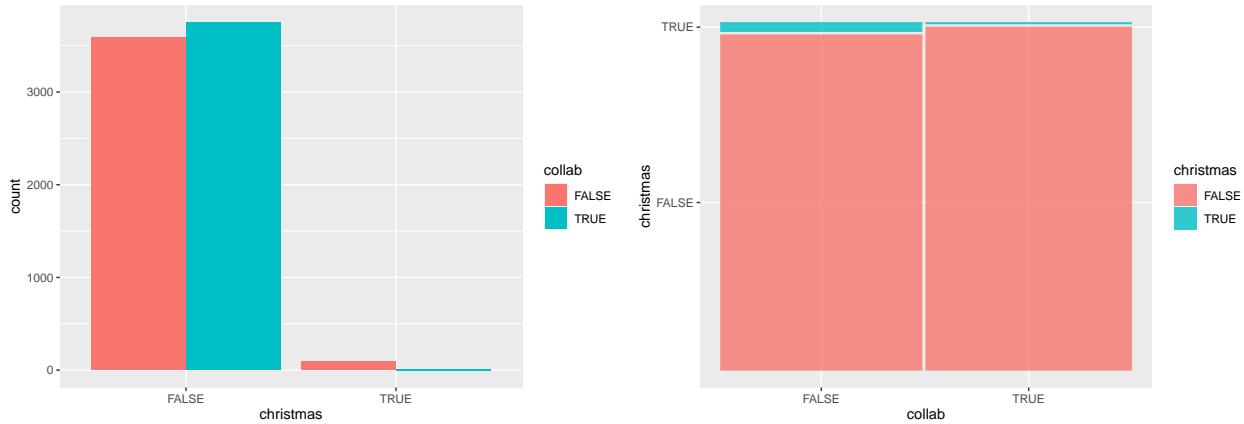


```
      FALSE TRUE
FALSE  6418  916
TRUE    108   0
[1] "Chi-square test for christmas and latino"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 15.382, df = 1, p-value = 8.781e-05
```

```
[1] "christmas and collab"
```



```

      FALSE  TRUE
FALSE  3585 3749
TRUE     96   12
[1] "Chi-square test for christmas and collab"

```

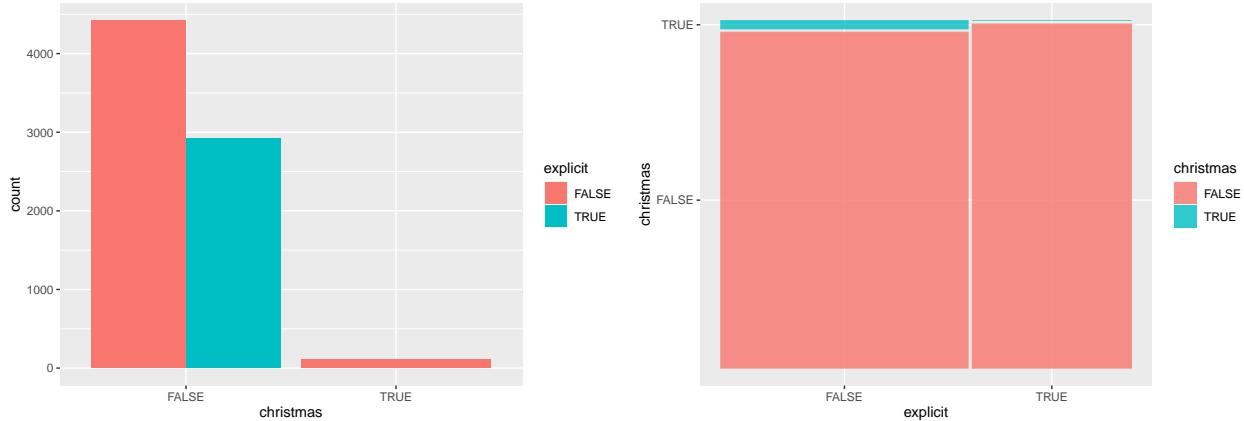
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 68.149, df = 1, p-value < 2.2e-16

```

```
[1] "christmas and explicit"
```



```

      FALSE  TRUE
FALSE  4419 2915
TRUE    108   0
[1] "Chi-square test for christmas and explicit"

```

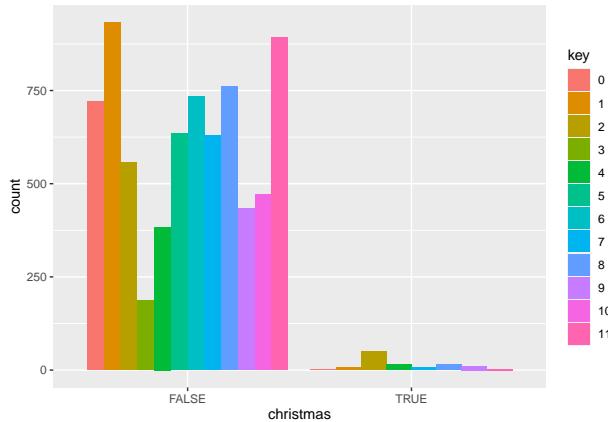
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 70.567, df = 1, p-value < 2.2e-16

```

```
[1] "christmas and key"
```

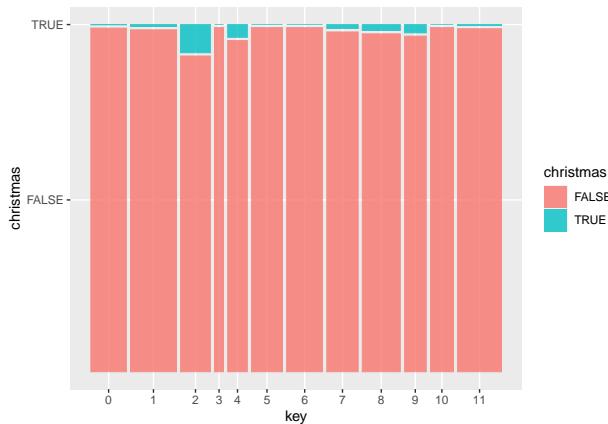


```

0   1   2   3   4   5   6   7   8   9   10  11
FALSE 721 932 556 186 384 634 734 630 760 434 471 892
TRUE    1    6   50   0   15   0   0    8   14   11   0    3

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

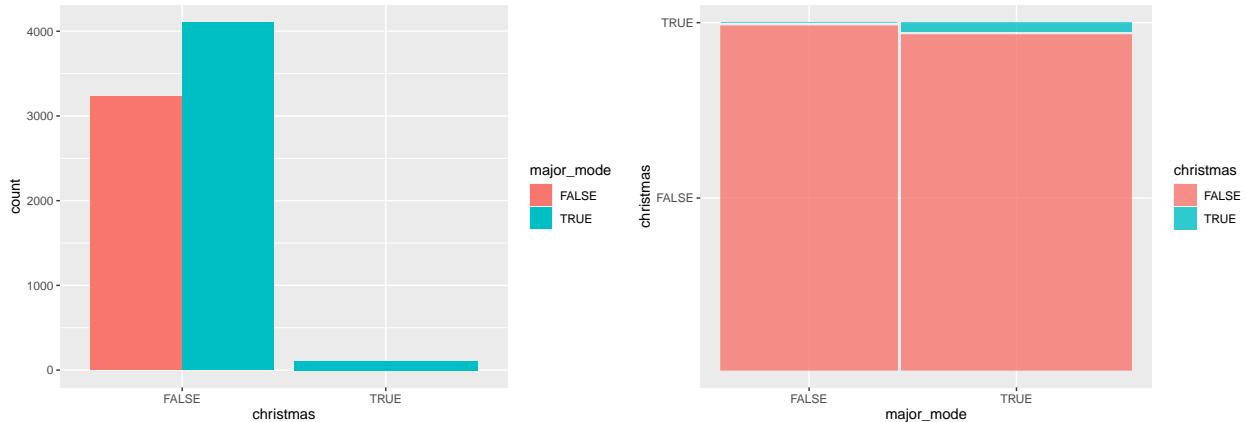


```
[1] "Chi-square test for christmas and key"
```

```
Pearson's Chi-squared test
```

```
data: table(cat_var1, cat_var2)
X-squared = 265.51, df = 11, p-value < 2.2e-16
```

```
[1] "christmas and major_mode"
```



```

      FALSE  TRUE
FALSE   3233 4101
TRUE      0 108
[1] "Chi-square test for christmas and major_mode"

```

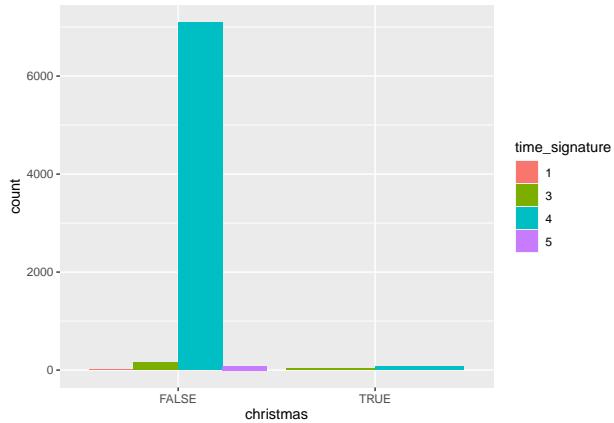
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 84.178, df = 1, p-value < 2.2e-16

```

[1] "christmas and time_signature"

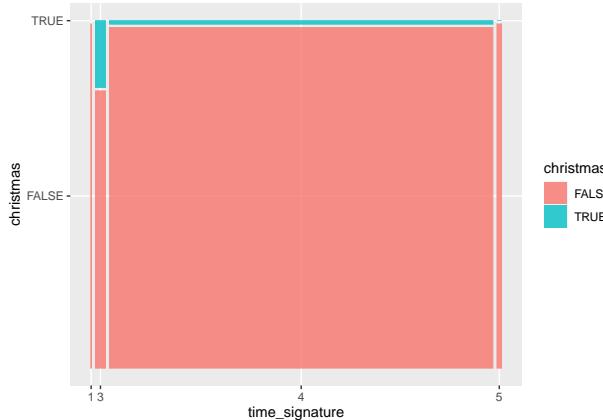


	1	3	4	5
FALSE	10	149	7090	85
TRUE	0	36	72	0

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared
approximation may be incorrect

```

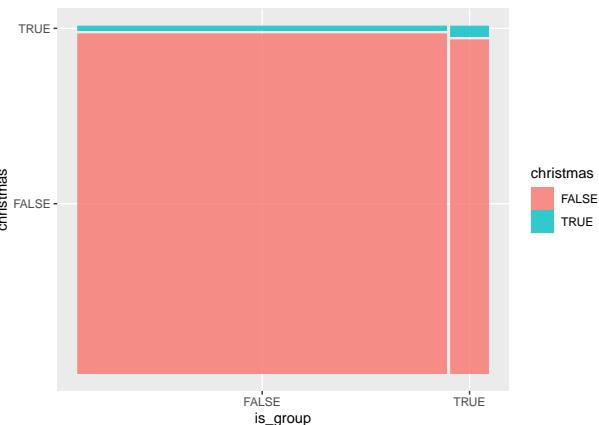
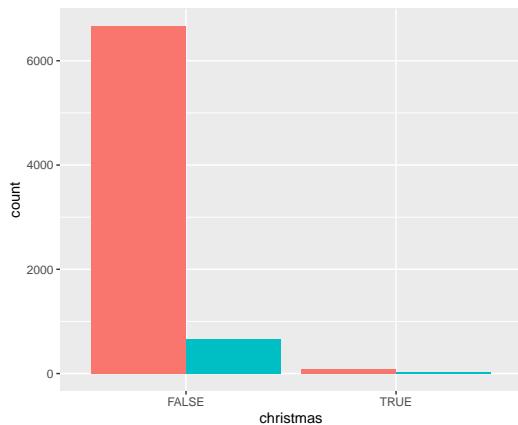


```
[1] "Chi-square test for christmas and time_signature"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 430.85, df = 3, p-value < 2.2e-16
```

```
[1] "christmas and is_group"
```



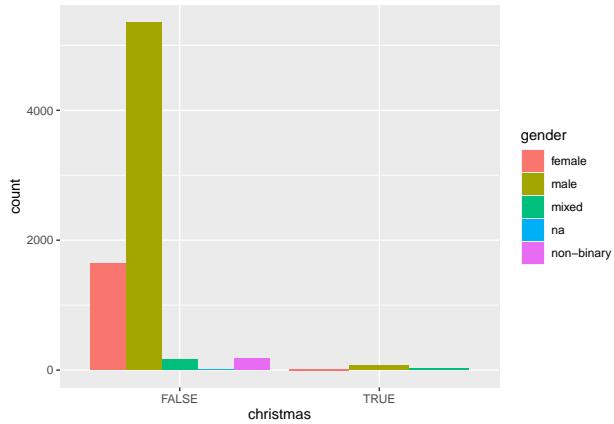
	FALSE	TRUE
FALSE	6664	670
TRUE	87	21

```
[1] "Chi-square test for christmas and is_group"
```

Pearson's Chi-squared test

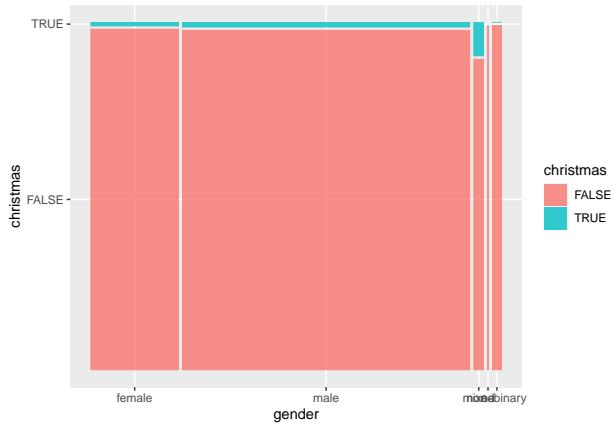
```
data: table(cat_var1, cat_var2)
X-squared = 13.429, df = 1, p-value = 0.0002478
```

```
[1] "christmas and gender"
```



	female	male	mixed	na	non-binary
FALSE	1636	5349	167	8	174
TRUE	17	73	18	0	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

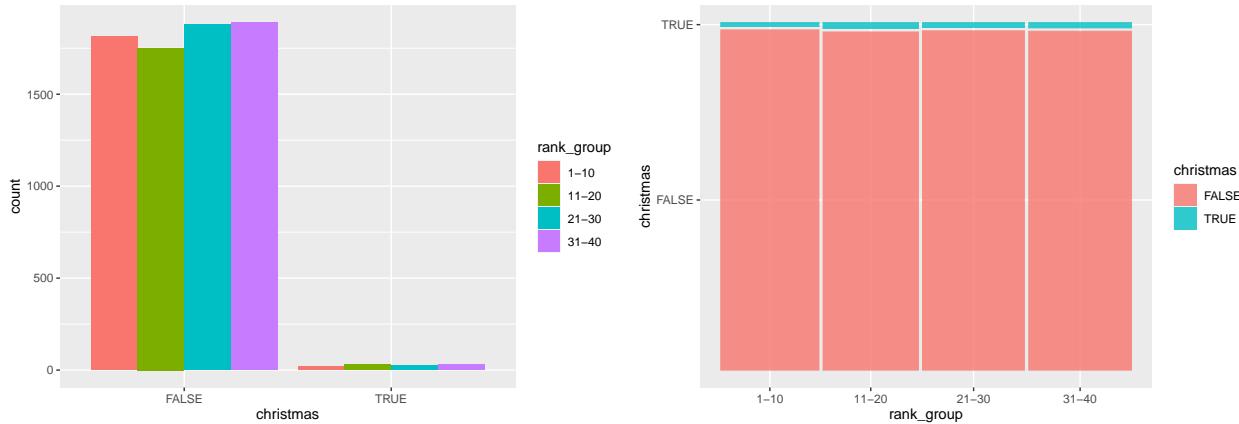


```
[1] "Chi-square test for christmas and gender"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 93.815, df = 4, p-value < 2.2e-16
```

```
[1] "christmas and rank_group"
```



```

1-10 11-20 21-30 31-40
FALSE 1813   1751   1881   1889
TRUE    21     31     27     29
[1] "Chi-square test for christmas and rank_group"

```

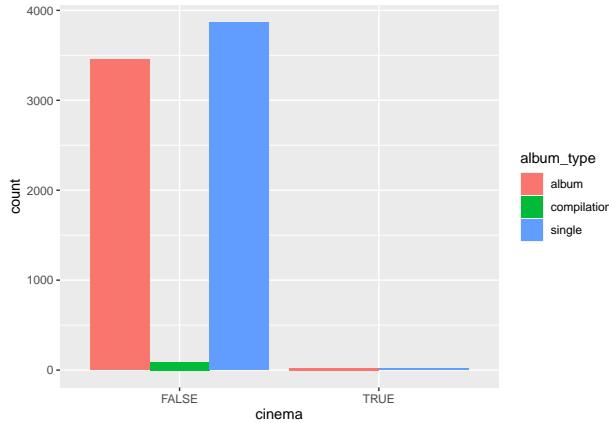
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 2.3055, df = 3, p-value = 0.5115

```

```
[1] "cinema and album_type"
```

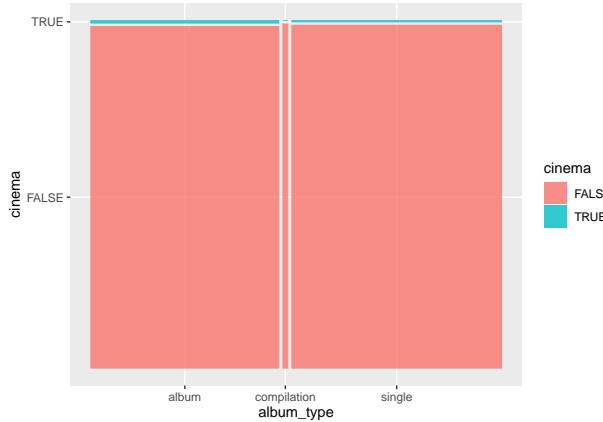


```

      album compilation single
FALSE  3451          90   3863
TRUE    24            0    14

```

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

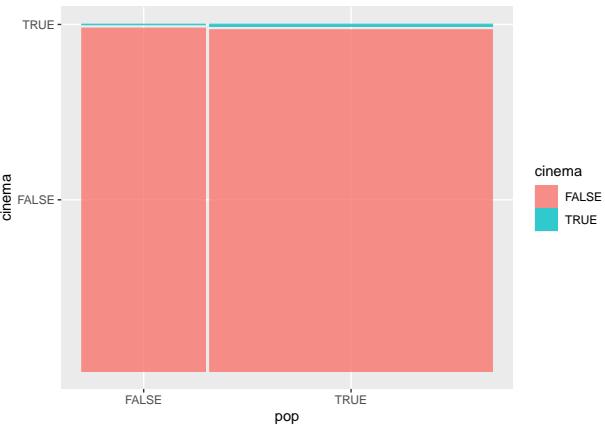
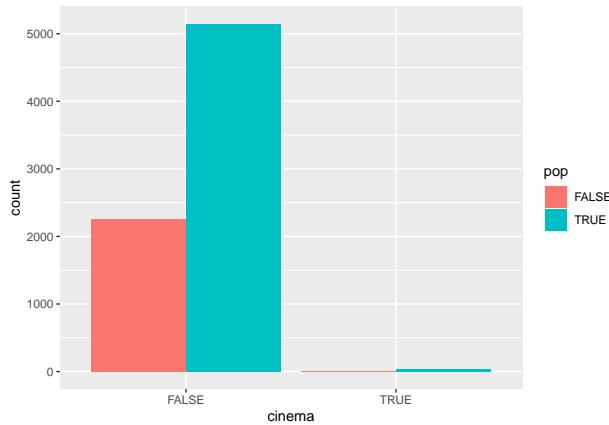


```
[1] "Chi-square test for cinema and album_type"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 4.385, df = 2, p-value = 0.1116
```

```
[1] "cinema and pop"
```



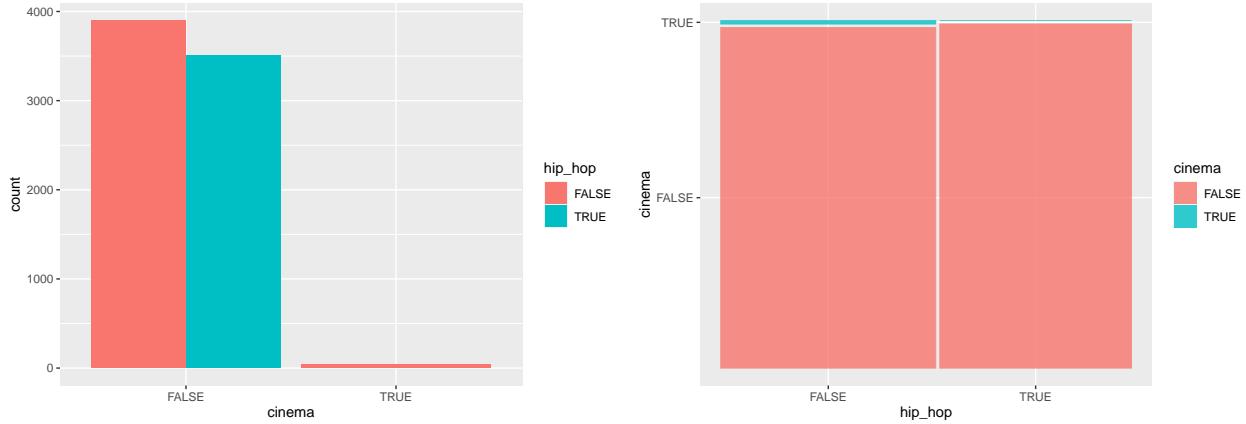
	FALSE	TRUE
FALSE	2262	5142
TRUE	4	34

```
[1] "Chi-square test for cinema and pop"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 7.1585, df = 1, p-value = 0.007461
```

```
[1] "cinema and hip_hop"
```



```

      FALSE  TRUE
FALSE  3897 3507
TRUE      38     0
[1] "Chi-square test for cinema and hip_hop"

```

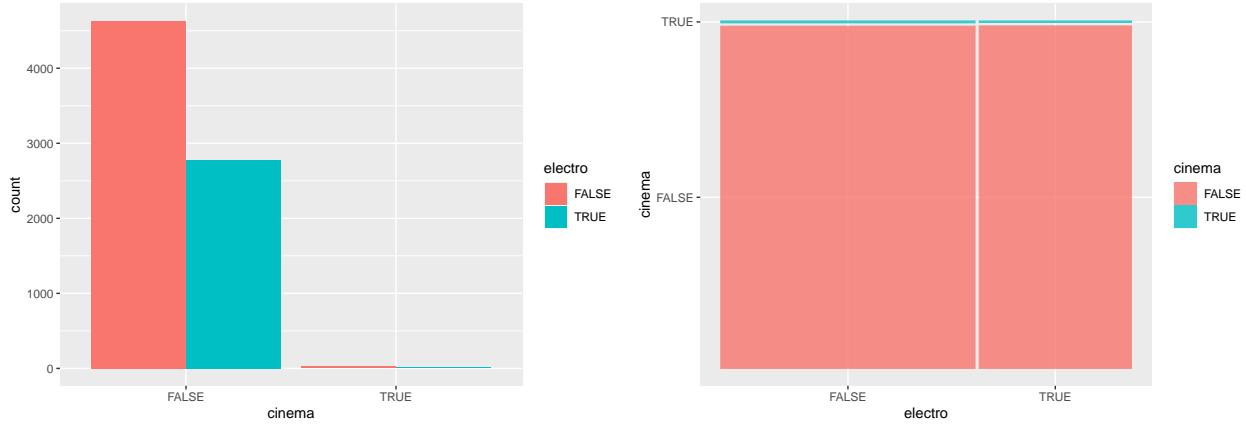
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 34.041, df = 1, p-value = 5.397e-09

```

[1] "cinema and electro"



```

      FALSE  TRUE
FALSE  4630 2774
TRUE      25   13
[1] "Chi-square test for cinema and electro"

```

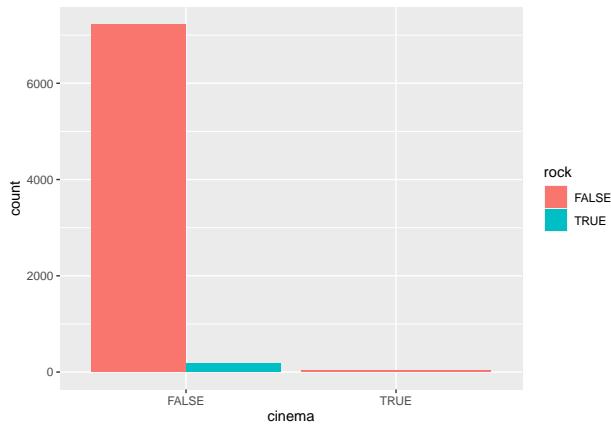
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 0.17107, df = 1, p-value = 0.6792

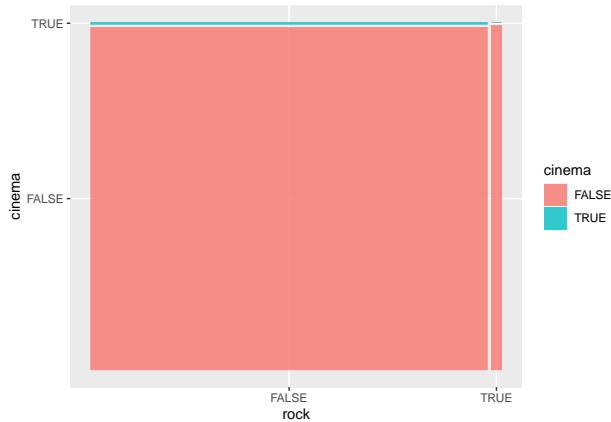
```

[1] "cinema and rock"



	FALSE	TRUE
FALSE	7217	187
TRUE	38	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

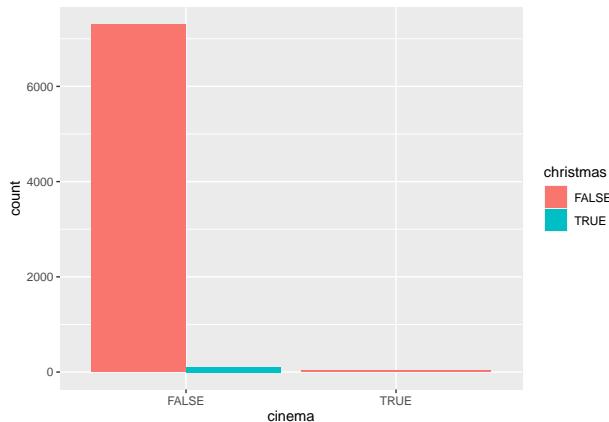


[1] "Chi-square test for cinema and rock"

Pearson's Chi-squared test

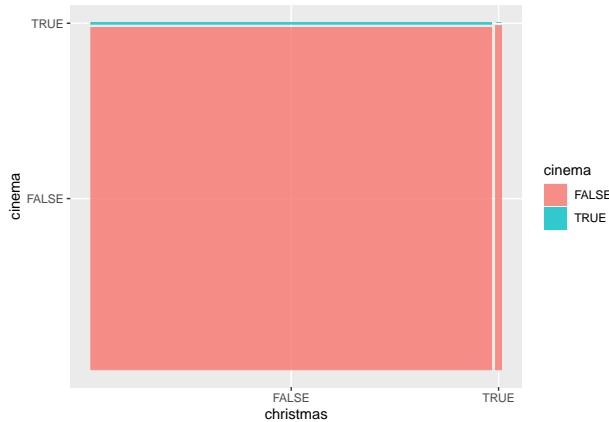
```
data: table(cat_var1, cat_var2)
X-squared = 0.98449, df = 1, p-value = 0.3211
```

[1] "cinema and christmas"



	FALSE	TRUE
FALSE	7296	108
TRUE	38	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

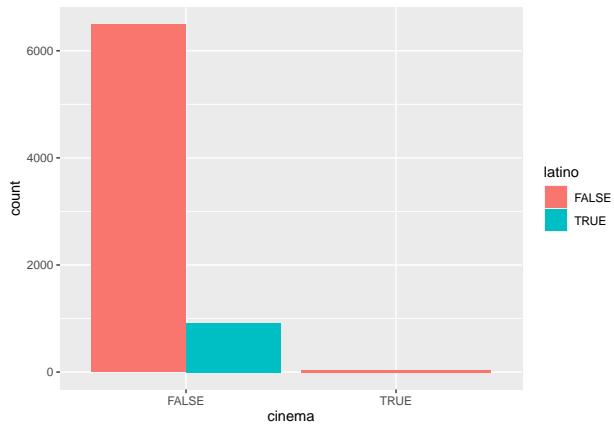


```
[1] "Chi-square test for cinema and christmas"
```

Pearson's Chi-squared test

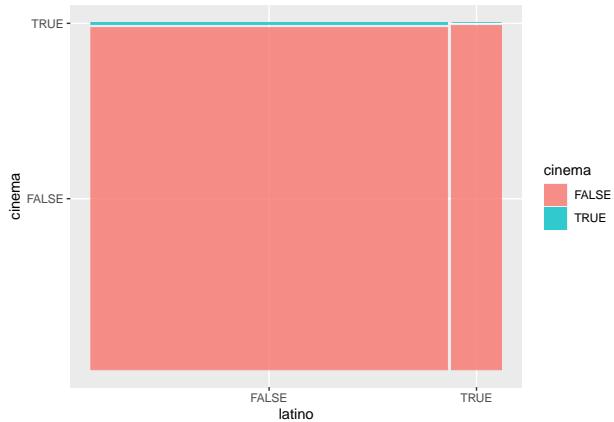
```
data: table(cat_var1, cat_var2)
X-squared = 0.56246, df = 1, p-value = 0.4533
```

```
[1] "cinema and latino"
```



```
    FALSE  TRUE
FALSE  6488  916
TRUE      38     0
```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

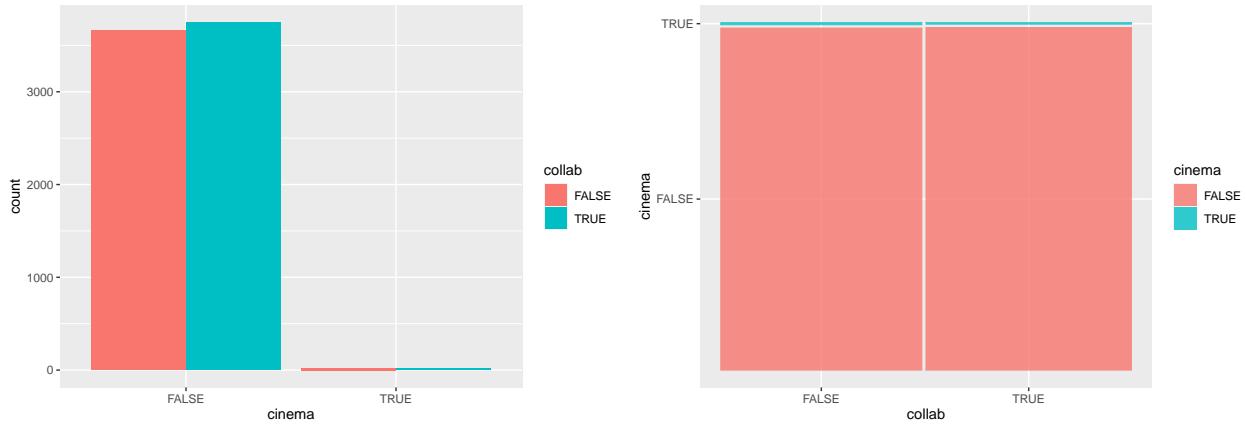


[1] "Chi-square test for cinema and latino"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 5.3611, df = 1, p-value = 0.02059
```

[1] "cinema and collab"



```

      FALSE  TRUE
FALSE   3659 3745
TRUE      22   16
[1] "Chi-square test for cinema and collab"

```

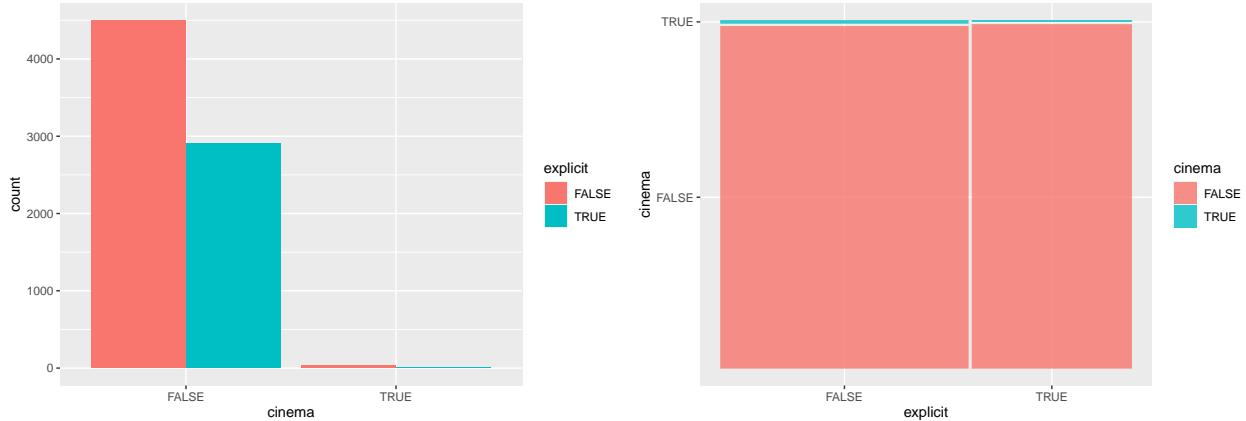
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1.0864, df = 1, p-value = 0.2973

```

```
[1] "cinema and explicit"
```



```

      FALSE  TRUE
FALSE   4495 2909
TRUE     32   6
[1] "Chi-square test for cinema and explicit"

```

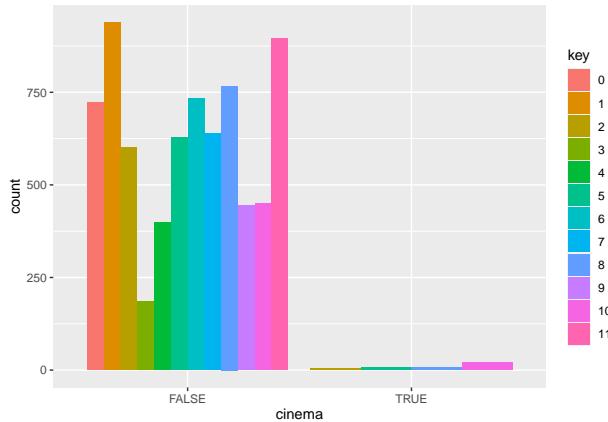
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 8.7625, df = 1, p-value = 0.003075

```

```
[1] "cinema and key"
```

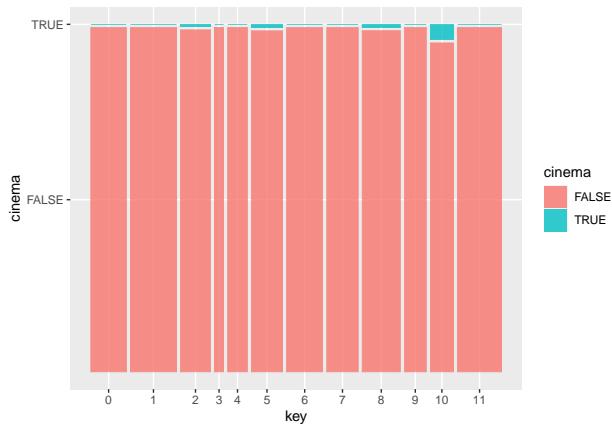


```

      0   1   2   3   4   5   6   7   8   9   10  11
FALSE 722 938 602 186 399 628 734 638 767 445 450 895
TRUE   0    0    4    0    0    6    0    0    7    0   21   0

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

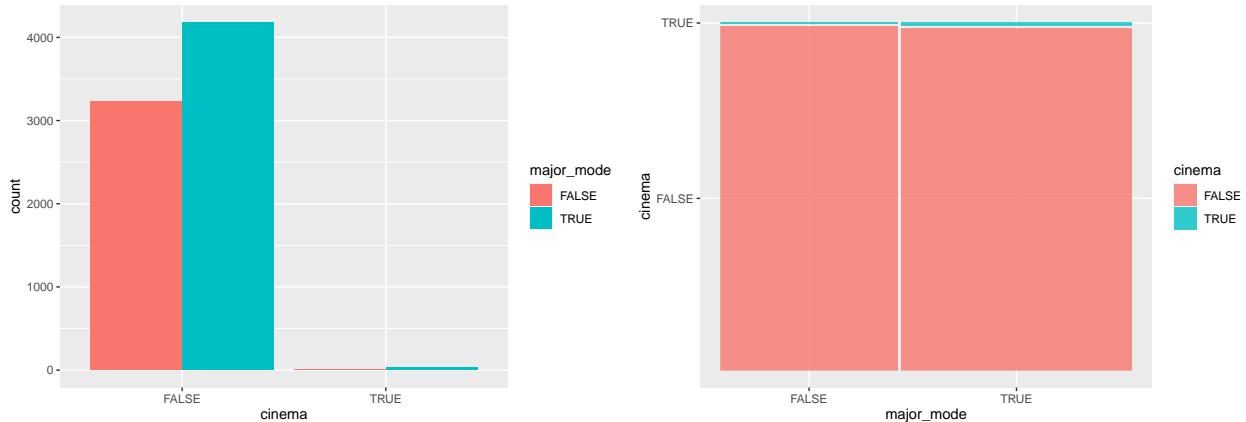


```
[1] "Chi-square test for cinema and key"
```

```
Pearson's Chi-squared test
```

```
data: table(cat_var1, cat_var2)
X-squared = 174.95, df = 11, p-value < 2.2e-16
```

```
[1] "cinema and major_mode"
```



```

      FALSE  TRUE
FALSE  3227 4177
TRUE       6   32
[1] "Chi-square test for cinema and major_mode"

```

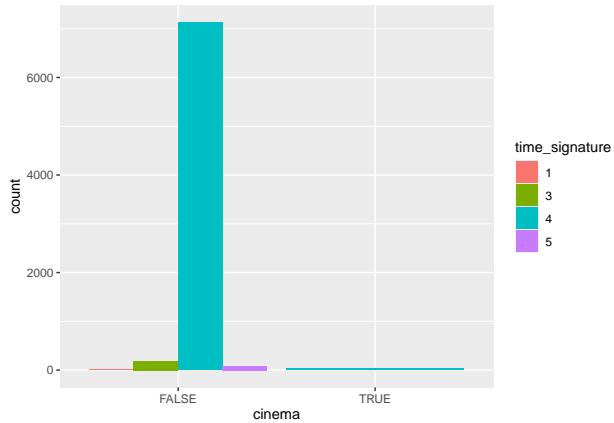
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 11.888, df = 1, p-value = 0.0005651

```

[1] "cinema and time_signature"

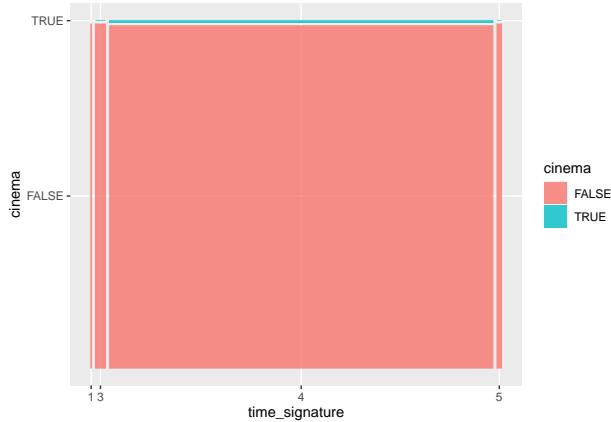


	1	3	4	5
FALSE	10	185	7124	85
TRUE	0	0	38	0

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared
approximation may be incorrect

```

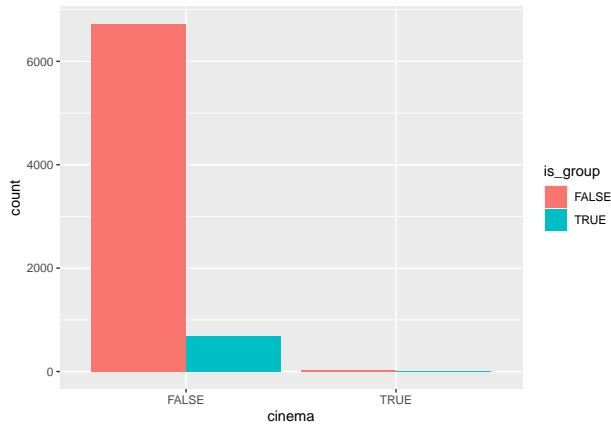


```
[1] "Chi-square test for cinema and time_signature"
```

Pearson's Chi-squared test

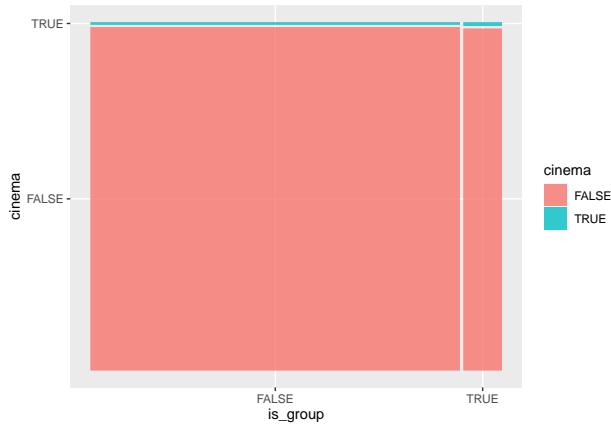
```
data: table(cat_var1, cat_var2)
X-squared = 1.4932, df = 3, p-value = 0.6838
```

```
[1] "cinema and is_group"
```



	FALSE	TRUE
FALSE	6719	685
TRUE	32	6

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

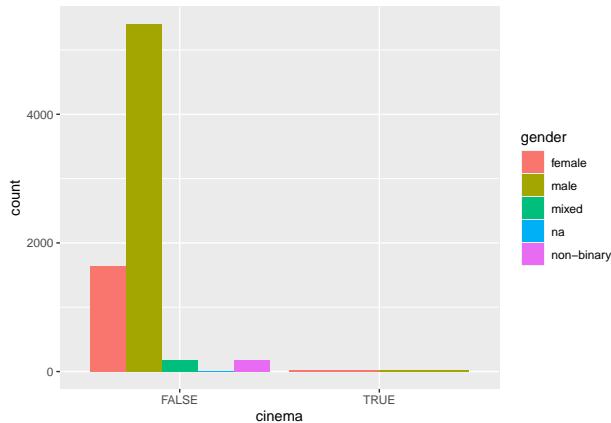


```
[1] "Chi-square test for cinema and is_group"
```

Pearson's Chi-squared test

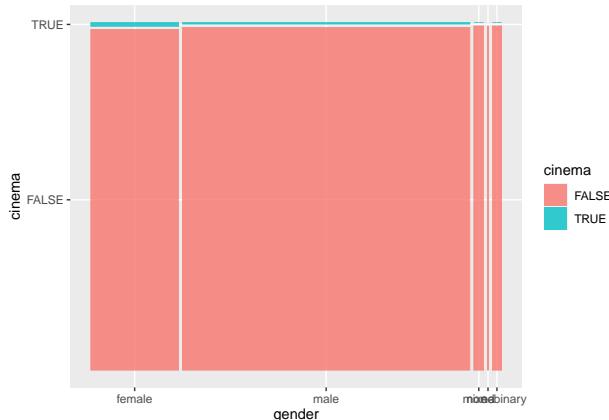
```
data: table(cat_var1, cat_var2)
X-squared = 1.9184, df = 1, p-value = 0.166
```

```
[1] "cinema and gender"
```



	female	male	mixed	na	non-binary
FALSE	1636	5401	185	8	174
TRUE	17	21	0	0	0

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

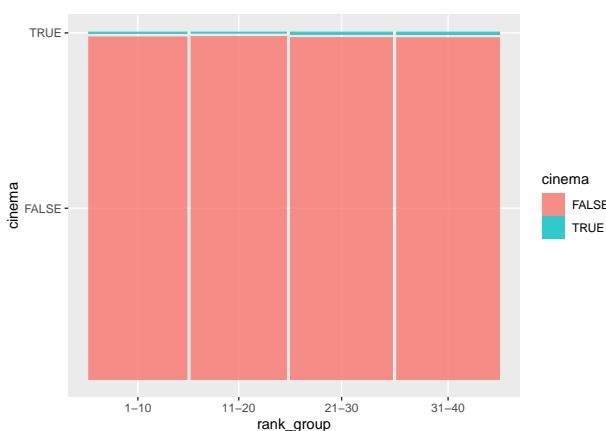
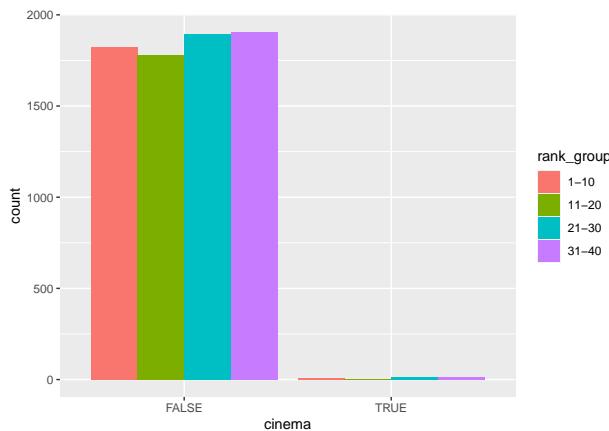


```
[1] "Chi-square test for cinema and gender"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 12.231, df = 4, p-value = 0.01571
```

```
[1] "cinema and rank_group"
```

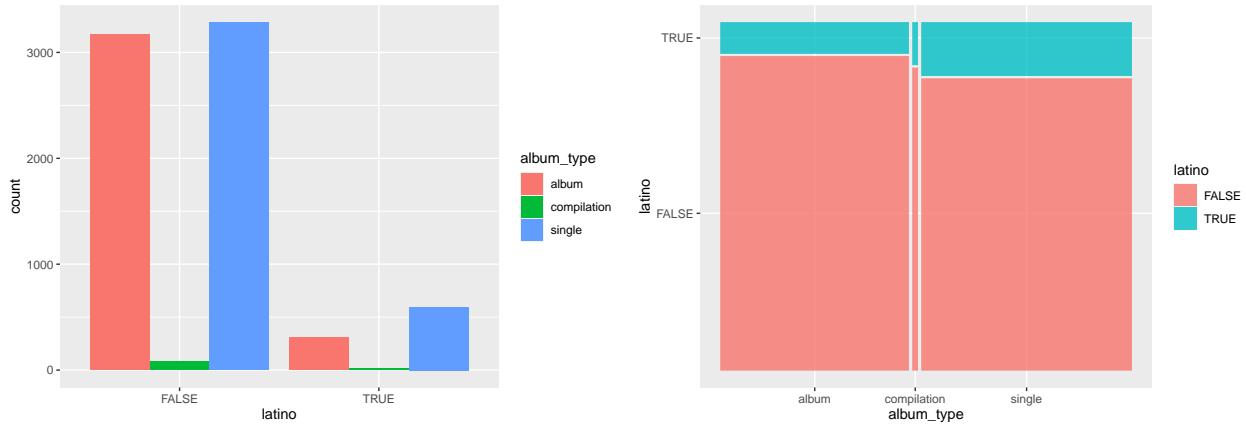


```
1-10 11-20 21-30 31-40
FALSE 1826 1777 1896 1905
TRUE     8      5     12     13
[1] "Chi-square test for cinema and rank_group"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 3.637, df = 3, p-value = 0.3034
```

```
[1] "latino and album_type"
```



```

  album compilation single
FALSE   3166        79    3281
TRUE     309       11     596
[1] "Chi-square test for latino and album_type"

```

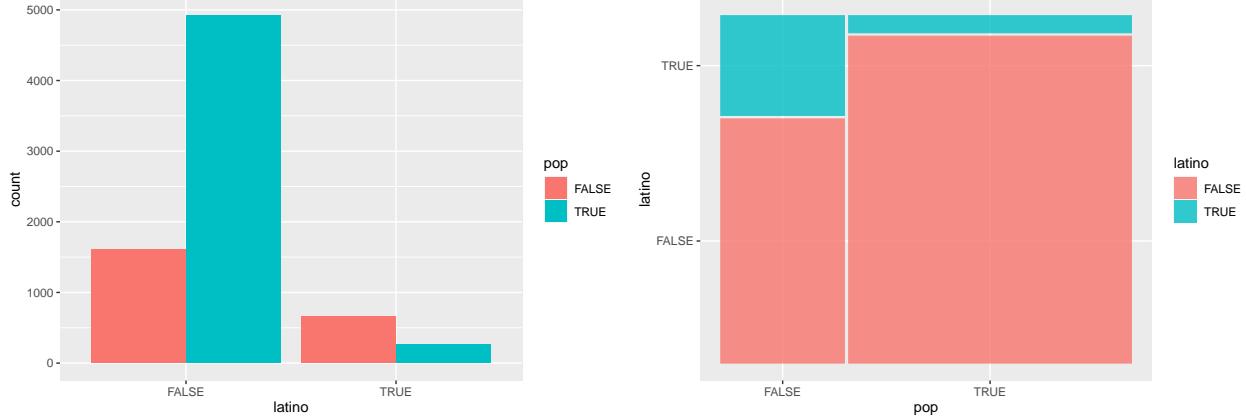
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 71.305, df = 2, p-value = 3.283e-16

```

[1] "latino and pop"



```

  FALSE  TRUE
FALSE   1608  4918
TRUE     658   258
[1] "Chi-square test for latino and pop"

```

Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 844.8, df = 1, p-value < 2.2e-16

```

[1] "latino and hip_hop"



```

      FALSE  TRUE
FALSE   3827 2699
TRUE     108  808
[1] "Chi-square test for latino and hip_hop"

```

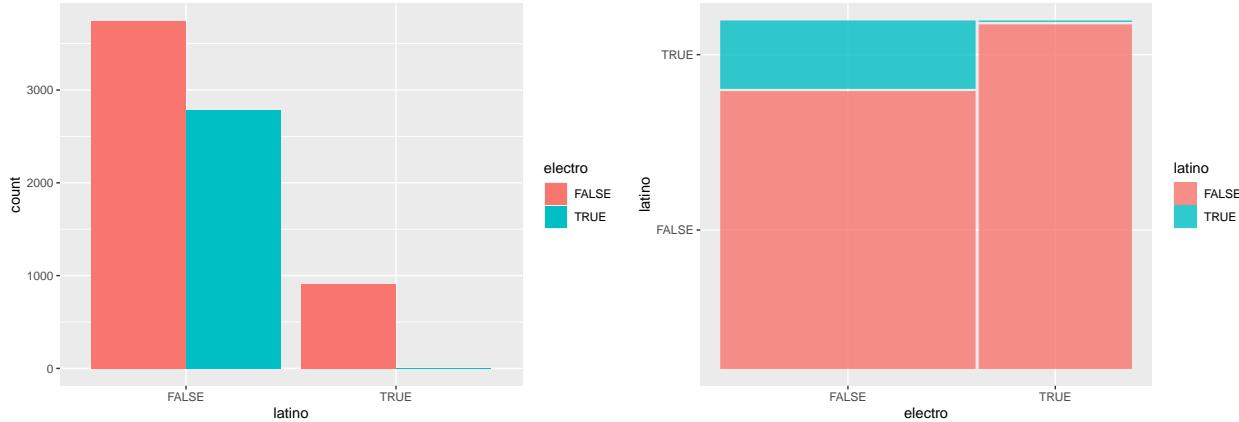
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 707.63, df = 1, p-value < 2.2e-16

```

[1] "latino and electro"



```

      FALSE  TRUE
FALSE   3744 2782
TRUE     911   5
[1] "Chi-square test for latino and electro"

```

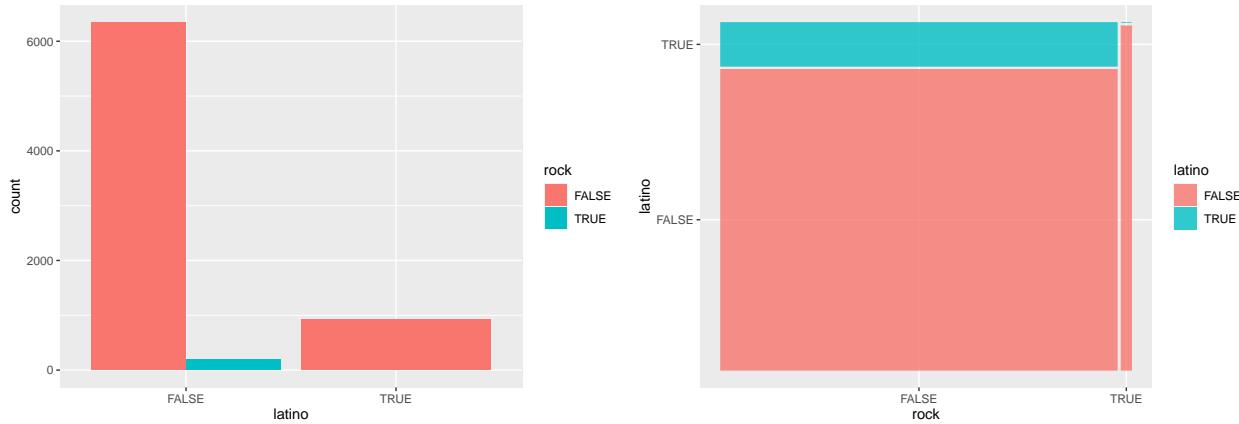
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 607.3, df = 1, p-value < 2.2e-16

```

[1] "latino and rock"



```

      FALSE  TRUE
FALSE  6339   187
TRUE    916    0
[1] "Chi-square test for latino and rock"

```

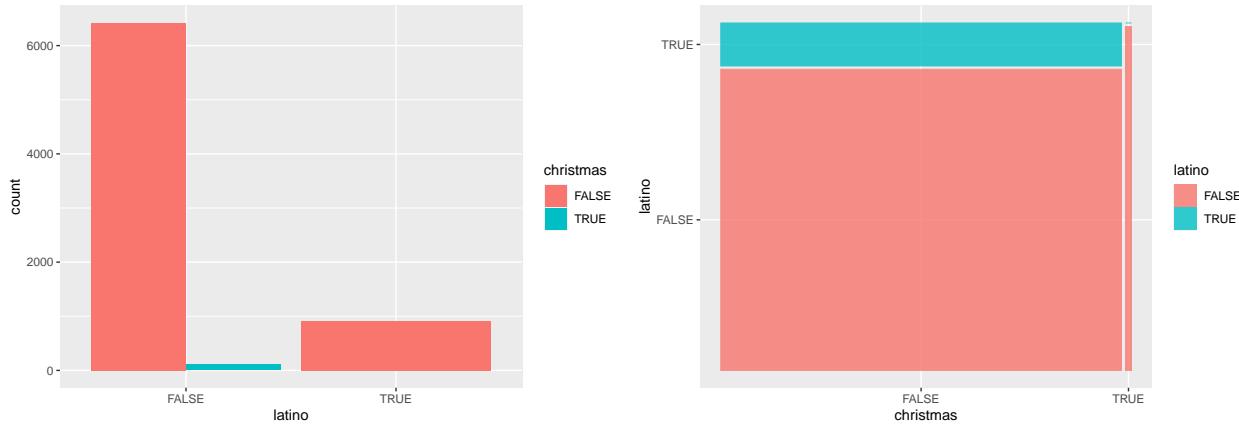
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 26.924, df = 1, p-value = 2.116e-07

```

[1] "latino and christmas"



```

      FALSE  TRUE
FALSE  6418   108
TRUE    916    0
[1] "Chi-square test for latino and christmas"

```

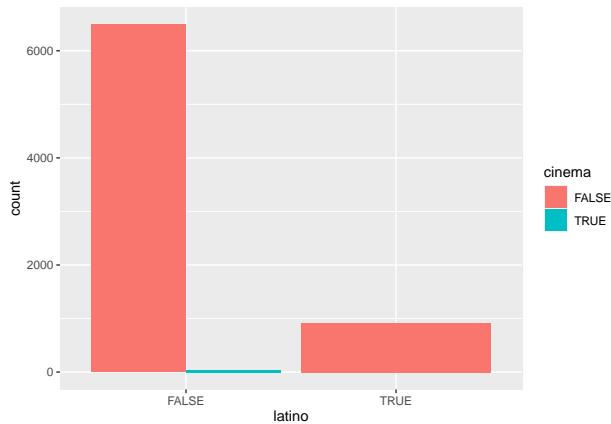
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 15.382, df = 1, p-value = 8.781e-05

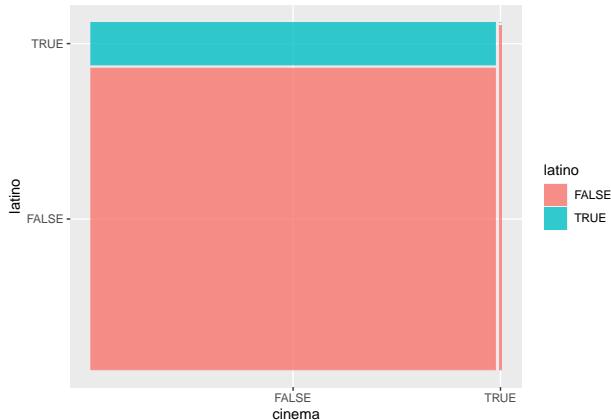
```

[1] "latino and cinema"



	FALSE	TRUE
FALSE	6488	38
TRUE	916	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

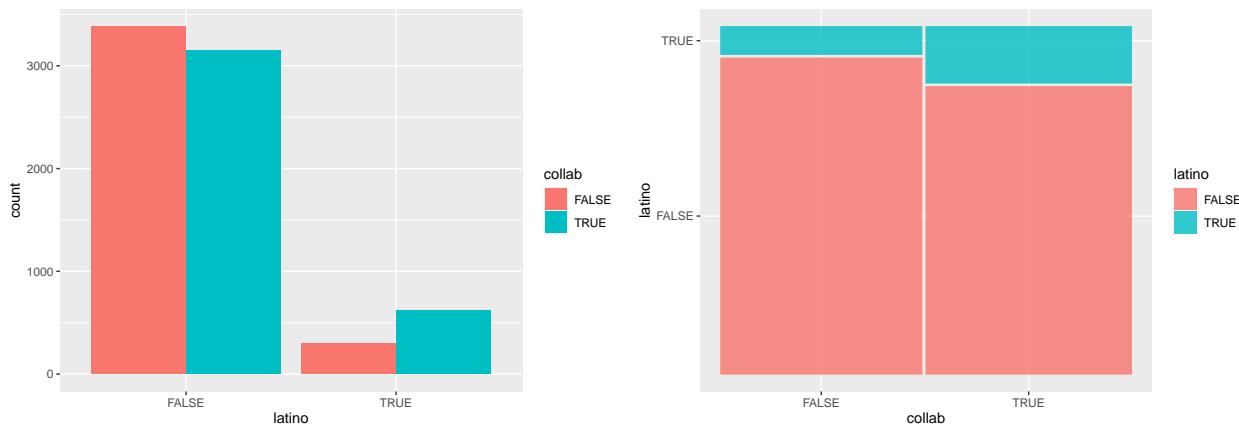


[1] "Chi-square test for latino and cinema"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 5.3611, df = 1, p-value = 0.02059
```

[1] "latino and collab"



```

      FALSE  TRUE
FALSE   3381 3145
TRUE     300  616
[1] "Chi-square test for latino and collab"

```

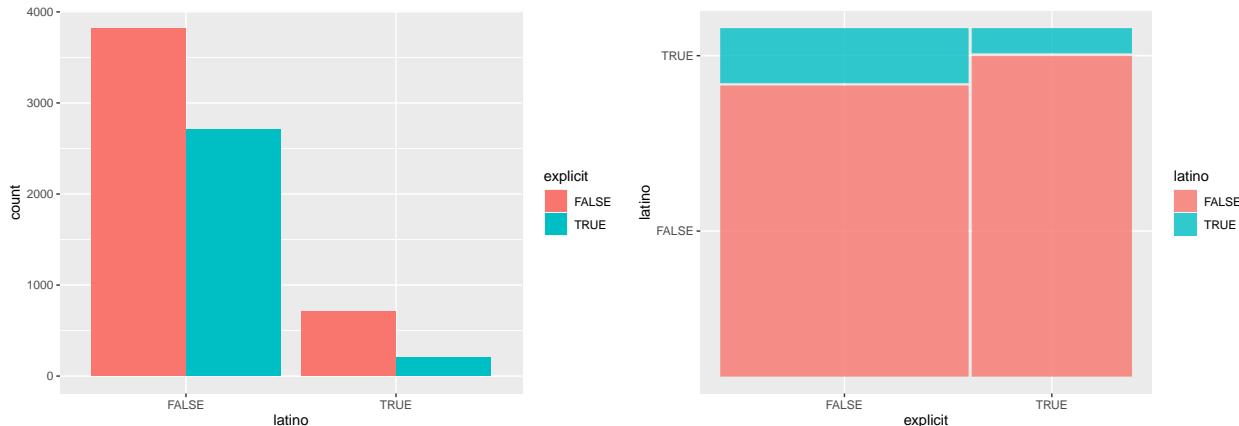
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 116.7, df = 1, p-value < 2.2e-16

```

[1] "latino and explicit"



```

      FALSE  TRUE
FALSE   3816 2710
TRUE     711  205
[1] "Chi-square test for latino and explicit"

```

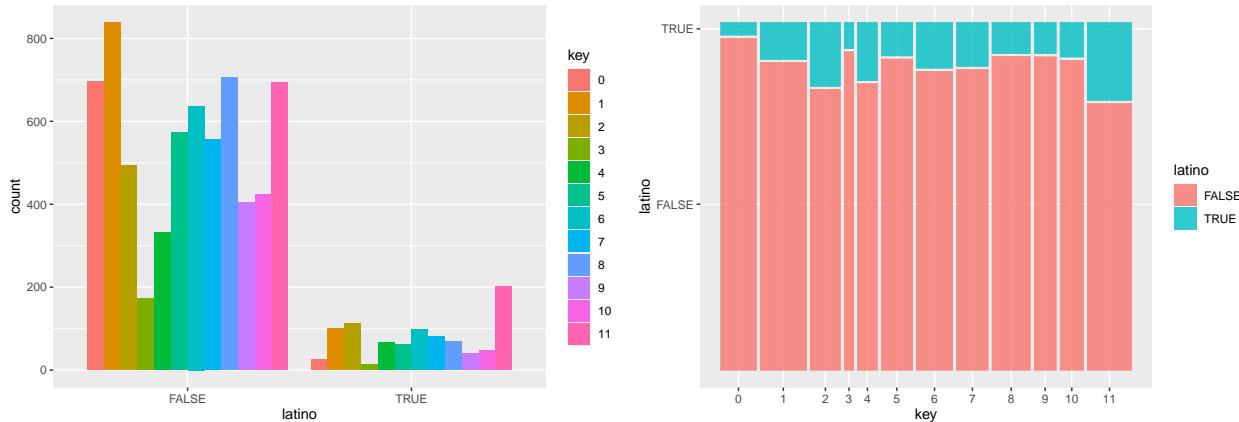
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 123.58, df = 1, p-value < 2.2e-16

```

[1] "latino and key"



```

0   1   2   3   4   5   6   7   8   9   10  11
FALSE 696 838 494 172 332 573 637 557 705 405 424 693
TRUE   26  100 112 14   67  61  97  81  69  40  47  202
[1] "Chi-square test for latino and key"

```

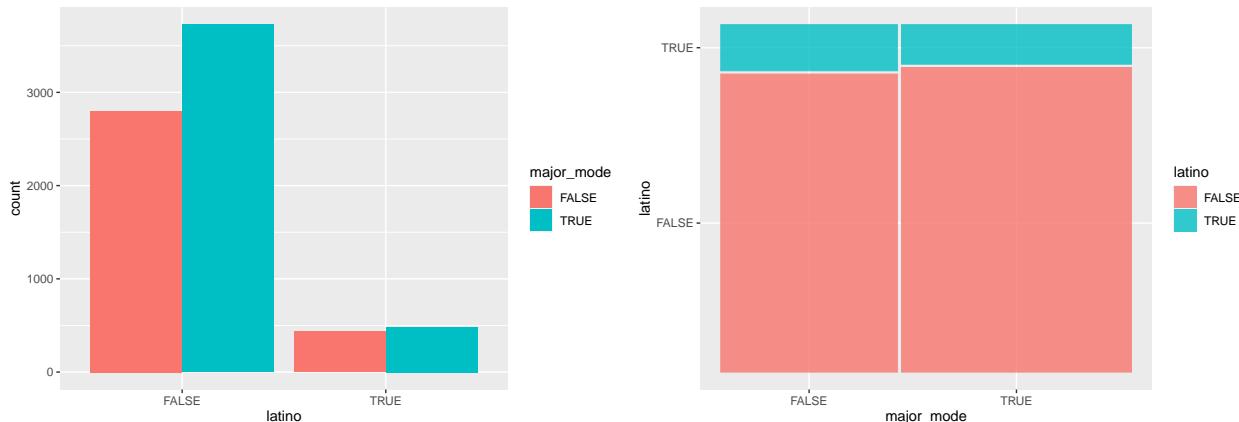
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 193.21, df = 11, p-value < 2.2e-16

```

```
[1] "latino and major_mode"
```



```

FALSE  TRUE
FALSE  2800 3726
TRUE    433  483
[1] "Chi-square test for latino and major_mode"

```

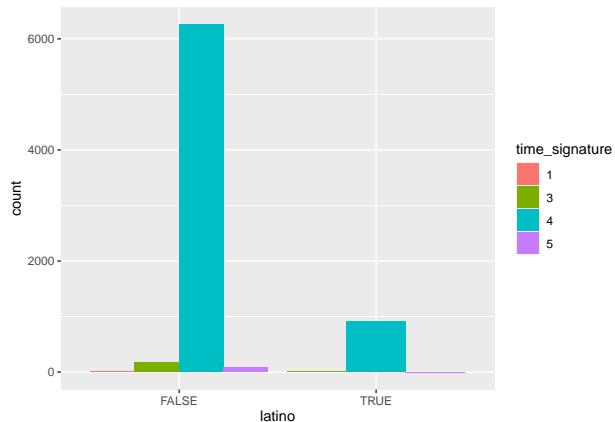
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 6.2302, df = 1, p-value = 0.01256

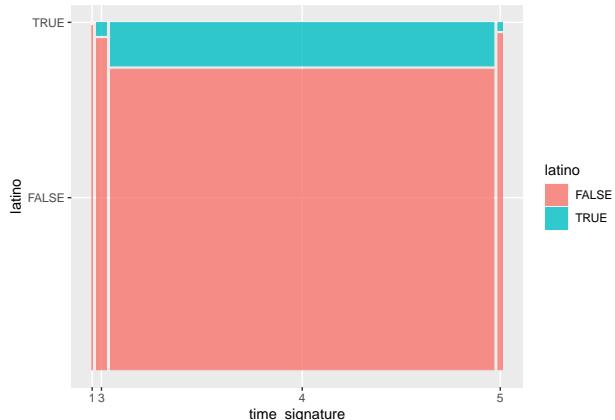
```

```
[1] "latino and time_signature"
```



	1	3	4	5
FALSE	10	178	6255	83
TRUE	0	7	907	2

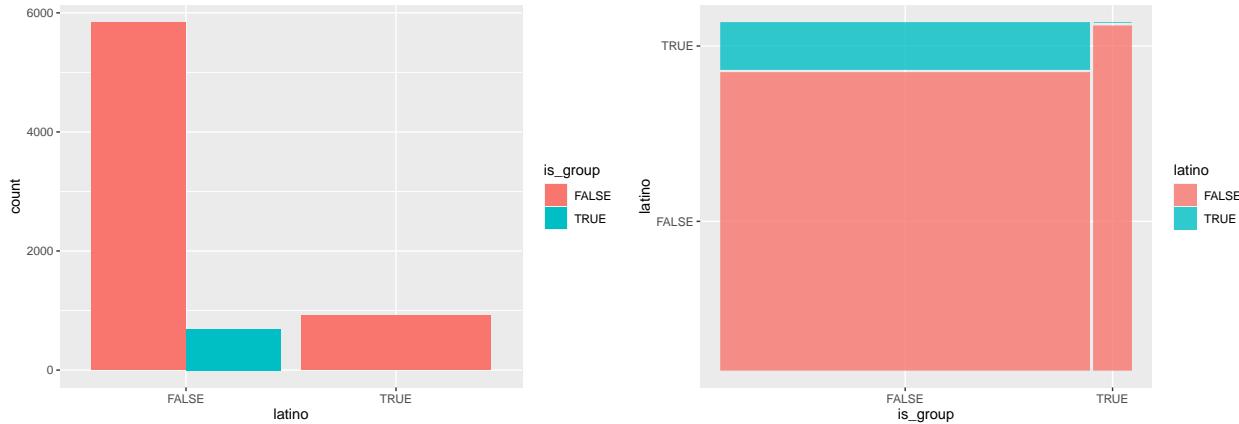
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect



```
[1] "Chi-square test for latino and time_signature"
Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 22.503, df = 3, p-value = 5.125e-05

[1] "latino and is_group"
```



```

      FALSE  TRUE
FALSE  5835   691
TRUE    916    0
[1] "Chi-square test for latino and is_group"

```

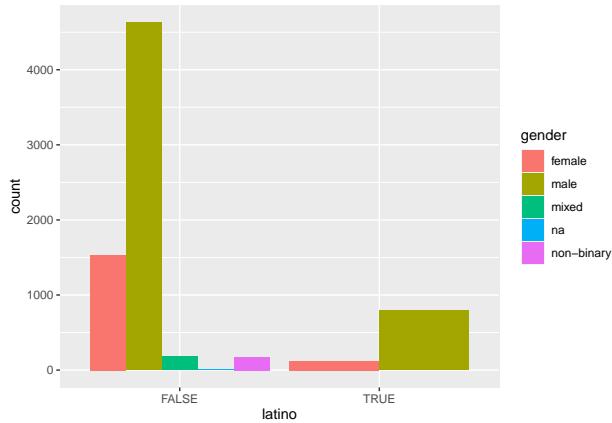
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 106.92, df = 1, p-value < 2.2e-16

```

[1] "latino and gender"

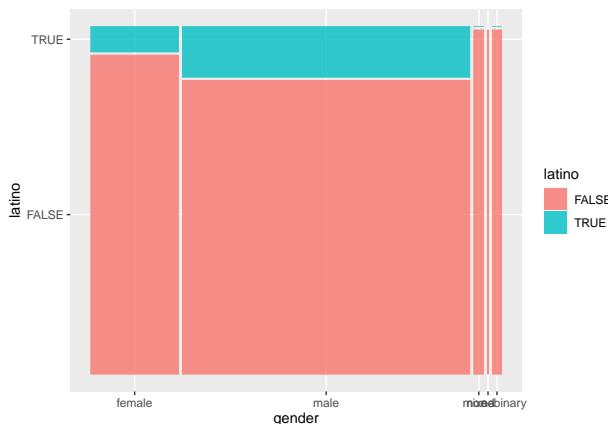


	female	male	mixed	na	non-binary
FALSE	1532	4627	185	8	174
TRUE	121	795	0	0	0

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared
approximation may be incorrect

```

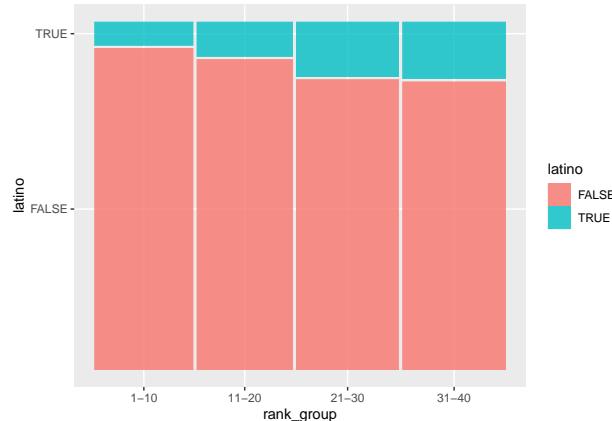
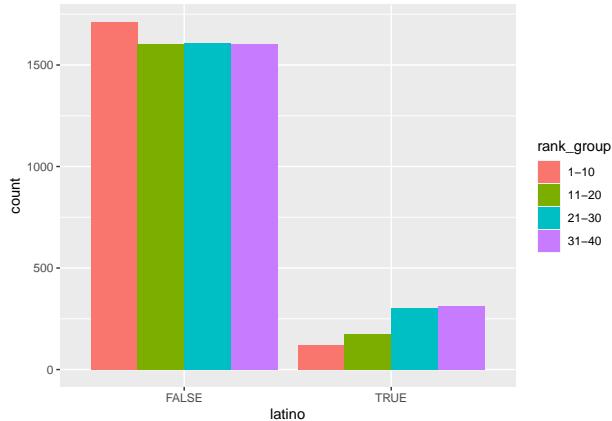


[1] "Chi-square test for latino and gender"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 117.46, df = 4, p-value < 2.2e-16
```

[1] "latino and rank_group"



1-10 11-20 21-30 31-40

FALSE 1711 1605 1607 1603

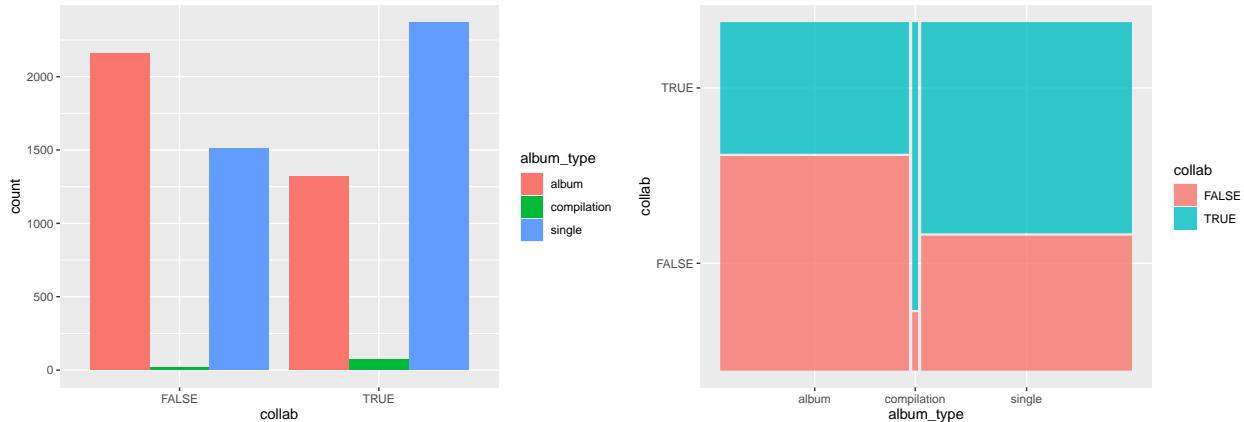
TRUE 123 177 301 315

[1] "Chi-square test for latino and rank_group"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 113.98, df = 3, p-value < 2.2e-16
```

[1] "collab and album_type"



```

  album  compilation  single
FALSE    2157          15     1509
TRUE     1318          75     2368
[1] "Chi-square test for collab and album_type"

```

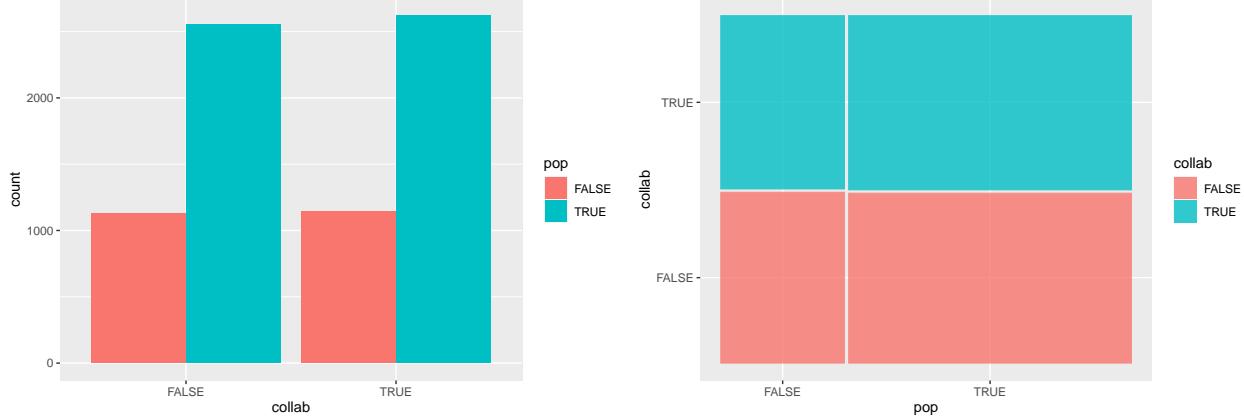
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 432.08, df = 2, p-value < 2.2e-16

```

```
[1] "collab and pop"
```



```

  FALSE  TRUE
FALSE   1125  2556
TRUE    1141  2620
[1] "Chi-square test for collab and pop"

```

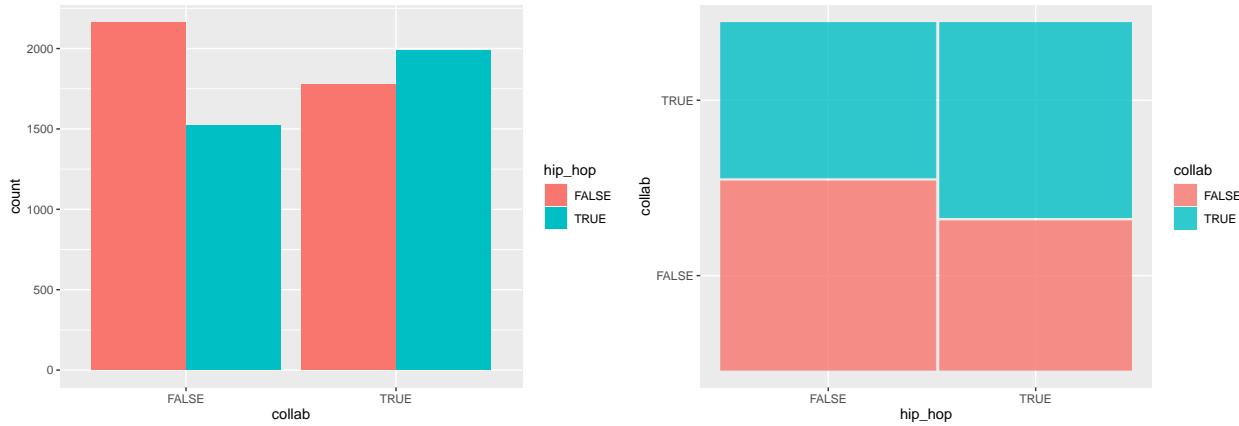
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 0.04434, df = 1, p-value = 0.8332

```

```
[1] "collab and hip_hop"
```



```

      FALSE  TRUE
FALSE  2161 1520
TRUE   1774 1987
[1] "Chi-square test for collab and hip_hop"

```

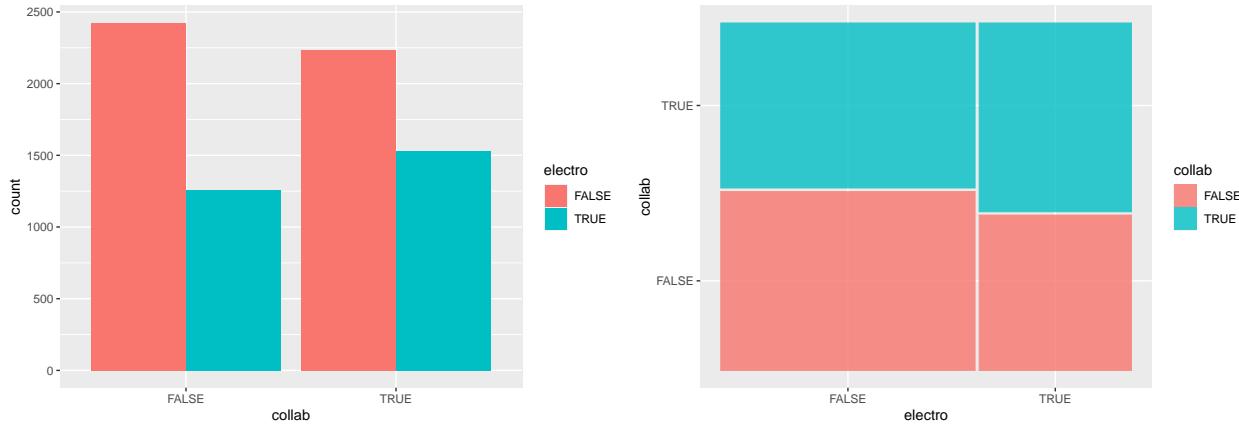
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 99.399, df = 1, p-value < 2.2e-16

```

[1] "collab and electro"



```

      FALSE  TRUE
FALSE  2423 1258
TRUE   2232 1529
[1] "Chi-square test for collab and electro"

```

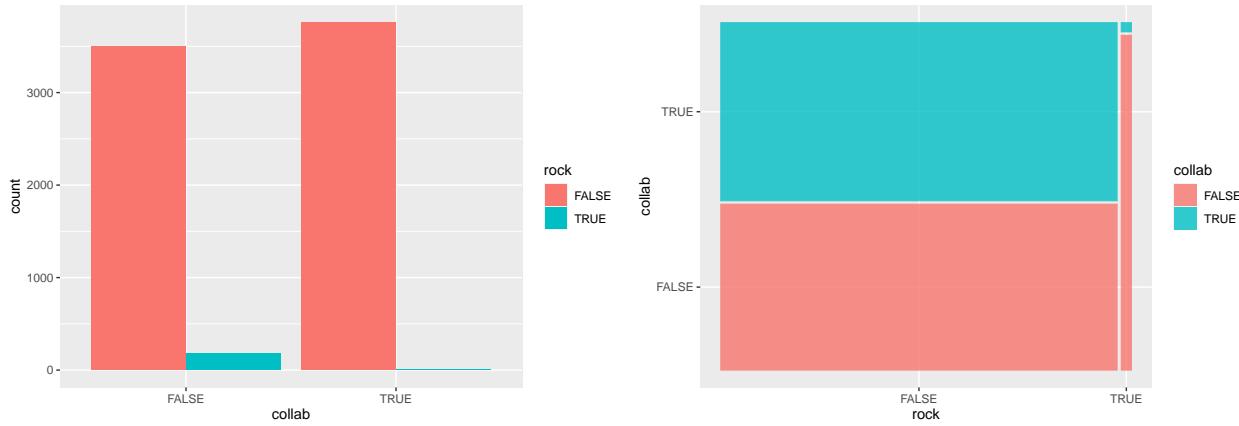
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 33.332, df = 1, p-value = 7.769e-09

```

[1] "collab and rock"



```

      FALSE  TRUE
FALSE  3499   182
TRUE   3756    5
[1] "Chi-square test for collab and rock"

```

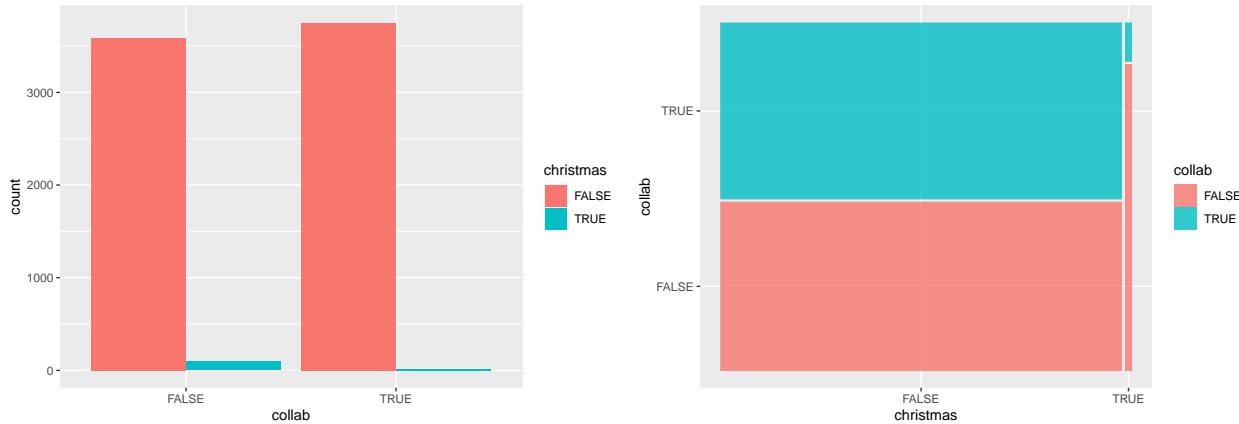
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 175.8, df = 1, p-value < 2.2e-16

```

[1] "collab and christmas"



```

      FALSE  TRUE
FALSE  3585   96
TRUE   3749   12
[1] "Chi-square test for collab and christmas"

```

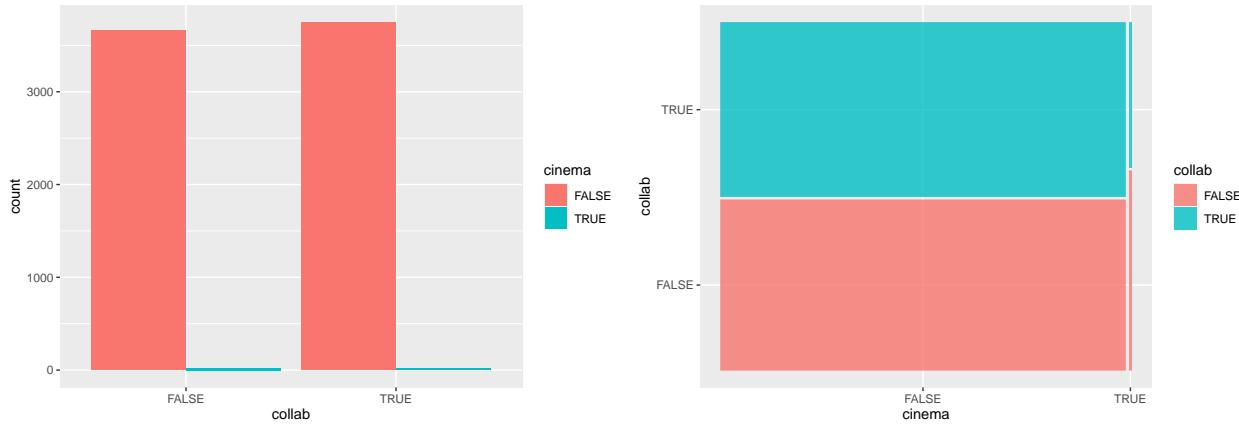
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 68.149, df = 1, p-value < 2.2e-16

```

[1] "collab and cinema"



```

      FALSE  TRUE
FALSE  3659   22
TRUE   3745   16
[1] "Chi-square test for collab and cinema"

```

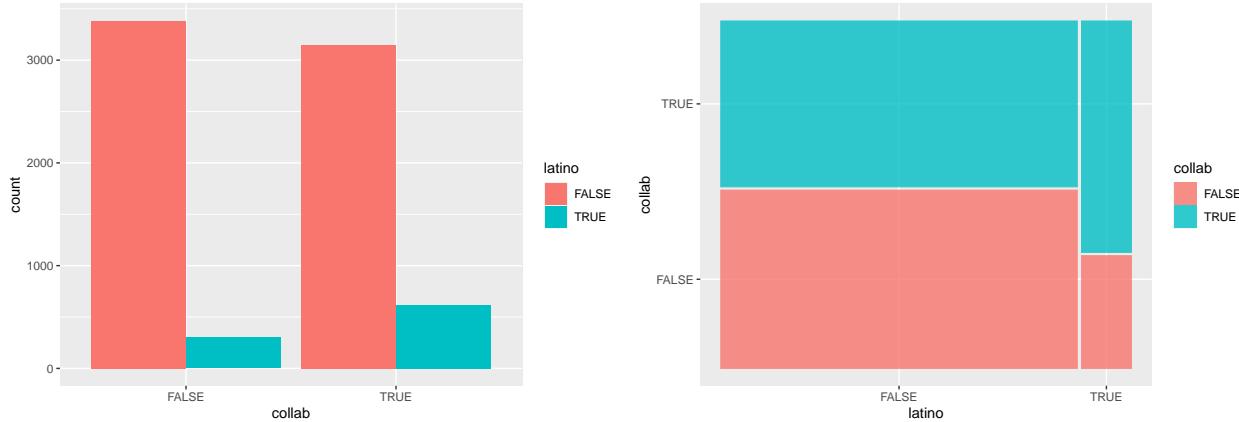
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 1.0864, df = 1, p-value = 0.2973

```

```
[1] "collab and latino"
```



```

      FALSE  TRUE
FALSE  3381   300
TRUE   3145   616
[1] "Chi-square test for collab and latino"

```

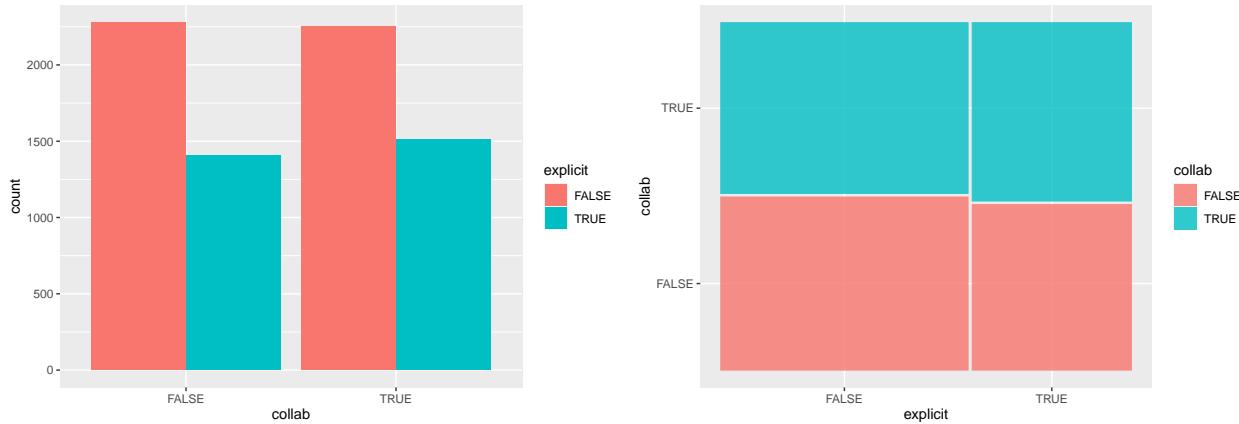
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 116.7, df = 1, p-value < 2.2e-16

```

```
[1] "collab and explicit"
```



```

      FALSE  TRUE
FALSE  2277 1404
TRUE   2250 1511
[1] "Chi-square test for collab and explicit"

```

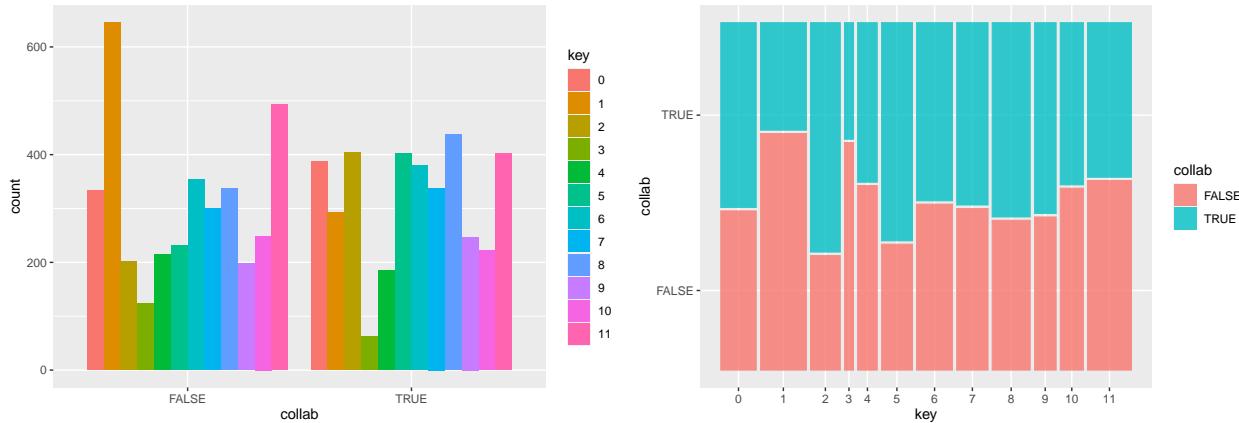
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 3.229, df = 1, p-value = 0.07234

```

```
[1] "collab and key"
```



```

      0   1   2   3   4   5   6   7   8   9   10  11
FALSE 334 645 202 123 214 232 354 300 337 198 249 493
TRUE  388 293 404  63 185 402 380 338 437 247 222 402
[1] "Chi-square test for collab and key"

```

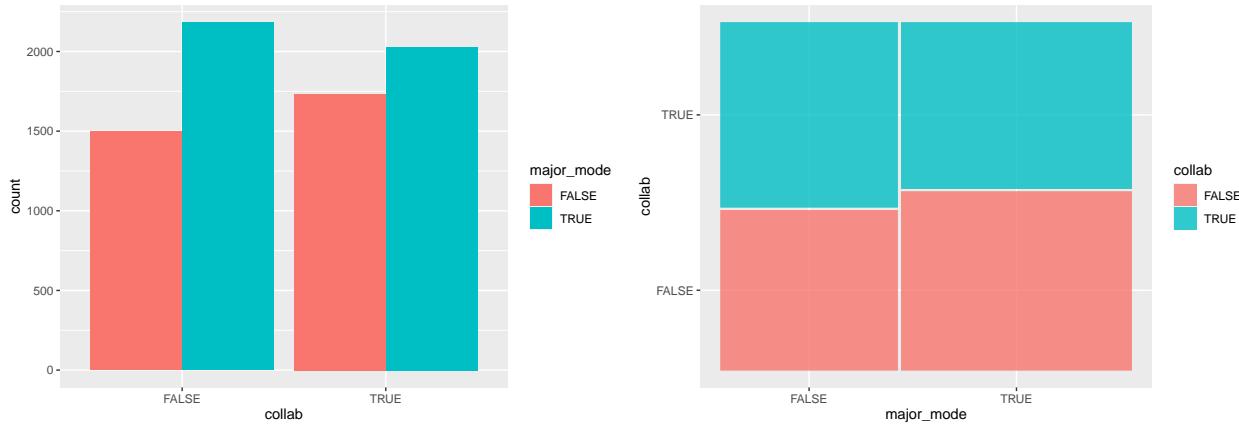
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 301.99, df = 11, p-value < 2.2e-16

```

```
[1] "collab and major_mode"
```



```

      FALSE  TRUE
FALSE   1500 2181
TRUE    1733 2028
[1] "Chi-square test for collab and major_mode"

```

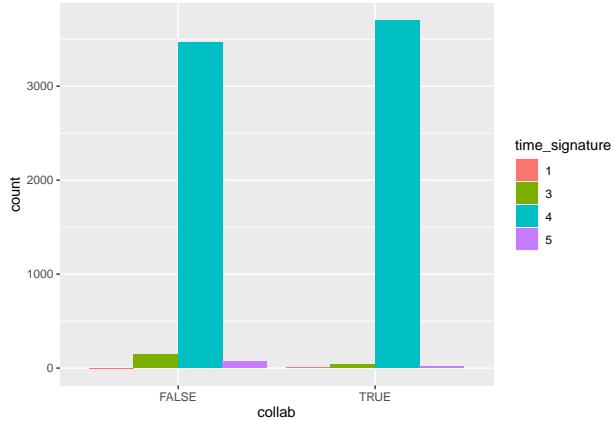
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 21.496, df = 1, p-value = 3.545e-06

```

[1] "collab and time_signature"

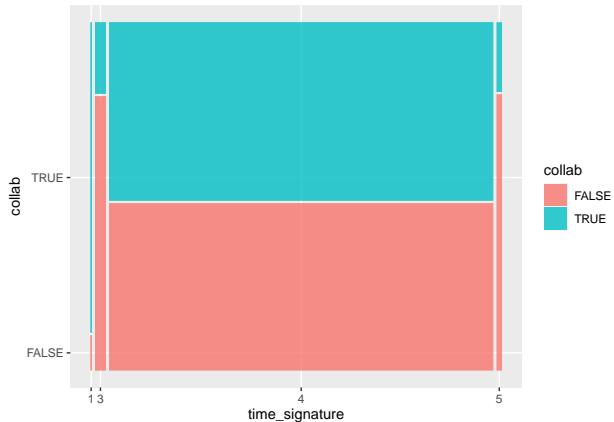


	1	3	4	5
FALSE	1	147	3465	68
TRUE	9	38	3697	17

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared
approximation may be incorrect

```

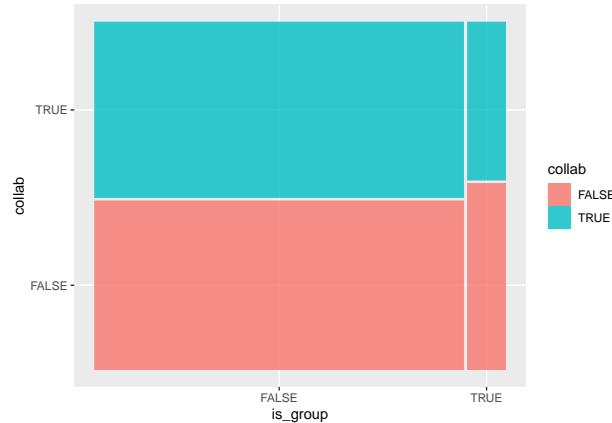
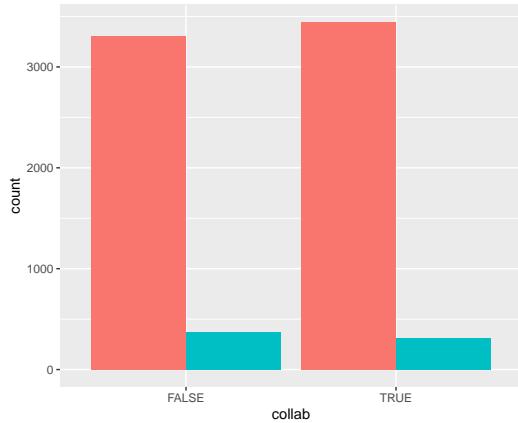


```
[1] "Chi-square test for collab and time_signature"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 107.89, df = 3, p-value < 2.2e-16
```

```
[1] "collab and is_group"
```



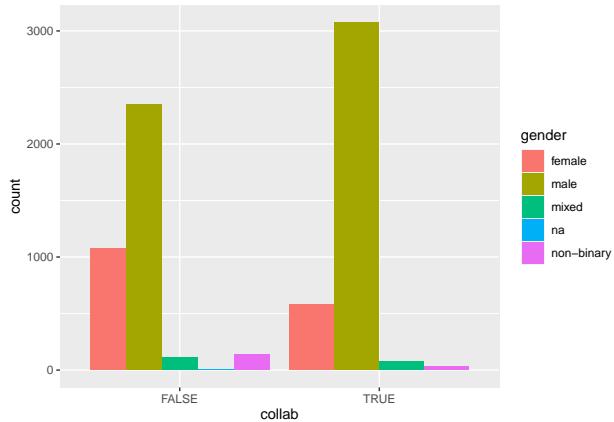
	FALSE	TRUE
FALSE	3307	374
TRUE	3444	317

```
[1] "Chi-square test for collab and is_group"
```

Pearson's Chi-squared test

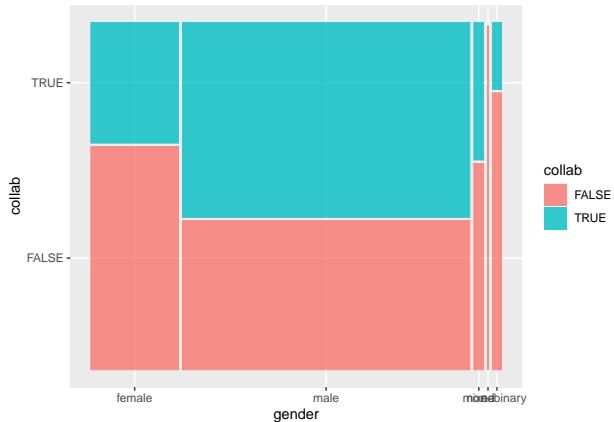
```
data: table(cat_var1, cat_var2)
X-squared = 6.6228, df = 1, p-value = 0.01007
```

```
[1] "collab and gender"
```



	female	male	mixed	na	non-binary
FALSE	1073	2349	111	8	140
TRUE	580	3073	74	0	34

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

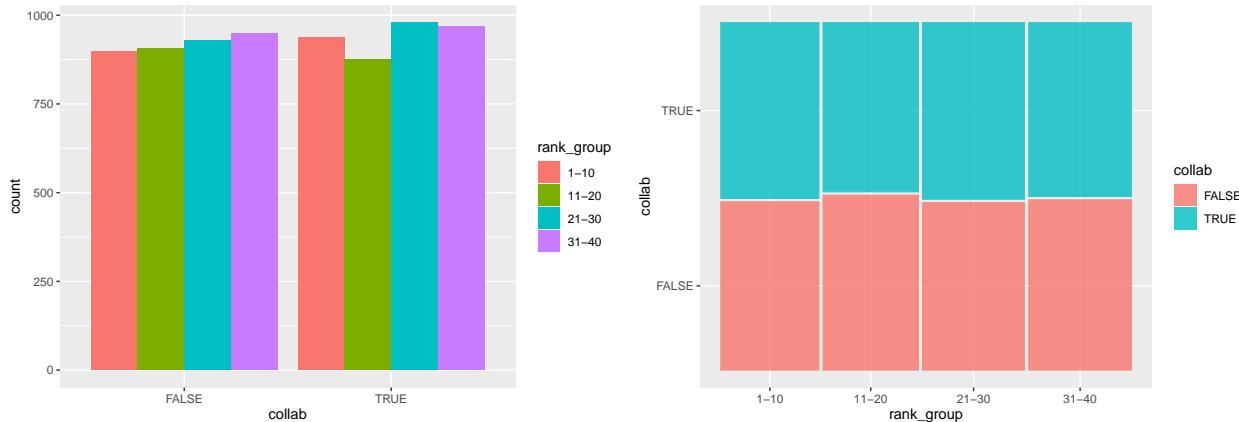


[1] "Chi-square test for collab and gender"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 322.86, df = 4, p-value < 2.2e-16
```

[1] "collab and rank_group"



```

1-10 11-20 21-30 31-40
FALSE 897    906    929    949
TRUE   937    876    979    969
[1] "Chi-square test for collab and rank_group"

```

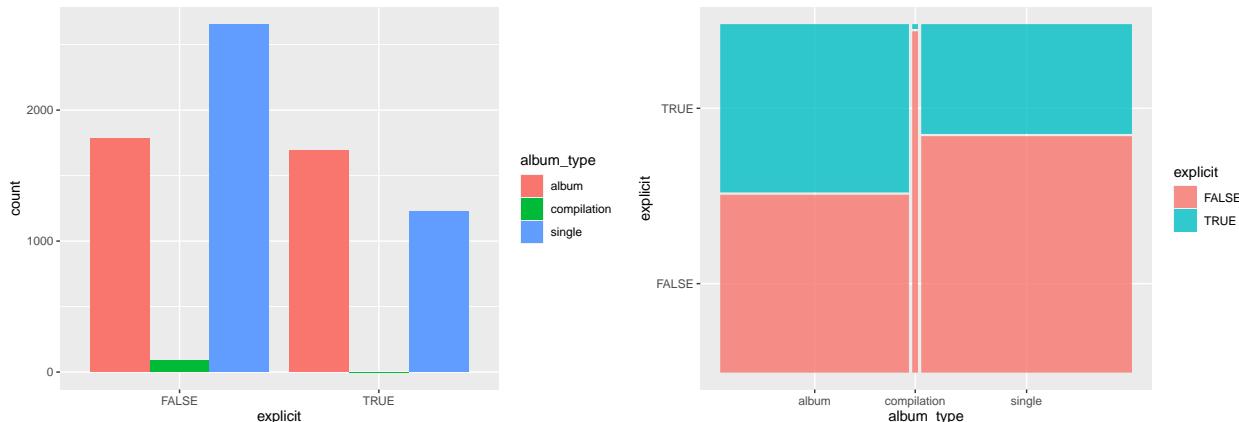
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 2.0365, df = 3, p-value = 0.5649

```

[1] "explicit and album_type"



```

album compilation single
FALSE   1786          89     2652
TRUE    1689          1      1225
[1] "Chi-square test for explicit and album_type"

```

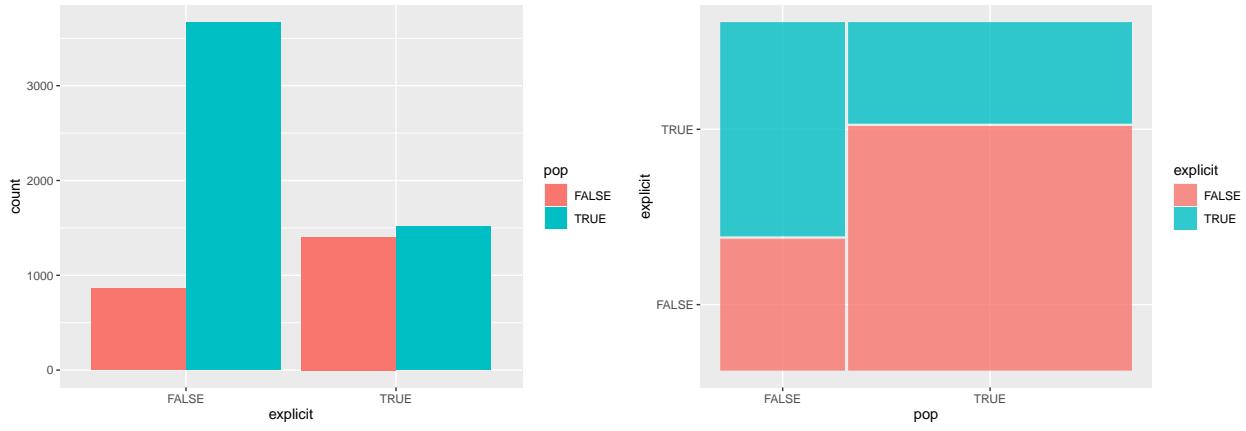
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 277.85, df = 2, p-value < 2.2e-16

```

[1] "explicit and pop"



```

      FALSE TRUE
FALSE    862 3665
TRUE     1404 1511
[1] "Chi-square test for explicit and pop"

```

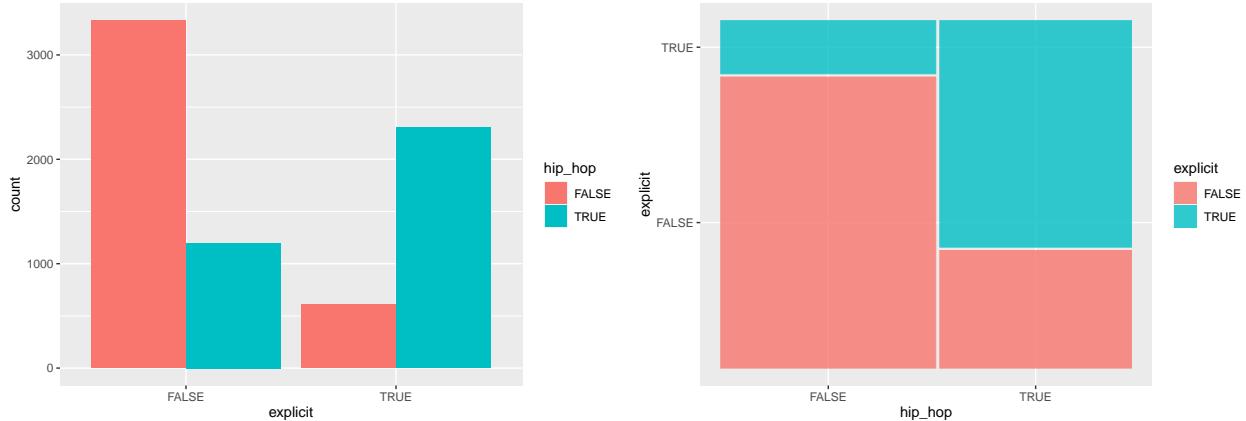
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 710.18, df = 1, p-value < 2.2e-16

```

```
[1] "explicit and hip_hop"
```



```

      FALSE TRUE
FALSE   3328 1199
TRUE     607 2308
[1] "Chi-square test for explicit and hip_hop"

```

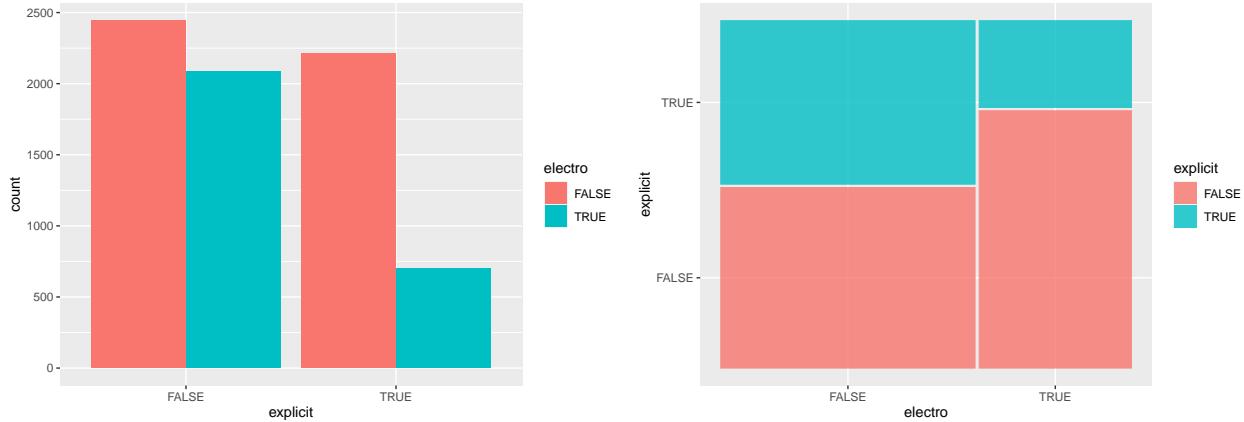
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1975.8, df = 1, p-value < 2.2e-16

```

```
[1] "explicit and electro"
```



```

      FALSE  TRUE
FALSE  2443 2084
TRUE   2212  703
[1] "Chi-square test for explicit and electro"

```

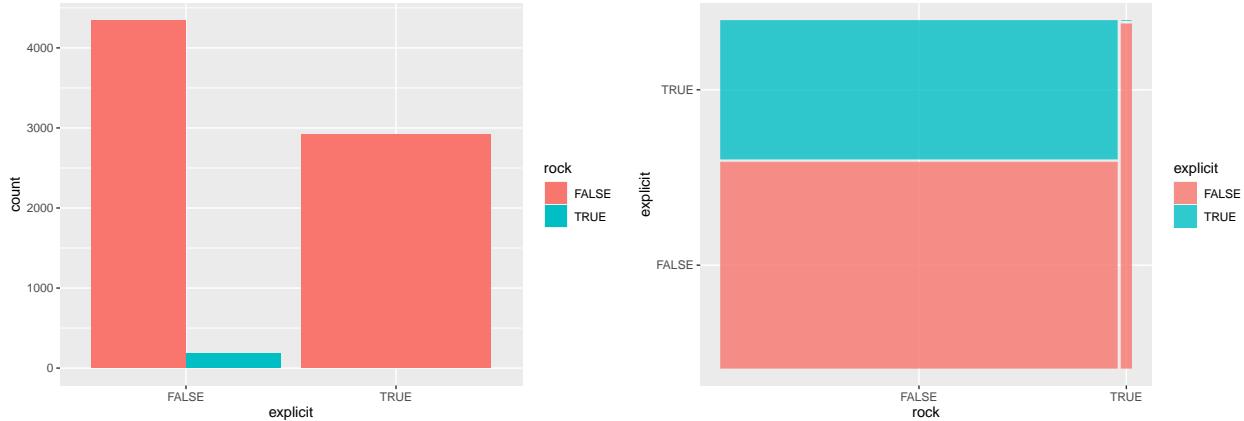
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 363.66, df = 1, p-value < 2.2e-16

```

```
[1] "explicit and rock"
```



```

      FALSE  TRUE
FALSE  4340 187
TRUE   2915  0
[1] "Chi-square test for explicit and rock"

```

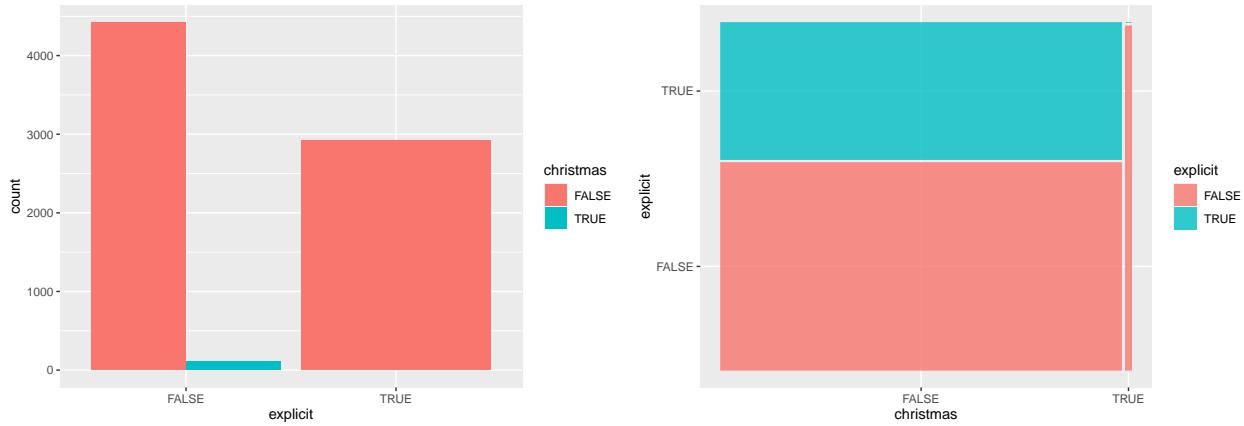
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 123.52, df = 1, p-value < 2.2e-16

```

```
[1] "explicit and christmas"
```



```

      FALSE  TRUE
FALSE  4419   108
TRUE   2915    0
[1] "Chi-square test for explicit and christmas"

```

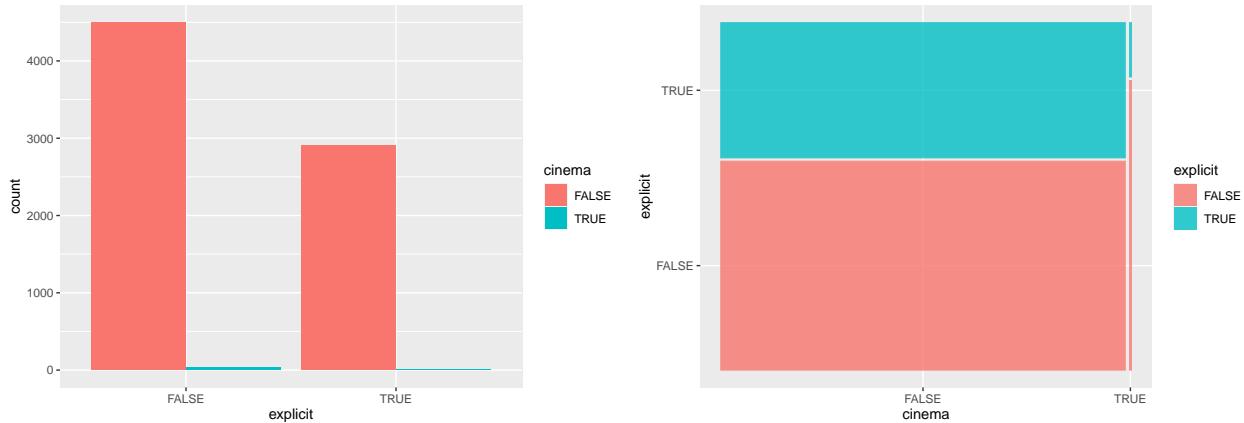
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 70.567, df = 1, p-value < 2.2e-16

```

[1] "explicit and cinema"



```

      FALSE  TRUE
FALSE  4495   32
TRUE   2909    6
[1] "Chi-square test for explicit and cinema"

```

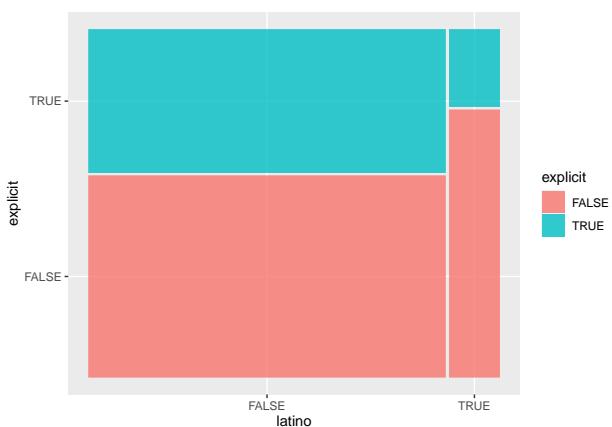
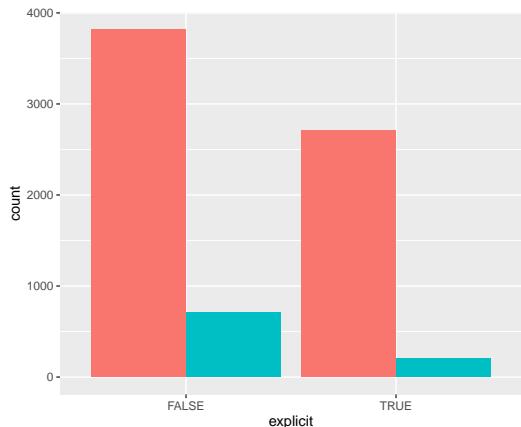
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 8.7625, df = 1, p-value = 0.003075

```

[1] "explicit and latino"



```

      FALSE  TRUE
FALSE   3816  711
TRUE    2710  205
[1] "Chi-square test for explicit and latino"

```

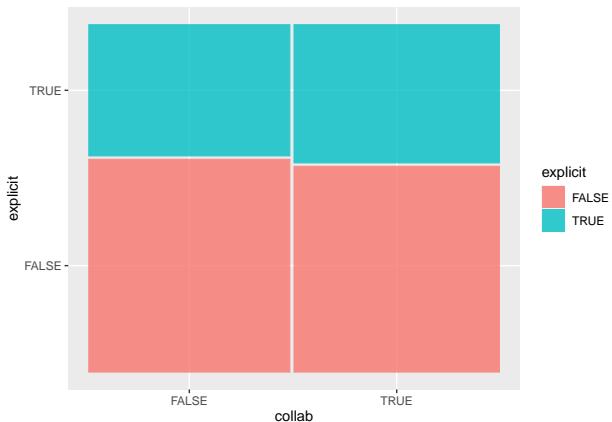
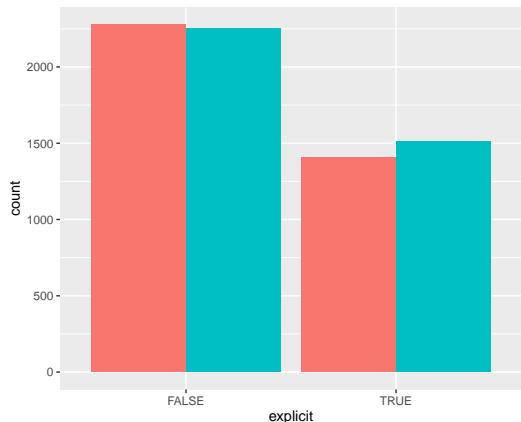
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 123.58, df = 1, p-value < 2.2e-16

```

```
[1] "explicit and collab"
```



```

      FALSE  TRUE
FALSE   2277  2250
TRUE    1404  1511
[1] "Chi-square test for explicit and collab"

```

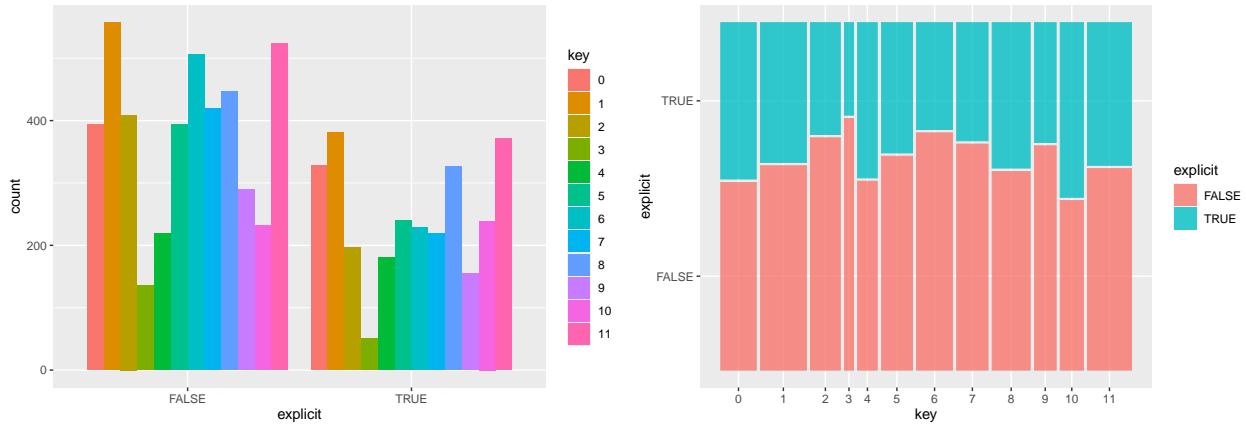
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 3.229, df = 1, p-value = 0.07234

```

```
[1] "explicit and key"
```



```

0   1   2   3   4   5   6   7   8   9   10  11
FALSE 394 557 409 136 219 394 506 419 447 290 232 524
TRUE  328 381 197 50 180 240 228 219 327 155 239 371
[1] "Chi-square test for explicit and key"

```

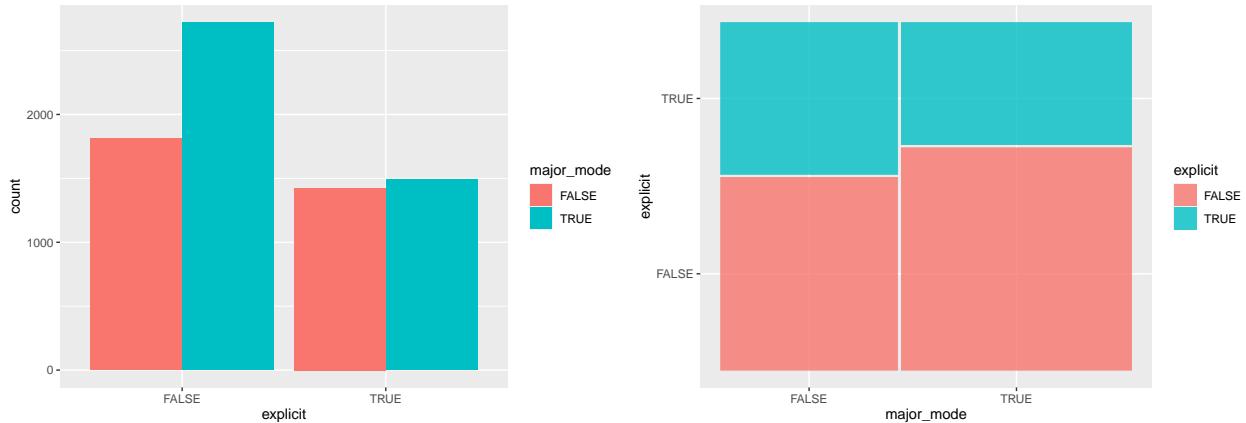
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 103.7, df = 11, p-value < 2.2e-16

```

```
[1] "explicit and major_mode"
```



```

FALSE  TRUE
FALSE  1809 2718
TRUE   1424 1491
[1] "Chi-square test for explicit and major_mode"

```

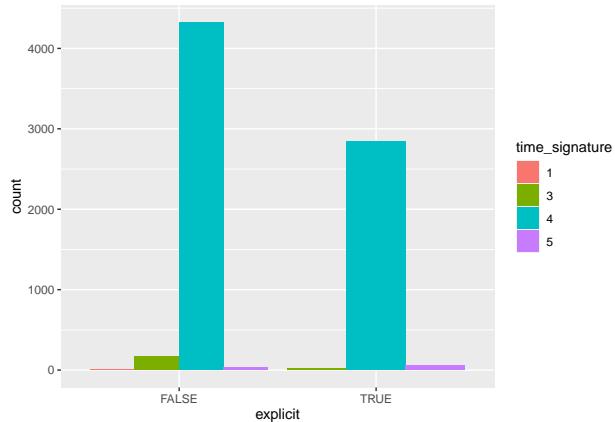
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 57.044, df = 1, p-value = 4.262e-14

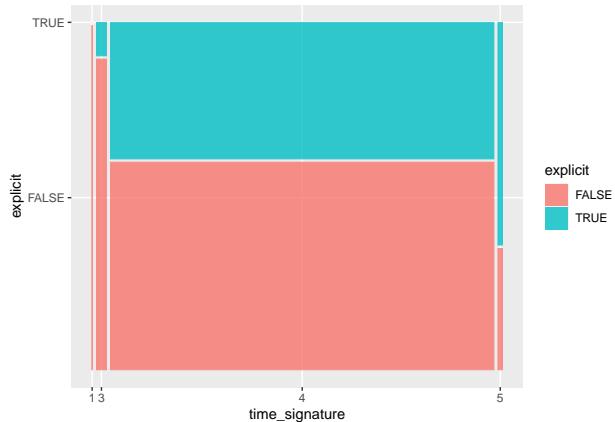
```

```
[1] "explicit and time_signature"
```



	1	3	4	5
FALSE	10	167	4320	30
TRUE	0	18	2842	55

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

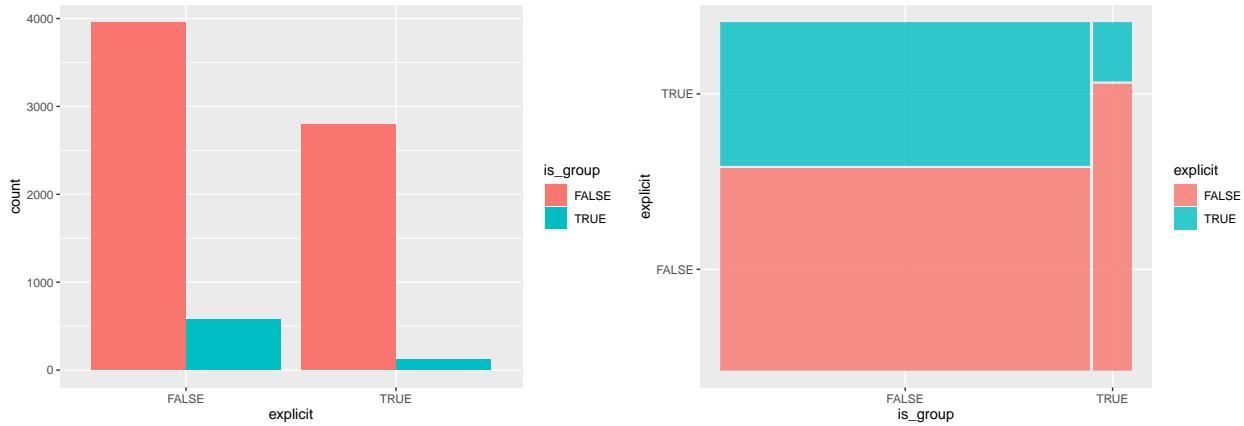


```
[1] "Chi-square test for explicit and time_signature"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 97.784, df = 3, p-value < 2.2e-16
```

```
[1] "explicit and is_group"
```



```

      FALSE  TRUE
FALSE  3953  574
TRUE   2798  117
[1] "Chi-square test for explicit and is_group"

```

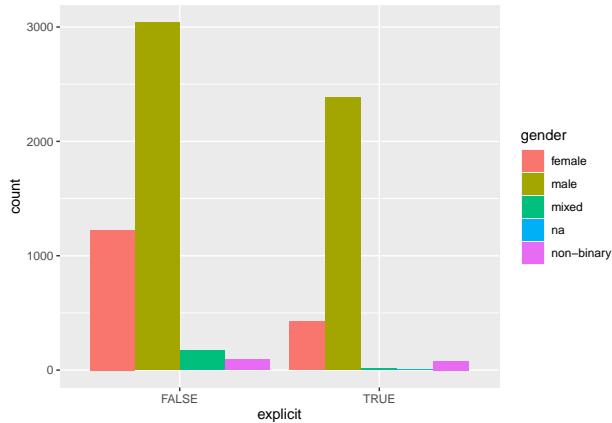
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 158.09, df = 1, p-value < 2.2e-16

```

[1] "explicit and gender"

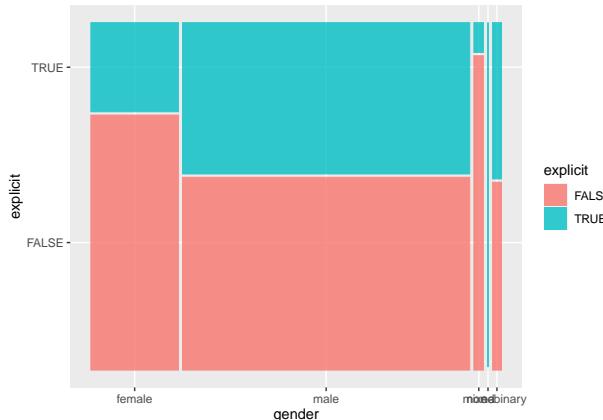


	female	male	mixed	na	non-binary
FALSE	1225	3038	169	0	95
TRUE	428	2384	16	8	79

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

```

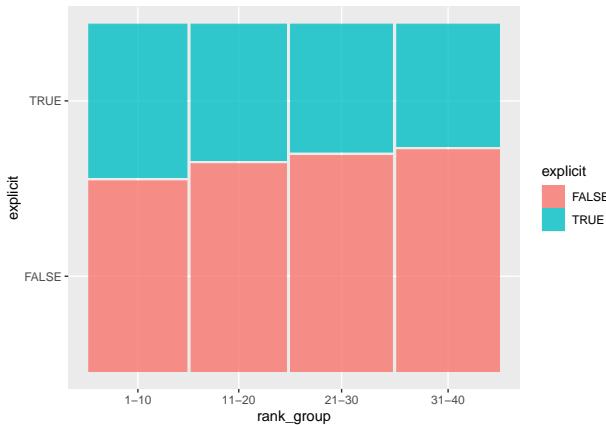
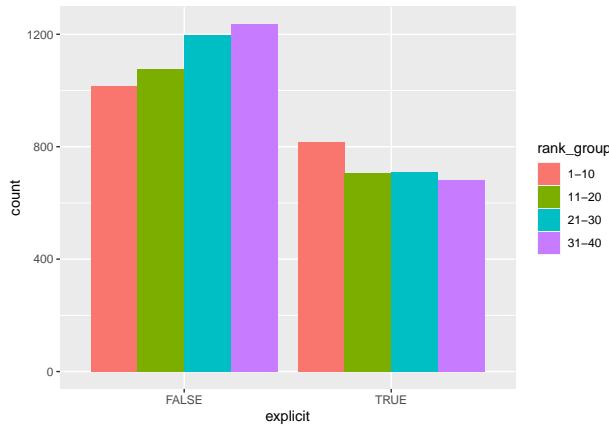


```
[1] "Chi-square test for explicit and gender"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 262.3, df = 4, p-value < 2.2e-16
```

```
[1] "explicit and rank_group"
```



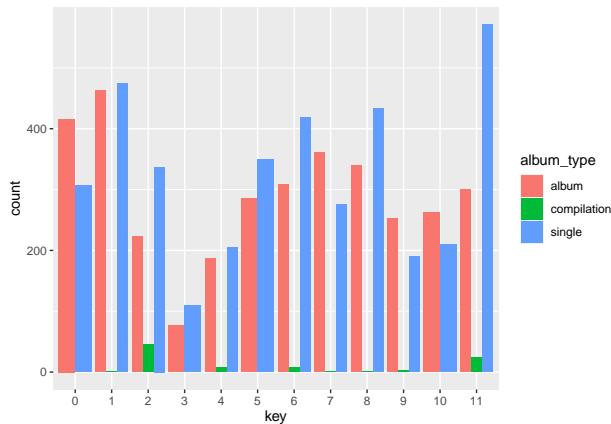
```
1-10 11-20 21-30 31-40
FALSE 1016 1076 1199 1236
TRUE 818 706 709 682
```

```
[1] "Chi-square test for explicit and rank_group"
```

Pearson's Chi-squared test

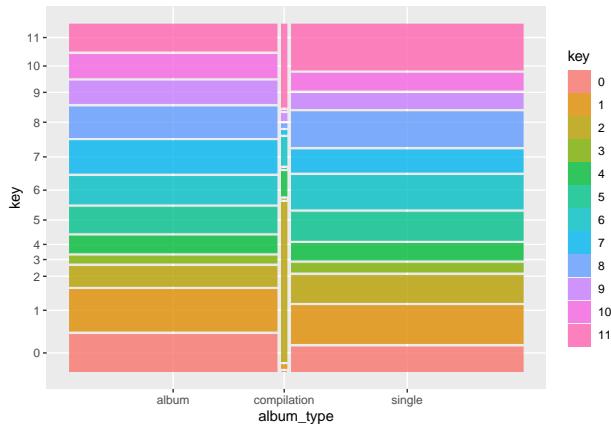
```
data: table(cat_var1, cat_var2)
X-squared = 36.602, df = 3, p-value = 5.586e-08
```

```
[1] "key and album_type"
```



	album	compilation	single
0	416	0	306
1	463	1	474
2	223	46	337
3	77	0	109
4	187	7	205
5	285	0	349
6	308	8	418
7	361	1	276
8	340	1	433
9	253	2	190
10	262	0	209
11	300	24	571

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

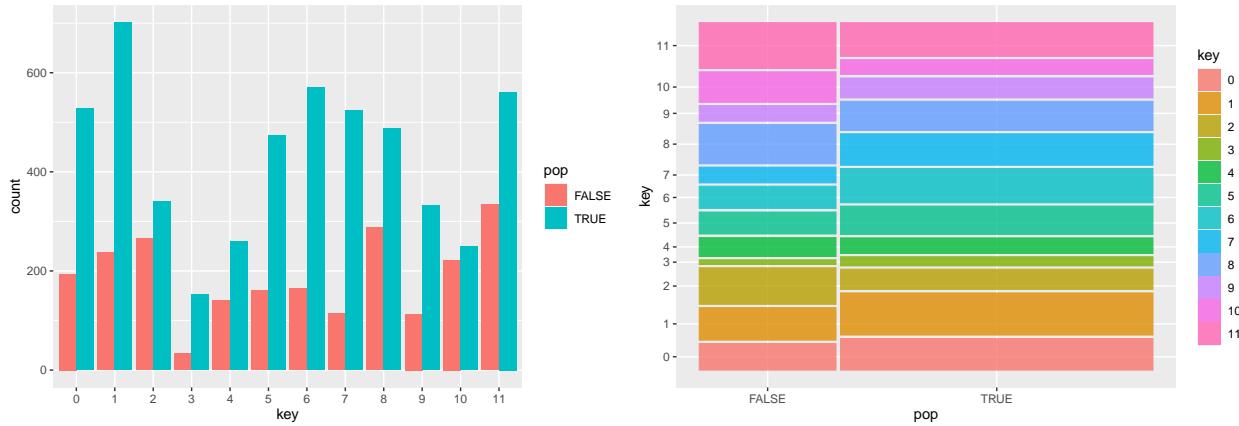


[1] "Chi-square test for key and album_type"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 442.91, df = 22, p-value < 2.2e-16
```

[1] "key and pop"



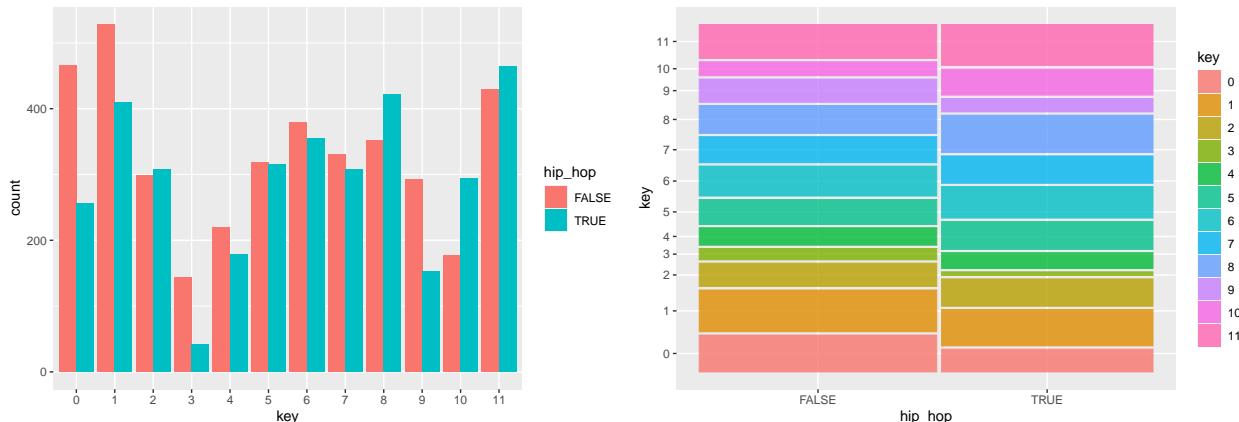
	FALSE	TRUE
0	194	528
1	237	701
2	266	340
3	34	152
4	140	259
5	160	474
6	164	570
7	115	523
8	287	487
9	113	332
10	222	249
11	334	561

```
[1] "Chi-square test for key and pop"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 265.76, df = 11, p-value < 2.2e-16
```

```
[1] "key and hip_hop"
```



	FALSE	TRUE
0	466	256

```

1    528  410
2    298  308
3    144   42
4    220  179
5    318  316
6    379  355
7    330  308
8    352  422
9    293  152
10   177  294
11   430  465
[1] "Chi-square test for key and hip_hop"

```

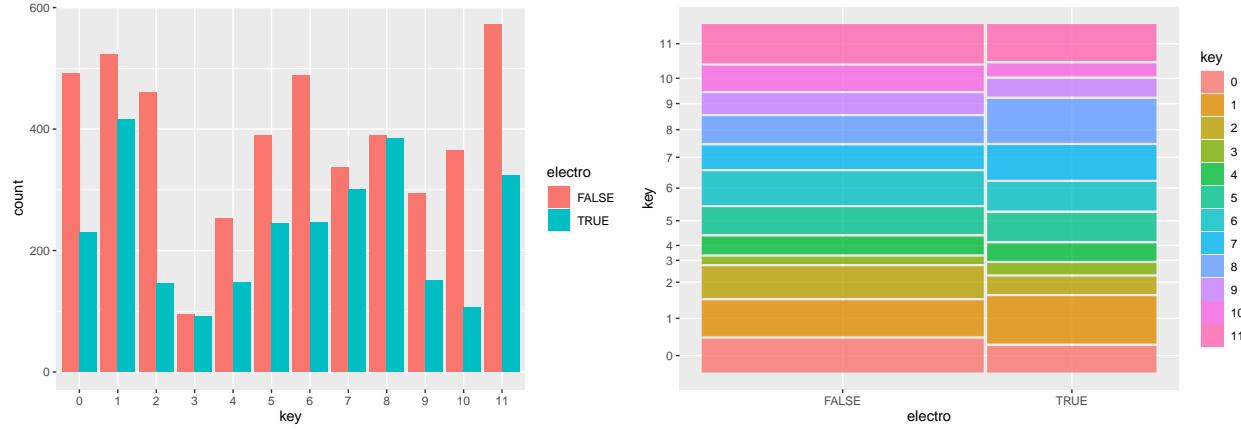
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 195.26, df = 11, p-value < 2.2e-16

```

```
[1] "key and electro"
```



	FALSE	TRUE
0	492	230
1	523	415
2	460	146
3	95	91
4	252	147
5	389	245
6	488	246
7	337	301
8	389	385
9	294	151
10	364	107
11	572	323

```
[1] "Chi-square test for key and electro"
```

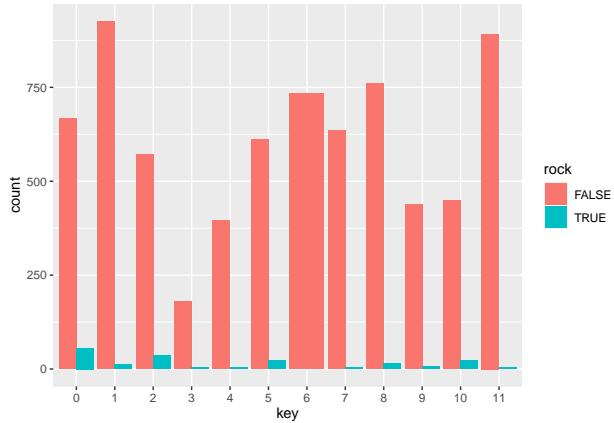
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 212.43, df = 11, p-value < 2.2e-16

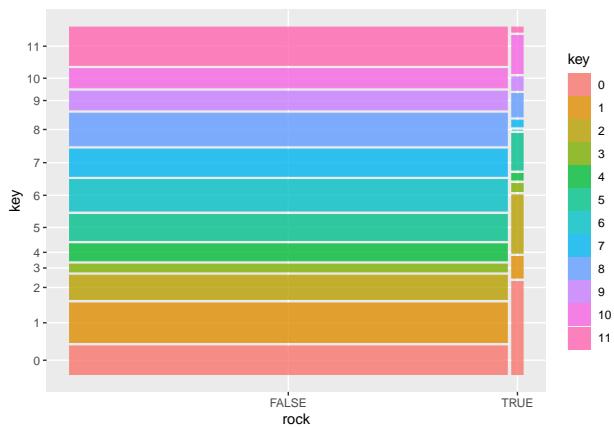
```

```
[1] "key and rock"
```



	FALSE	TRUE
0	666	56
1	925	13
2	571	35
3	181	5
4	395	4
5	612	22
6	734	0
7	634	4
8	760	14
9	437	8
10	448	23
11	892	3

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

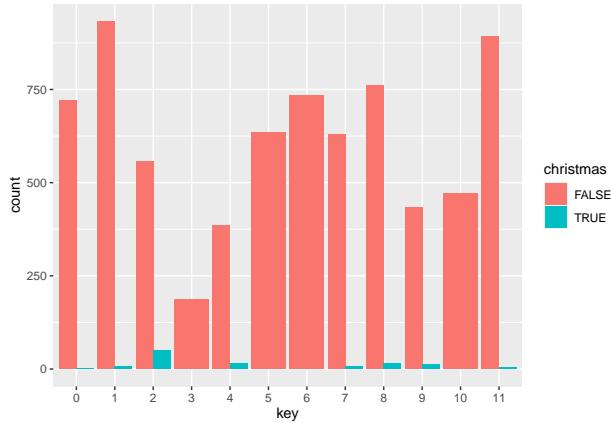


```
[1] "Chi-square test for key and rock"
```

Pearson's Chi-squared test

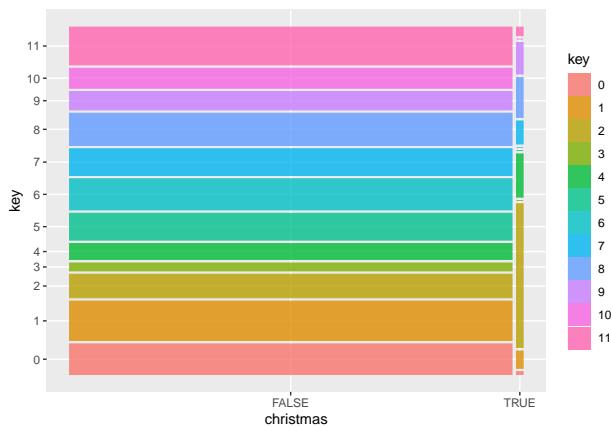
```
data: table(cat_var1, cat_var2)
X-squared = 177.15, df = 11, p-value < 2.2e-16
```

```
[1] "key and christmas"
```



	FALSE	TRUE
0	721	1
1	932	6
2	556	50
3	186	0
4	384	15
5	634	0
6	734	0
7	630	8
8	760	14
9	434	11
10	471	0
11	892	3

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

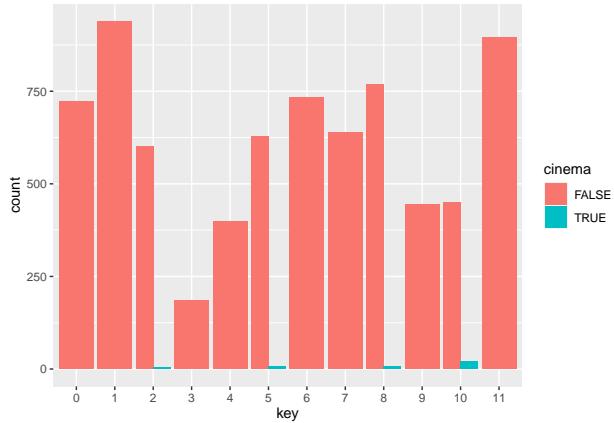


```
[1] "Chi-square test for key and christmas"
```

Pearson's Chi-squared test

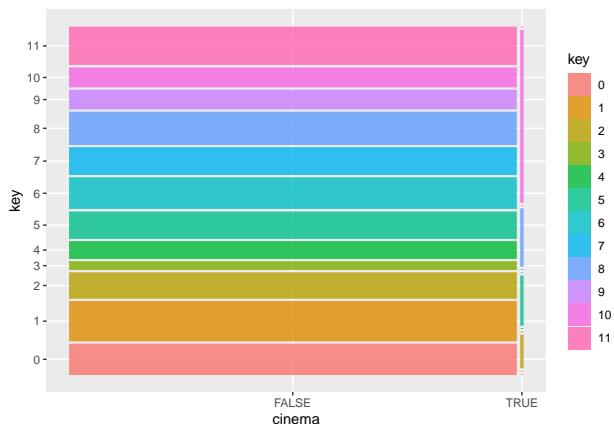
```
data: table(cat_var1, cat_var2)
X-squared = 265.51, df = 11, p-value < 2.2e-16
```

```
[1] "key and cinema"
```



	FALSE	TRUE
0	722	0
1	938	0
2	602	4
3	186	0
4	399	0
5	628	6
6	734	0
7	638	0
8	767	7
9	445	0
10	450	21
11	895	0

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

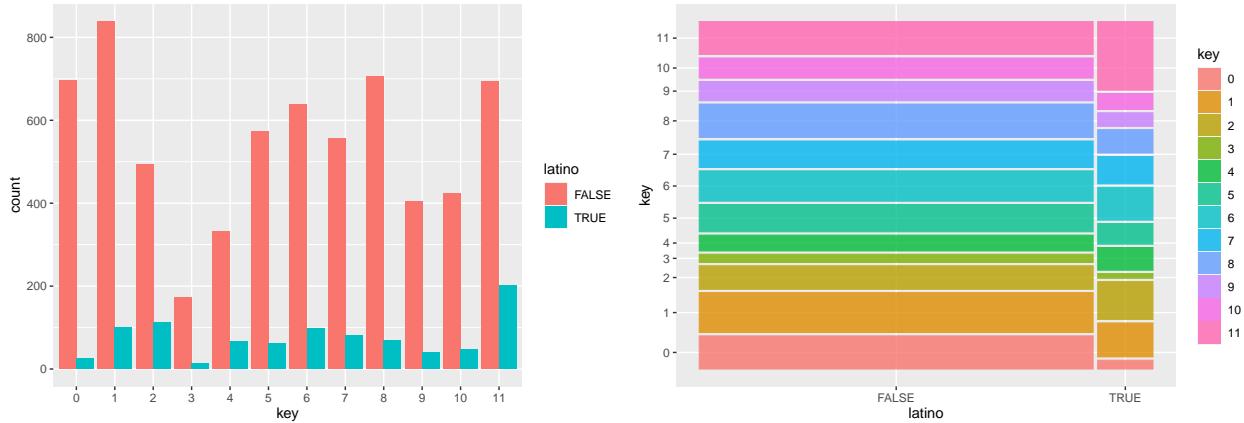


```
[1] "Chi-square test for key and cinema"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 174.95, df = 11, p-value < 2.2e-16
```

```
[1] "key and latino"
```



FALSE TRUE

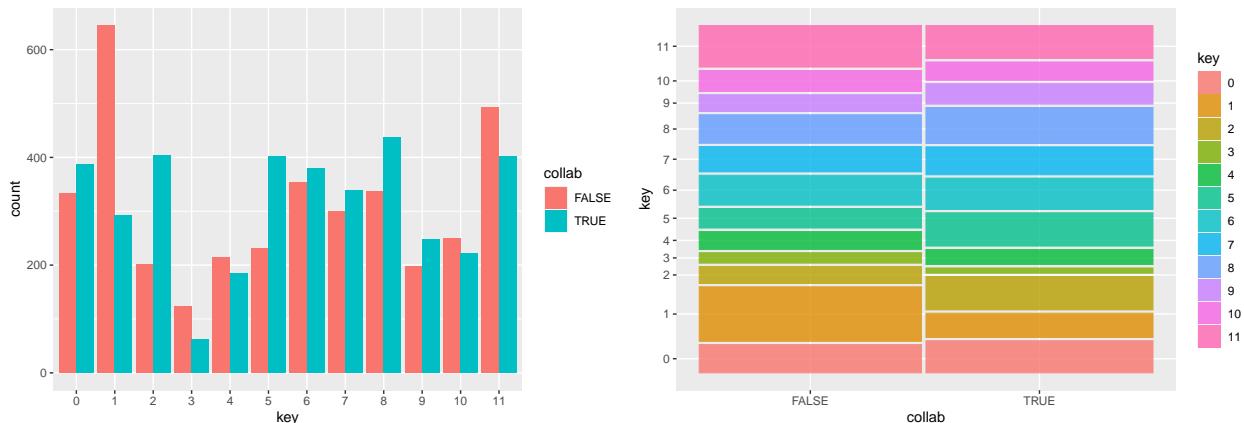
0	696	26
1	838	100
2	494	112
3	172	14
4	332	67
5	573	61
6	637	97
7	557	81
8	705	69
9	405	40
10	424	47
11	693	202

```
[1] "Chi-square test for key and latino"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 193.21, df = 11, p-value < 2.2e-16
```

```
[1] "key and collab"
```



```

FALSE TRUE
0     334  388
1     645  293
2     202  404
3     123   63
4     214  185
5     232  402
6     354  380
7     300  338
8     337  437
9     198  247
10    249  222
11    493  402

```

```
[1] "Chi-square test for key and collab"
```

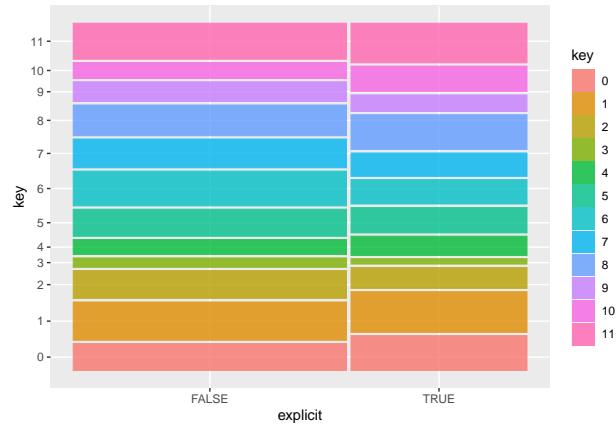
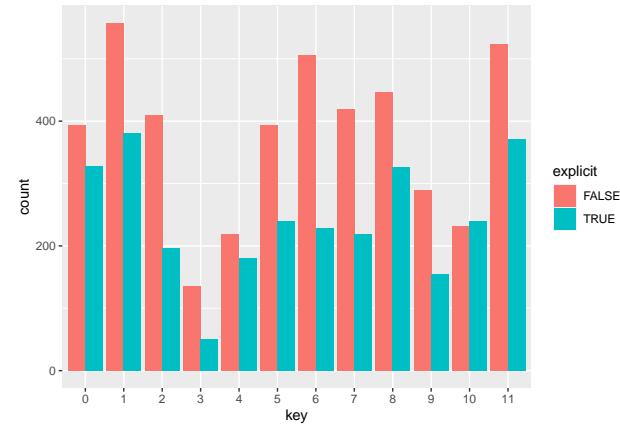
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 301.99, df = 11, p-value < 2.2e-16

```

```
[1] "key and explicit"
```



```

FALSE TRUE
0     394  328
1     557  381
2     409  197
3     136   50
4     219  180
5     394  240
6     506  228
7     419  219
8     447  327
9     290  155
10    232  239
11    524  371

```

```
[1] "Chi-square test for key and explicit"
```

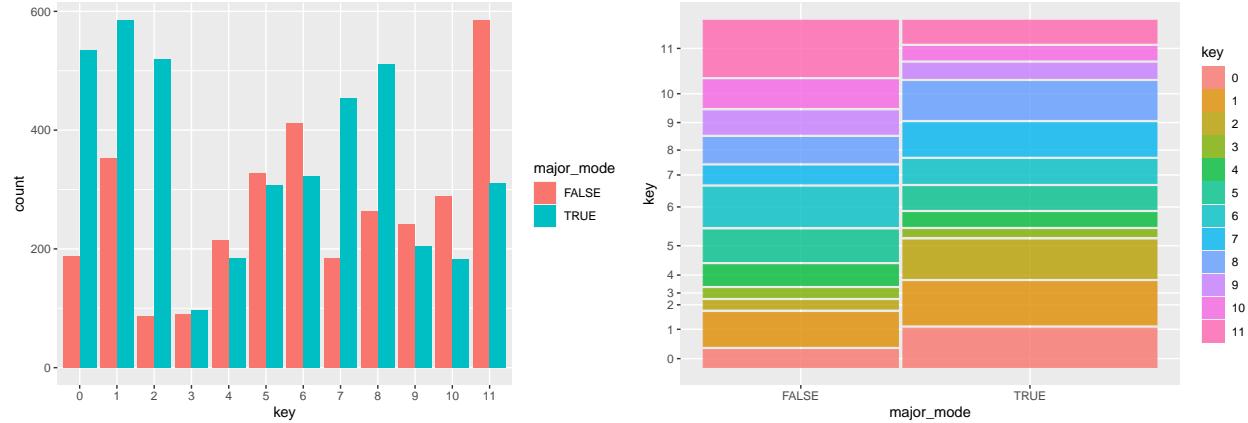
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 103.7, df = 11, p-value < 2.2e-16

```

[1] "key and major_mode"



	FALSE	TRUE
0	188	534
1	353	585
2	87	519
3	90	96
4	214	185
5	327	307
6	411	323
7	185	453
8	263	511
9	241	204
10	289	182
11	585	310

[1] "Chi-square test for key and major_mode"

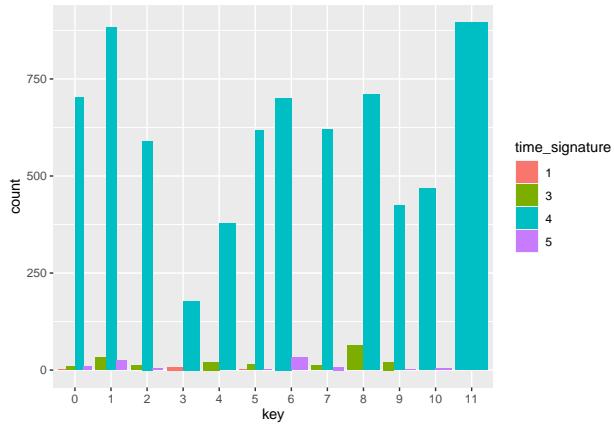
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 733.17, df = 11, p-value < 2.2e-16

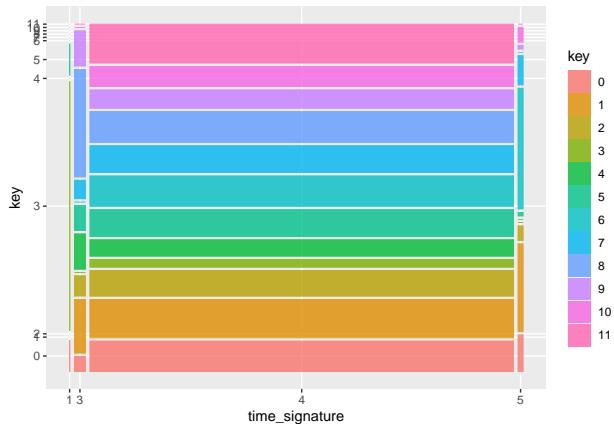
```

[1] "key and time_signature"



	1	3	4	5
0	1	9	702	10
1	0	32	882	24
2	0	12	590	4
3	8	0	178	0
4	0	21	378	0
5	1	15	617	1
6	0	0	701	33
7	0	11	619	8
8	0	64	710	0
9	0	21	423	1
10	0	0	467	4
11	0	0	895	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

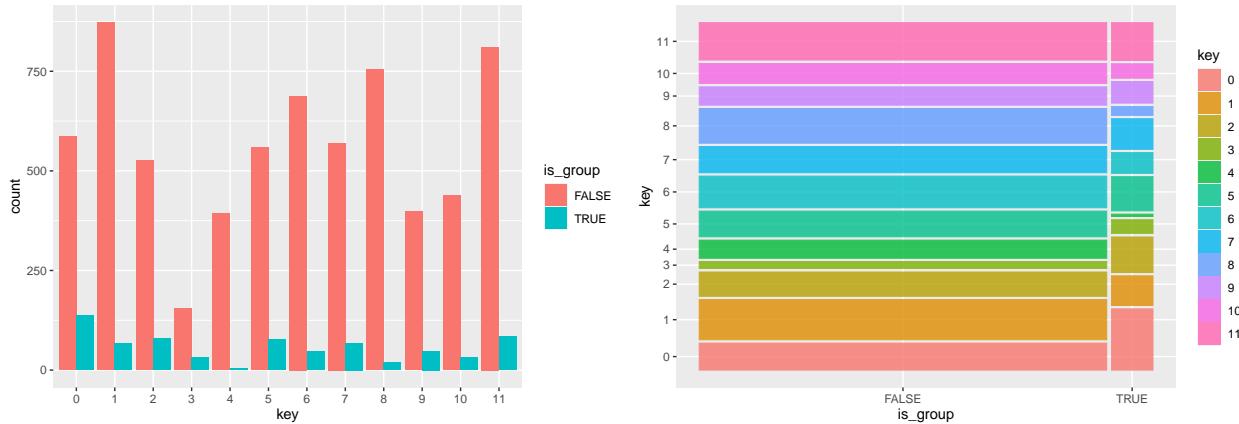


[1] "Chi-square test for key and time_signature"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 569.88, df = 33, p-value < 2.2e-16
```

[1] "key and is_group"



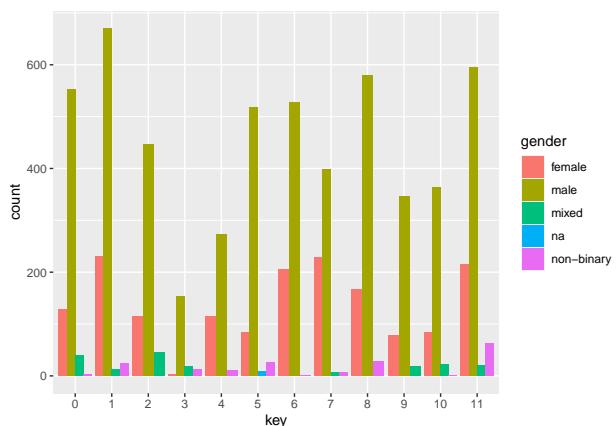
	FALSE	TRUE
0	586	136
1	872	66
2	527	79
3	155	31
4	394	5
5	558	76
6	688	46
7	570	68
8	754	20
9	397	48
10	439	32
11	811	84

```
[1] "Chi-square test for key and is_group"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 197.35, df = 11, p-value < 2.2e-16
```

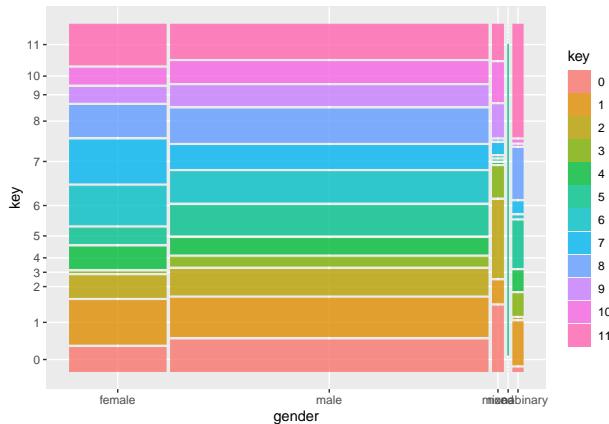
```
[1] "key and gender"
```



	female	male	mixed	na	non-binary
0	129	552	39	0	2

1	231	670	13	0	24
2	114	446	46	0	0
3	3	153	18	0	12
4	115	273	0	0	11
5	83	517	0	8	26
6	205	528	0	0	1
7	228	398	6	0	6
8	166	580	0	0	28
9	79	347	19	0	0
10	84	363	23	0	1
11	216	595	21	0	63

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

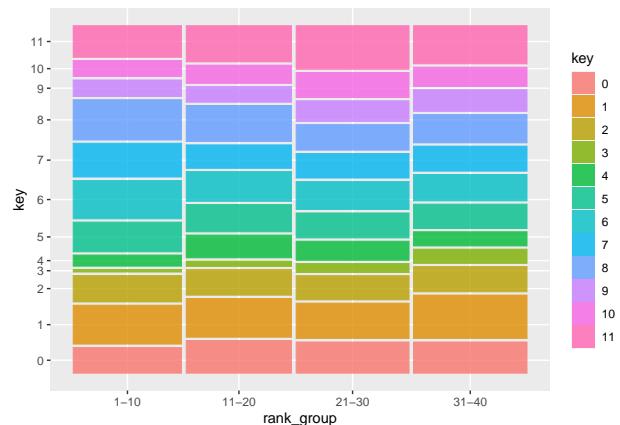
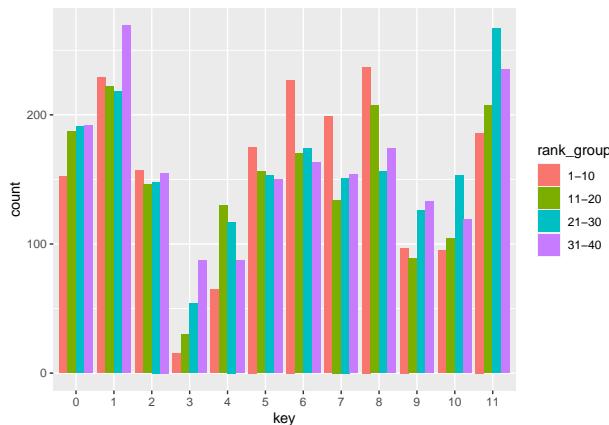


[1] "Chi-square test for key and gender"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 664.43, df = 44, p-value < 2.2e-16
```

[1] "key and rank_group"



	1-10	11-20	21-30	31-40
0	152	187	191	192

```

1   229   222   218   269
2   157   146   148   155
3    15    30    54    87
4    65   130   117    87
5   175   156   153   150
6   227   170   174   163
7   199   134   151   154
8   237   207   156   174
9    97    89   126   133
10   95   104   153   119
11   186   207   267   235

```

[1] "Chi-square test for key and rank_group"

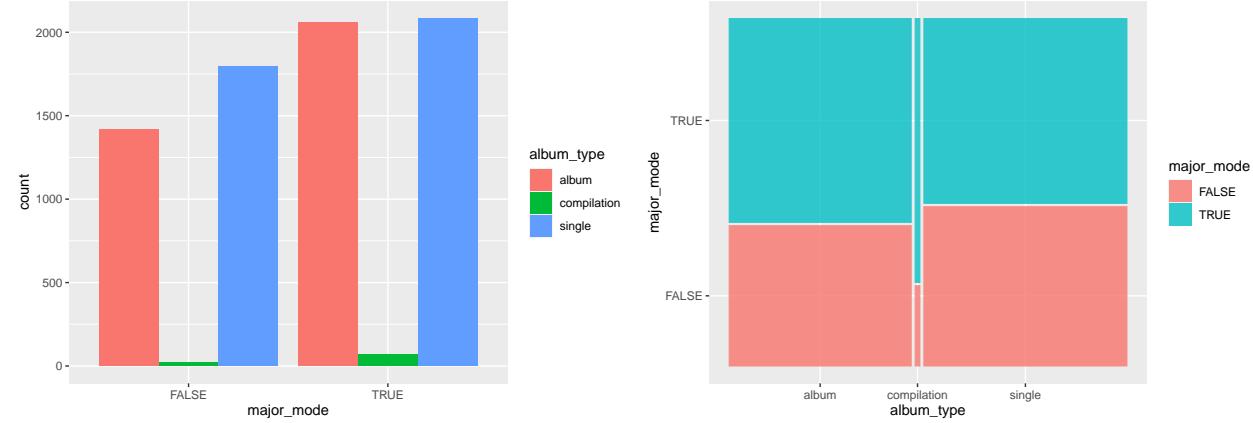
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 193.07, df = 33, p-value < 2.2e-16

```

[1] "major_mode and album_type"



	album	compilation	single
FALSE	1417	21	1795
TRUE	2058	69	2082

[1] "Chi-square test for major_mode and album_type"

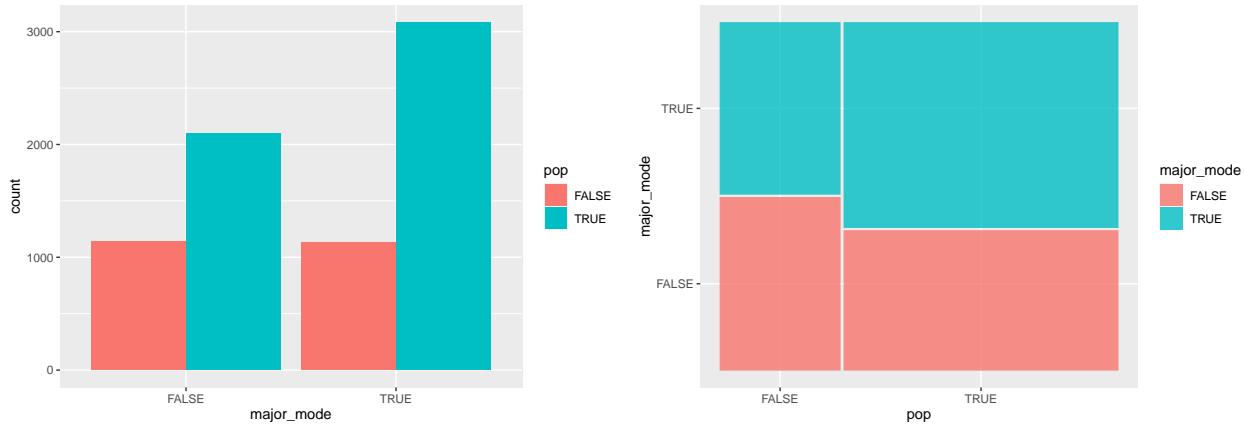
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 37.734, df = 2, p-value = 6.401e-09

```

[1] "major_mode and pop"



```

      FALSE  TRUE
FALSE   1137 2096
TRUE    1129 3080
[1] "Chi-square test for major_mode and pop"

```

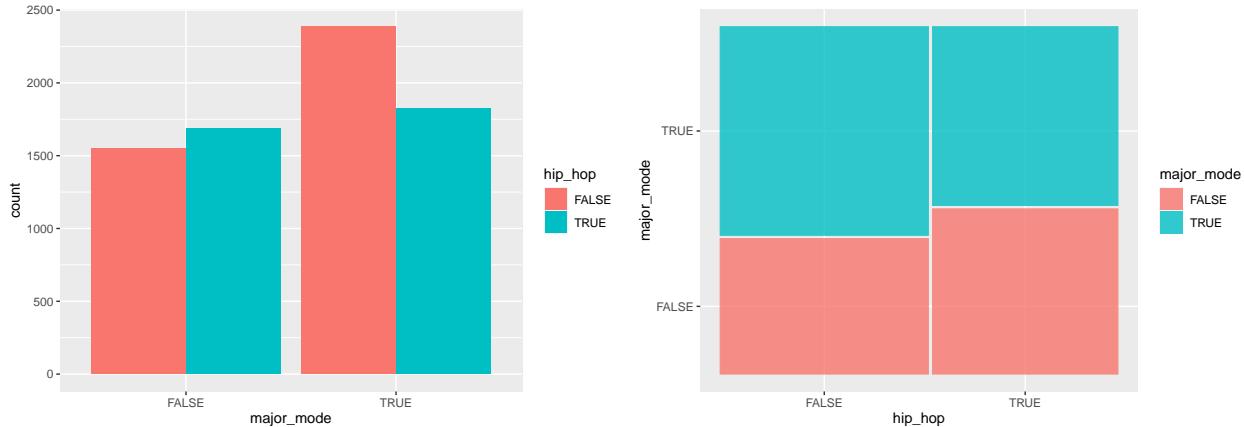
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 60.129, df = 1, p-value = 8.884e-15

```

```
[1] "major_mode and hip_hop"
```



```

      FALSE  TRUE
FALSE   1549 1684
TRUE    2386 1823
[1] "Chi-square test for major_mode and hip_hop"

```

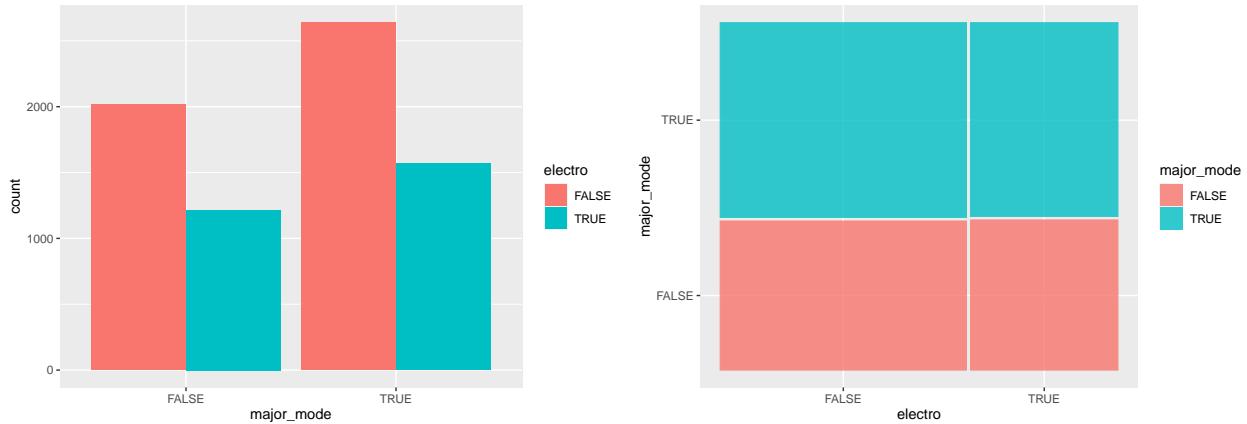
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 56.517, df = 1, p-value = 5.572e-14

```

```
[1] "major_mode and electro"
```



```

      FALSE  TRUE
FALSE  2017 1216
TRUE   2638 1571
[1] "Chi-square test for major_mode and electro"

```

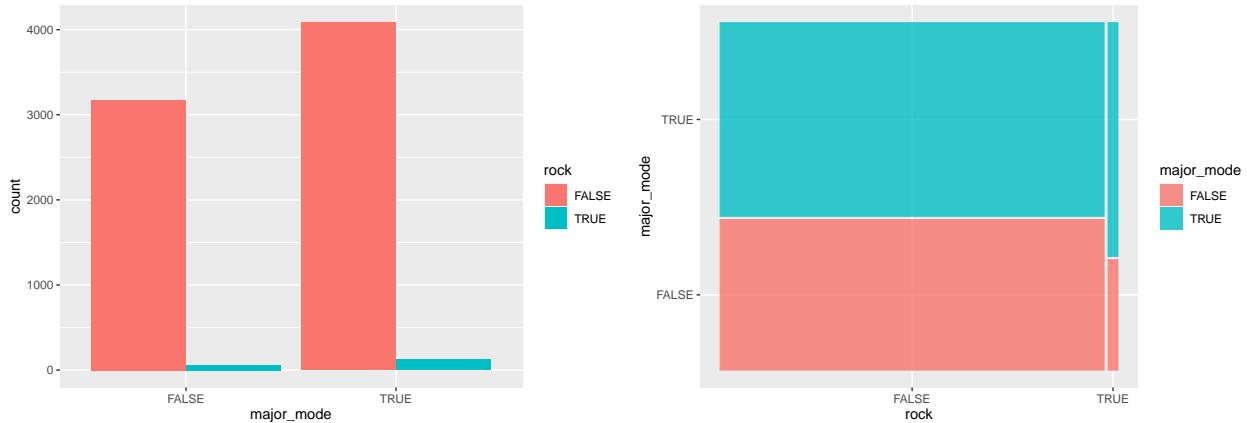
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 0.06445, df = 1, p-value = 0.7996

```

[1] "major_mode and rock"



```

      FALSE  TRUE
FALSE  3173   60
TRUE   4082  127
[1] "Chi-square test for major_mode and rock"

```

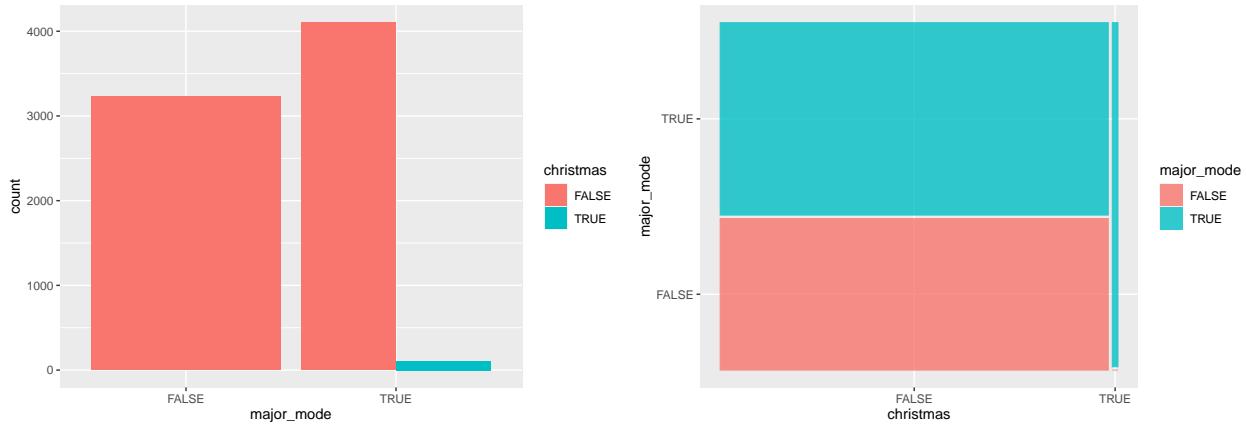
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 10.07, df = 1, p-value = 0.001507

```

[1] "major_mode and christmas"



```

      FALSE  TRUE
FALSE   3233    0
TRUE    4101   108
[1] "Chi-square test for major_mode and christmas"

```

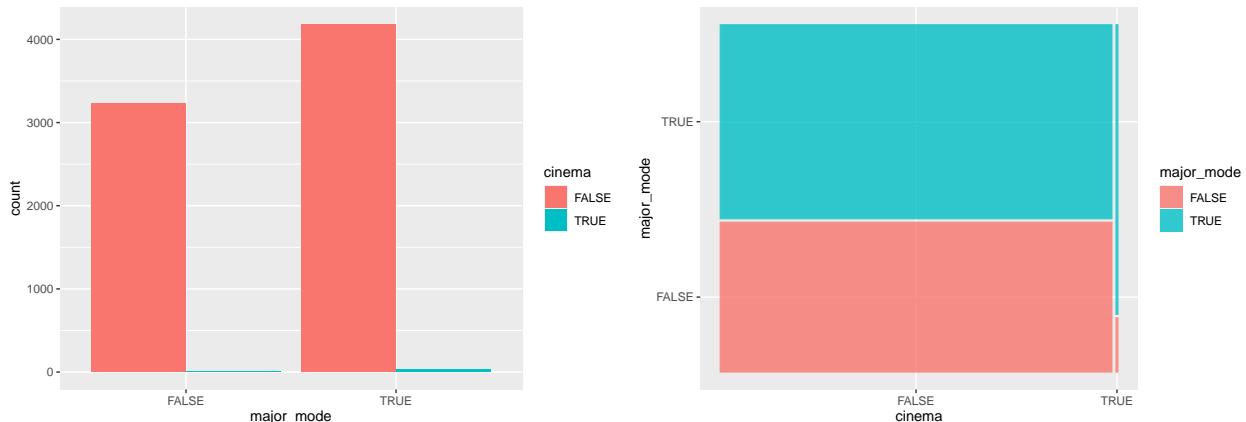
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 84.178, df = 1, p-value < 2.2e-16

```

[1] "major_mode and cinema"



```

      FALSE  TRUE
FALSE   3227    6
TRUE    4177   32
[1] "Chi-square test for major_mode and cinema"

```

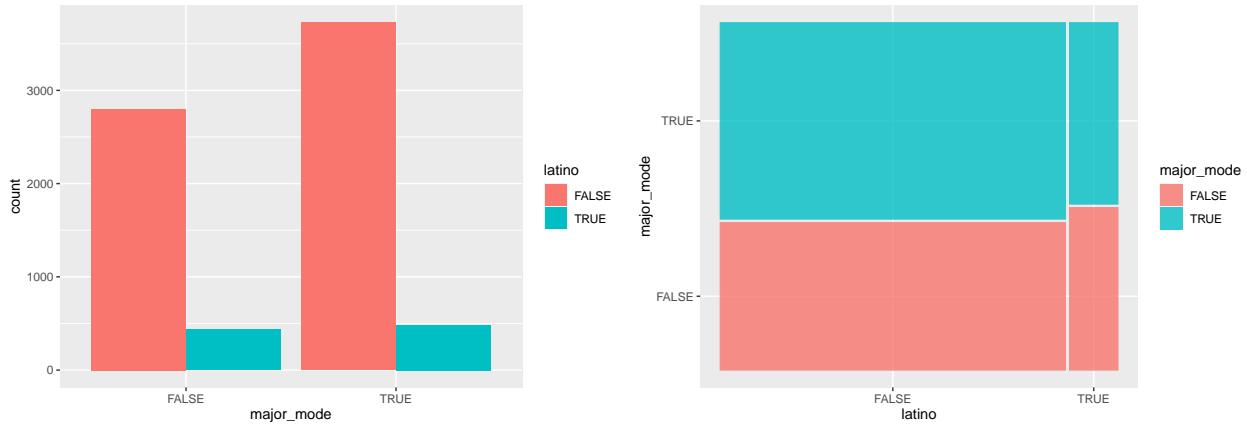
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 11.888, df = 1, p-value = 0.0005651

```

[1] "major_mode and latino"



```

      FALSE  TRUE
FALSE   2800  433
TRUE    3726  483
[1] "Chi-square test for major_mode and latino"

```

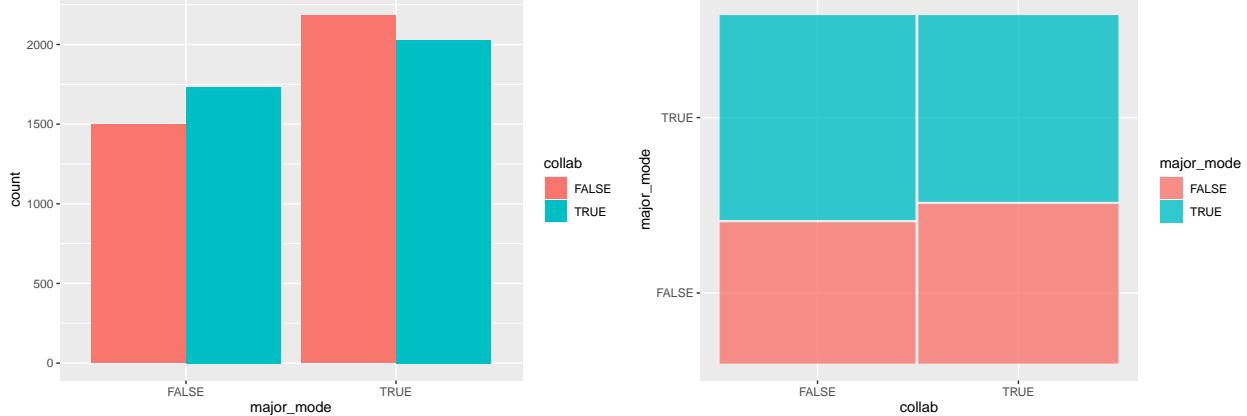
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 6.2302, df = 1, p-value = 0.01256

```

```
[1] "major_mode and collab"
```



```

      FALSE  TRUE
FALSE   1500 1733
TRUE    2181 2028
[1] "Chi-square test for major_mode and collab"

```

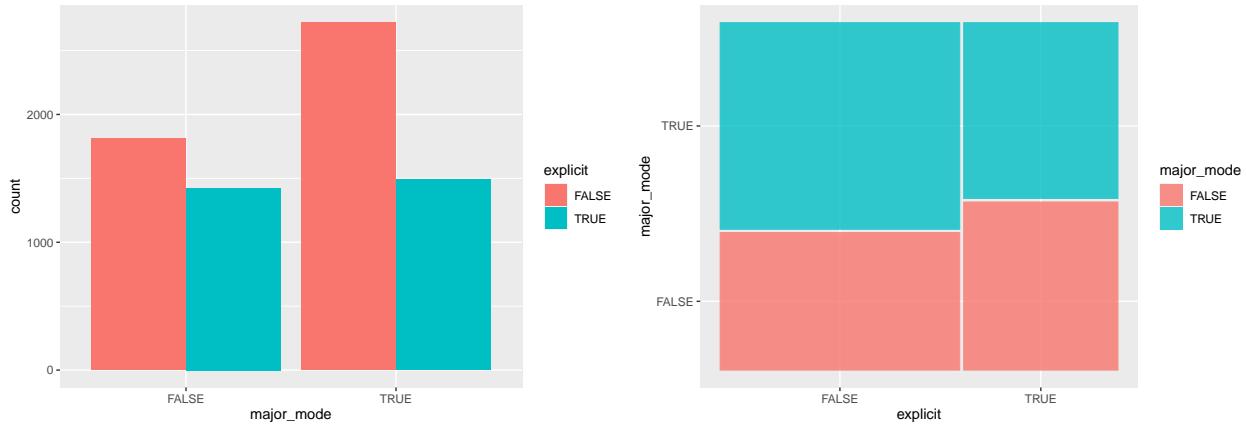
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 21.496, df = 1, p-value = 3.545e-06

```

```
[1] "major_mode and explicit"
```



```

      FALSE  TRUE
FALSE  1809 1424
TRUE   2718 1491
[1] "Chi-square test for major_mode and explicit"

```

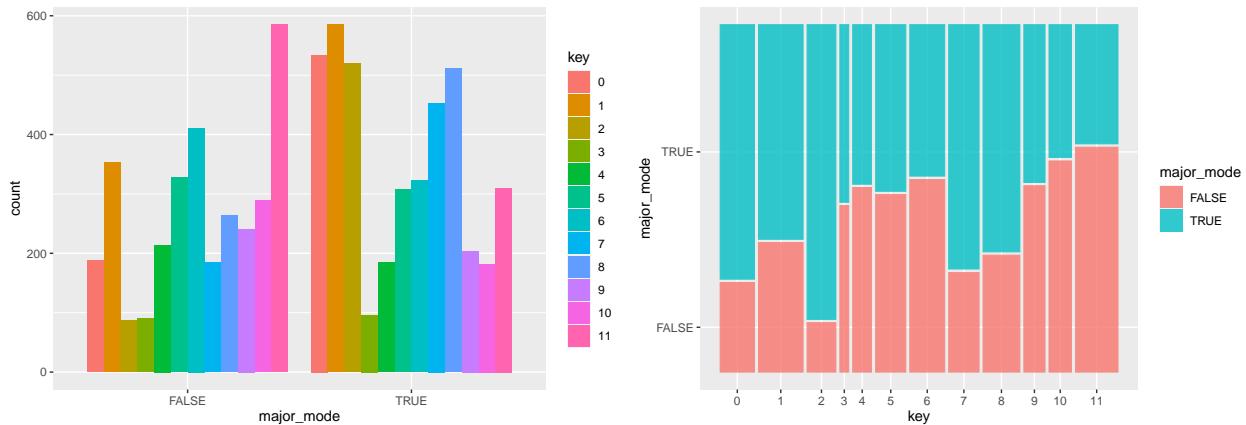
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 57.044, df = 1, p-value = 4.262e-14

```

[1] "major_mode and key"



```

      0   1   2   3   4   5   6   7   8   9   10  11
FALSE 188 353 87  90 214 327 411 185 263 241 289 585
TRUE  534 585 519 96 185 307 323 453 511 204 182 310
[1] "Chi-square test for major_mode and key"

```

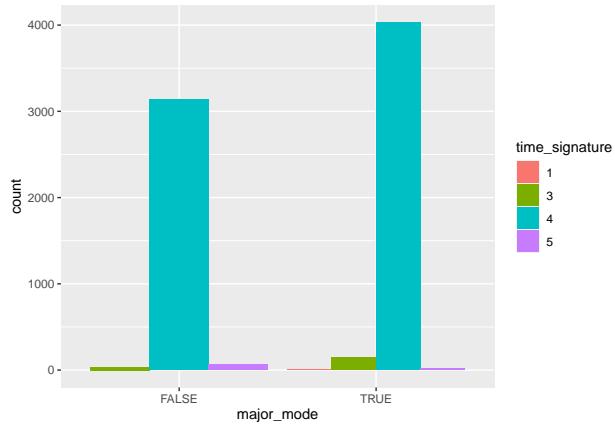
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 733.17, df = 11, p-value < 2.2e-16

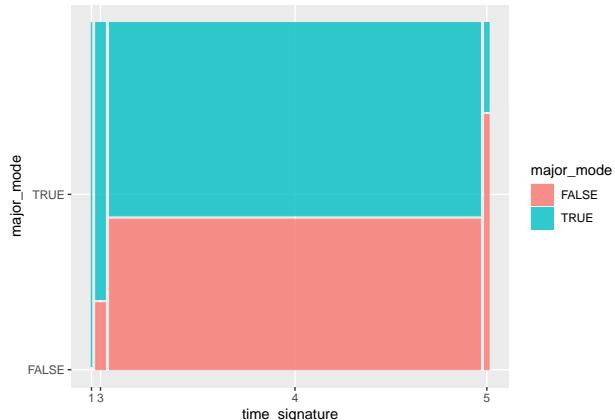
```

[1] "major_mode and time_signature"



	1	3	4	5
FALSE	0	36	3134	63
TRUE	10	149	4028	22

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

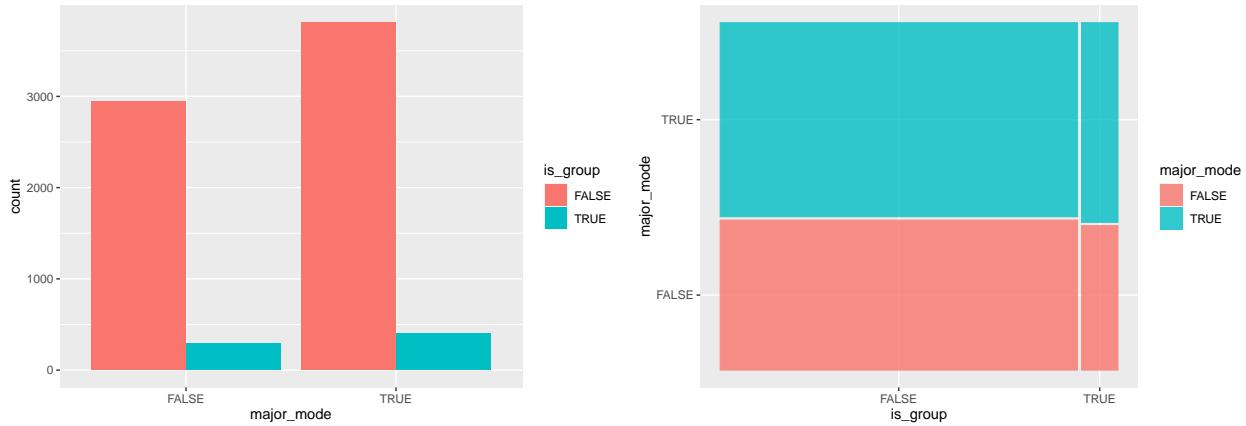


[1] "Chi-square test for major_mode and time_signature"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 83.834, df = 3, p-value < 2.2e-16
```

[1] "major_mode and is_group"



```

      FALSE  TRUE
FALSE  2943  290
TRUE   3808  401
[1] "Chi-square test for major_mode and is_group"

```

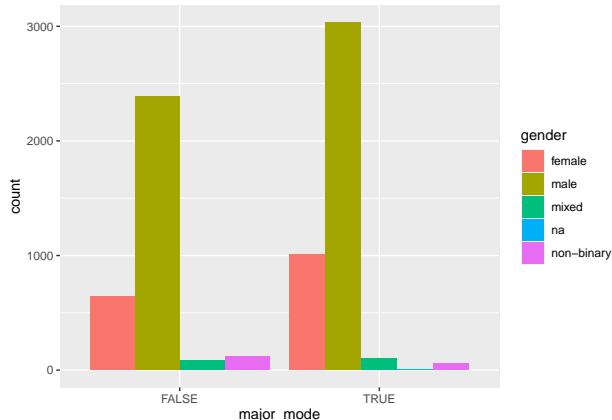
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 0.674, df = 1, p-value = 0.4117

```

[1] "major_mode and gender"

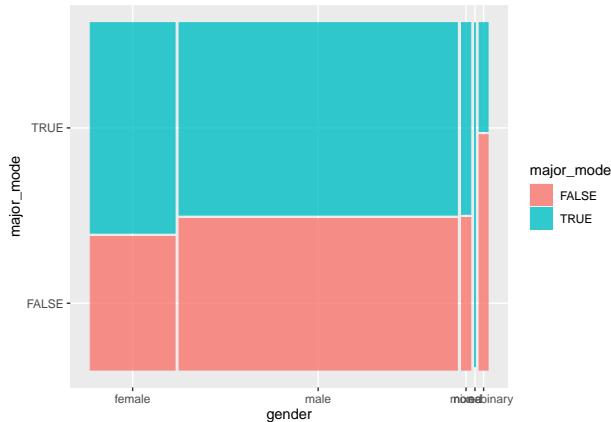


	female	male	mixed	na	non-binary
FALSE	642	2390	82	0	119
TRUE	1011	3032	103	8	55

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

```

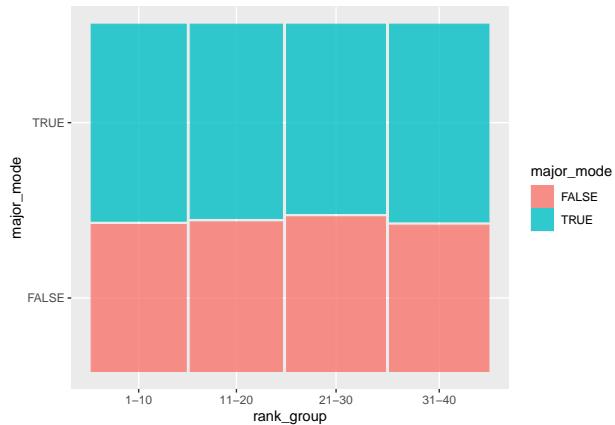
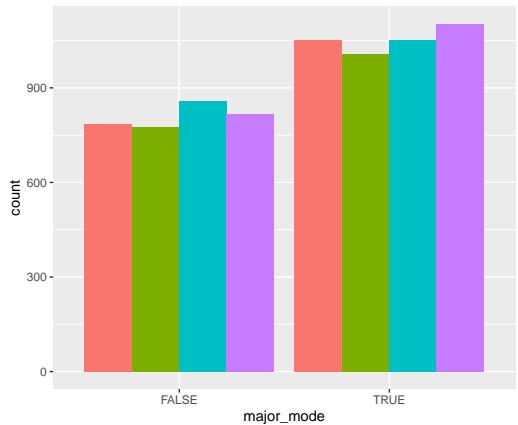


```
[1] "Chi-square test for major_mode and gender"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 65.439, df = 4, p-value = 2.08e-13
```

```
[1] "major_mode and rank_group"
```



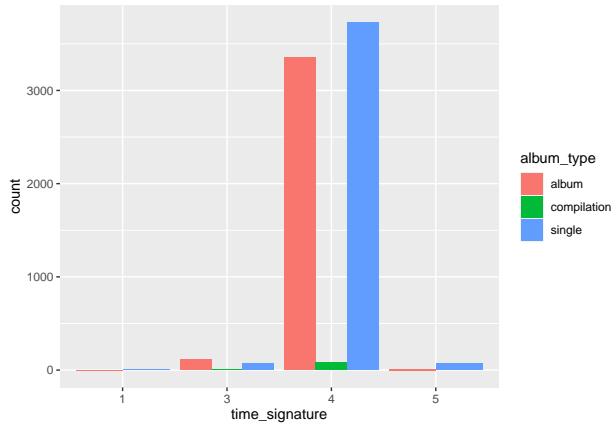
```
1-10 11-20 21-30 31-40
FALSE 784    775    858    816
TRUE  1050   1007   1050   1102
```

```
[1] "Chi-square test for major_mode and rank_group"
```

Pearson's Chi-squared test

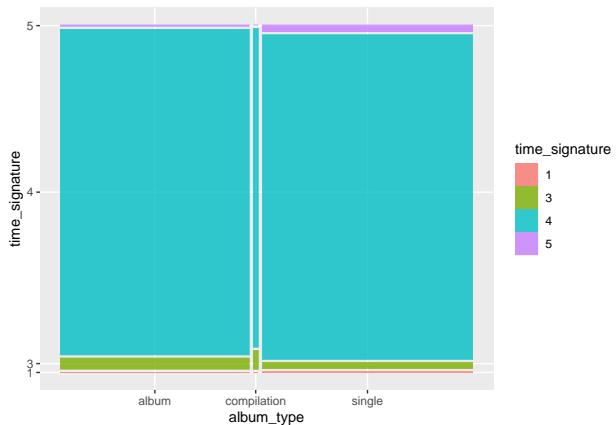
```
data: table(cat_var1, cat_var2)
X-squared = 2.7998, df = 3, p-value = 0.4235
```

```
[1] "time_signature and album_type"
```



	album	compilation	single
1	1	0	9
3	113	5	67
4	3350	85	3727
5	11	0	74

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

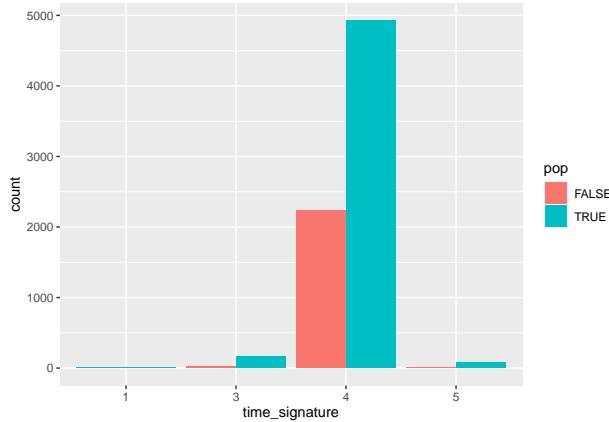


```
[1] "Chi-square test for time_signature and album_type"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 68.085, df = 6, p-value = 1.009e-12
```

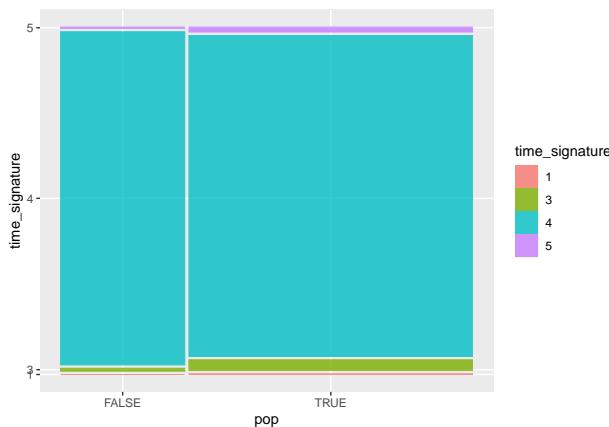
```
[1] "time_signature and pop"
```



```

      FALSE  TRUE
1       0    10
3      20   165
4  2237 4925
5       9    76
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

```

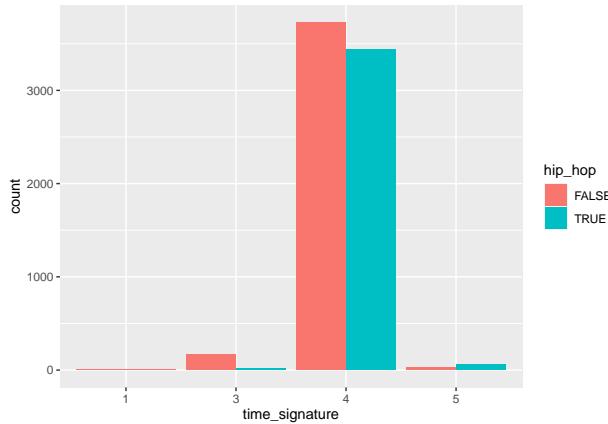


```
[1] "Chi-square test for time_signature and pop"
```

```
Pearson's Chi-squared test
```

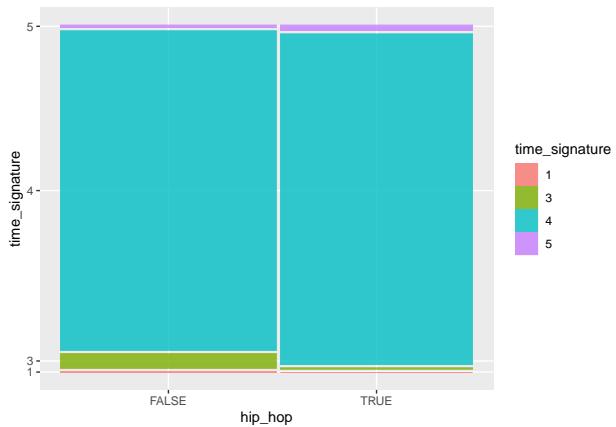
```
data: table(cat_var1, cat_var2)
X-squared = 55.985, df = 3, p-value = 4.231e-12
```

```
[1] "time_signature and hip_hop"
```



	FALSE	TRUE
1	10	0
3	171	14
4	3726	3436
5	28	57

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

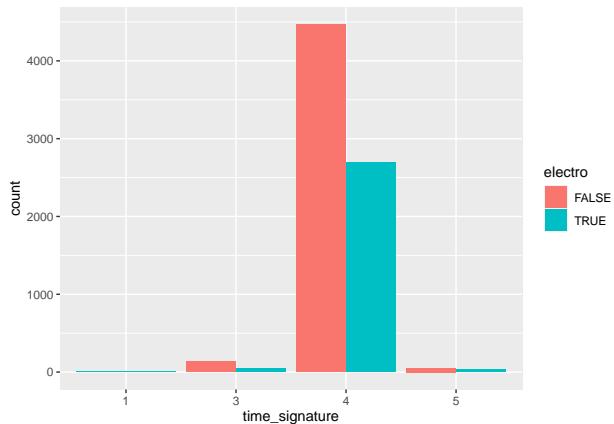


```
[1] "Chi-square test for time_signature and hip_hop"
```

Pearson's Chi-squared test

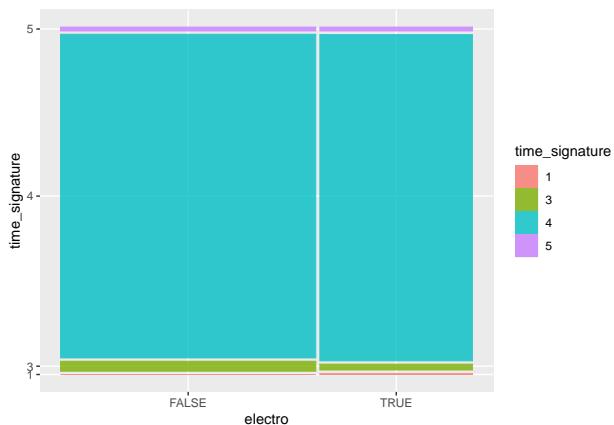
```
data: table(cat_var1, cat_var2)
X-squared = 140.73, df = 3, p-value < 2.2e-16
```

```
[1] "time_signature and electro"
```



	FALSE	TRUE
1	0	10
3	137	48
4	4465	2697
5	53	32

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

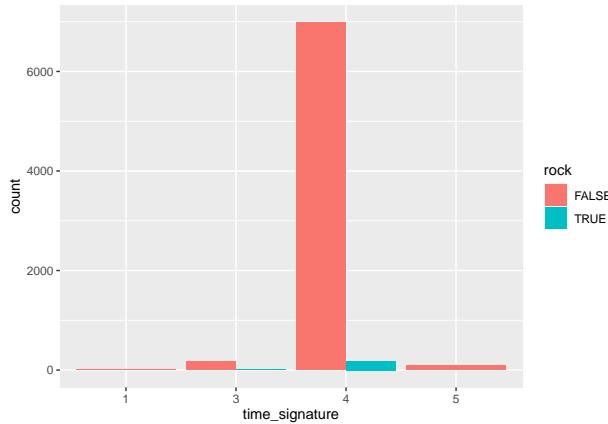


```
[1] "Chi-square test for time_signature and electro"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 27.287, df = 3, p-value = 5.126e-06
```

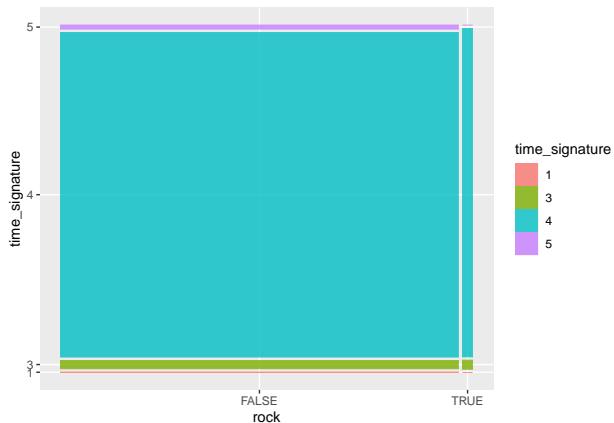
```
[1] "time_signature and rock"
```



FALSE TRUE

	1	3	4	5
1	10	0		
3	180	5		
4	6980	182		
5	85	0		

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

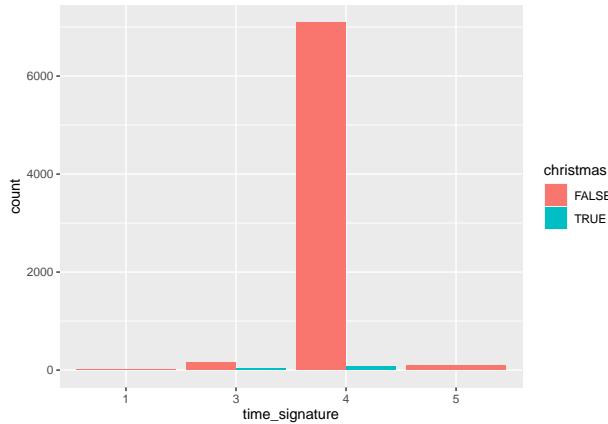


[1] "Chi-square test for time_signature and rock"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 2.4995, df = 3, p-value = 0.4754
```

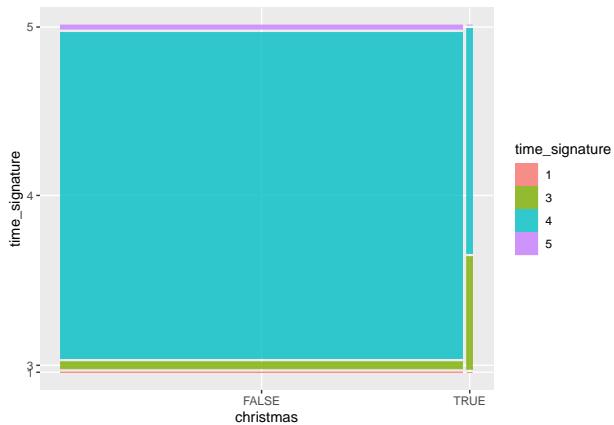
[1] "time_signature and christmas"



FALSE TRUE

1	10	0
3	149	36
4	7090	72
5	85	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

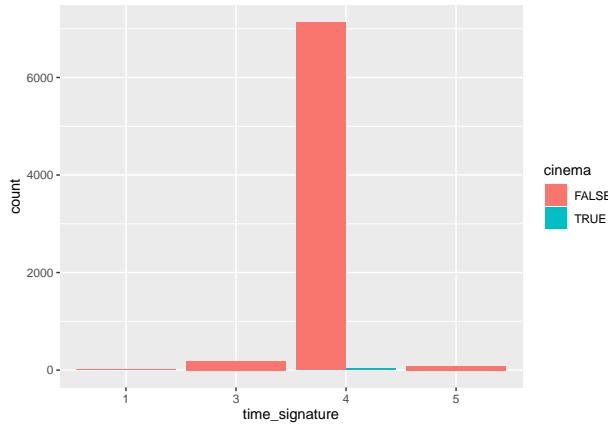


[1] "Chi-square test for time_signature and christmas"

Pearson's Chi-squared test

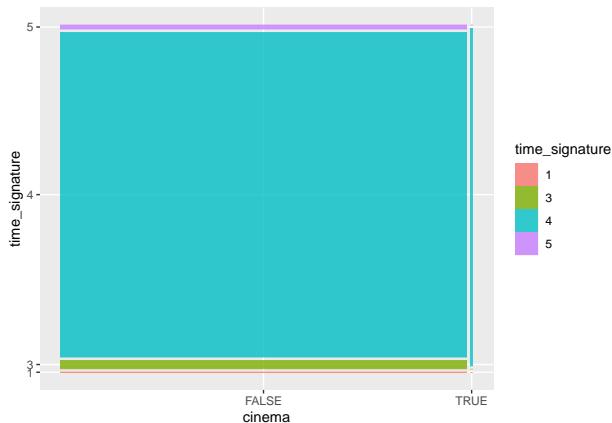
```
data: table(cat_var1, cat_var2)
X-squared = 430.85, df = 3, p-value < 2.2e-16
```

[1] "time_signature and cinema"



	FALSE	TRUE
1	10	0
3	185	0
4	7124	38
5	85	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

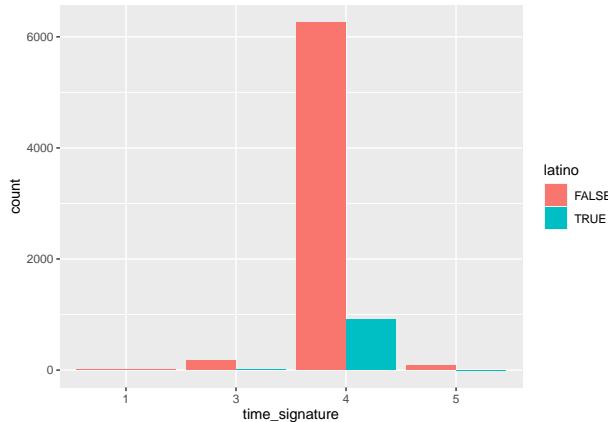


```
[1] "Chi-square test for time_signature and cinema"
```

Pearson's Chi-squared test

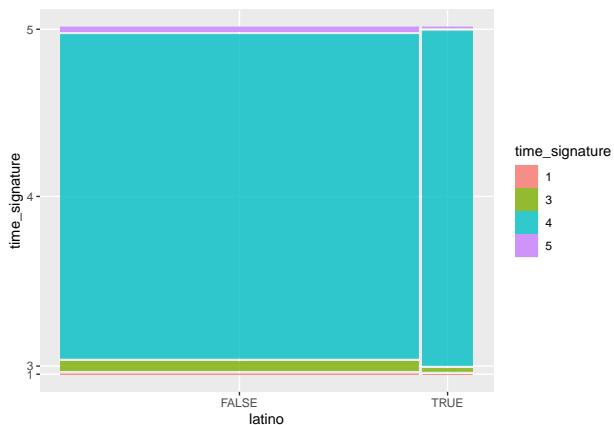
```
data: table(cat_var1, cat_var2)
X-squared = 1.4932, df = 3, p-value = 0.6838
```

```
[1] "time_signature and latino"
```



	FALSE	TRUE
1	10	0
3	178	7
4	6255	907
5	83	2

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

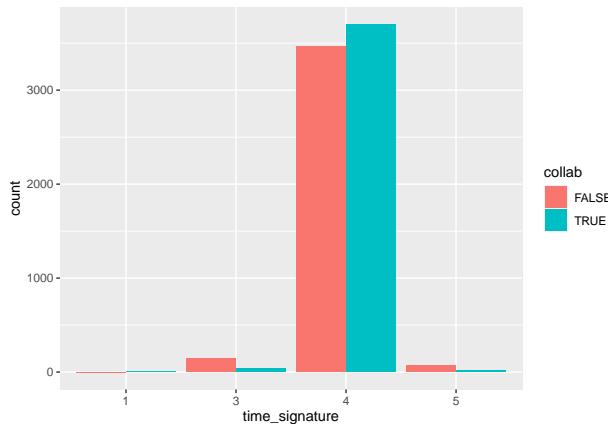


```
[1] "Chi-square test for time_signature and latino"
```

Pearson's Chi-squared test

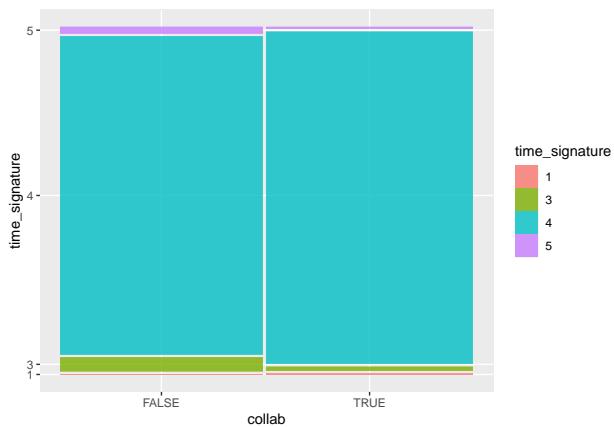
```
data: table(cat_var1, cat_var2)
X-squared = 22.503, df = 3, p-value = 5.125e-05
```

```
[1] "time_signature and collab"
```



	FALSE	TRUE
1	1	9
3	147	38
4	3465	3697
5	68	17

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

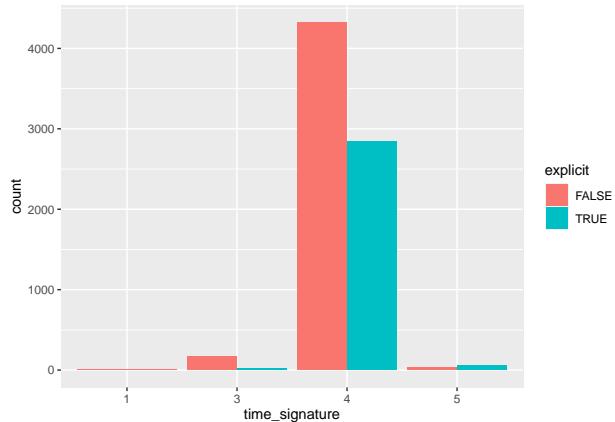


```
[1] "Chi-square test for time_signature and collab"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 107.89, df = 3, p-value < 2.2e-16
```

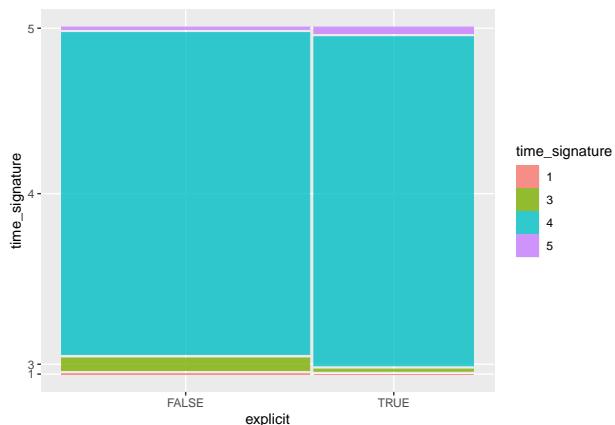
```
[1] "time_signature and explicit"
```



```

      FALSE  TRUE
1       10     0
3      167    18
4     4320   2842
5       30    55
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

```

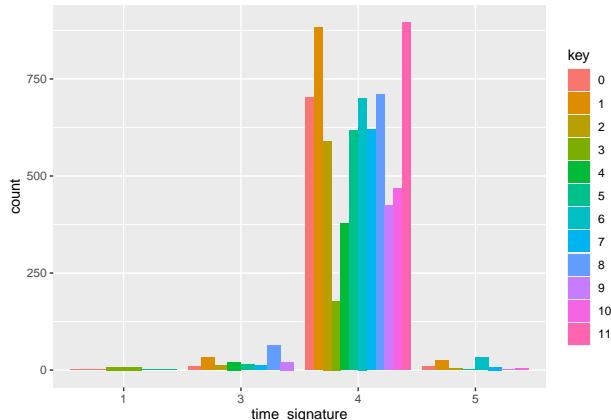


```
[1] "Chi-square test for time_signature and explicit"
```

```
Pearson's Chi-squared test
```

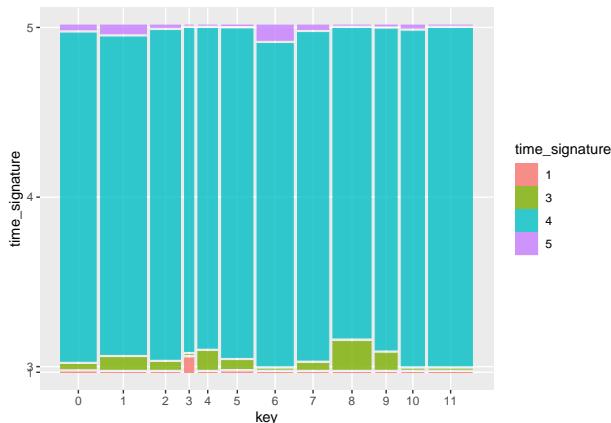
```
data: table(cat_var1, cat_var2)
X-squared = 97.784, df = 3, p-value < 2.2e-16
```

```
[1] "time_signature and key"
```



	0	1	2	3	4	5	6	7	8	9	10	11
1	1	0	0	8	0	1	0	0	0	0	0	0
3	9	32	12	0	21	15	0	11	64	21	0	0
4	702	882	590	178	378	617	701	619	710	423	467	895
5	10	24	4	0	0	1	33	8	0	1	4	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

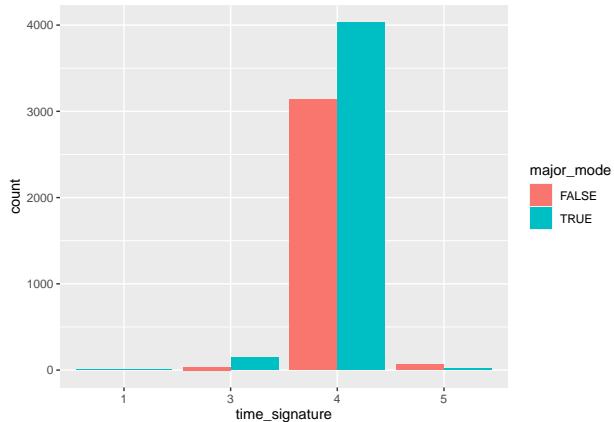


```
[1] "Chi-square test for time_signature and key"
```

Pearson's Chi-squared test

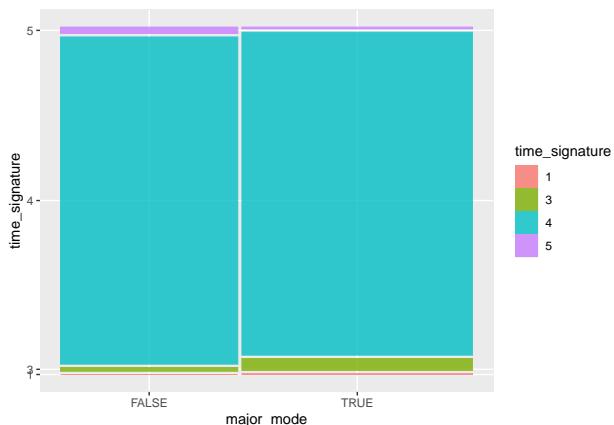
```
data: table(cat_var1, cat_var2)
X-squared = 569.88, df = 33, p-value < 2.2e-16
```

```
[1] "time_signature and major_mode"
```



	FALSE	TRUE
1	0	10
3	36	149
4	3134	4028
5	63	22

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

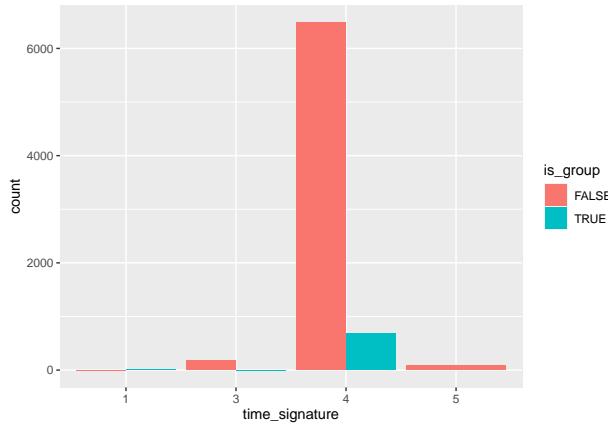


```
[1] "Chi-square test for time_signature and major_mode"
```

Pearson's Chi-squared test

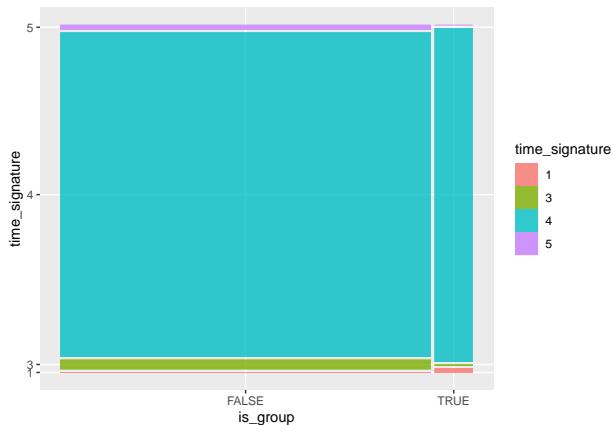
```
data: table(cat_var1, cat_var2)
X-squared = 83.834, df = 3, p-value < 2.2e-16
```

```
[1] "time_signature and is_group"
```



	FALSE	TRUE
1	2	8
3	184	1
4	6480	682
5	85	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

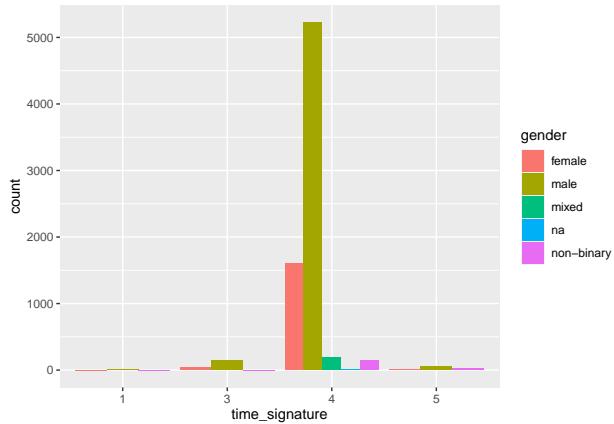


```
[1] "Chi-square test for time_signature and is_group"
```

Pearson's Chi-squared test

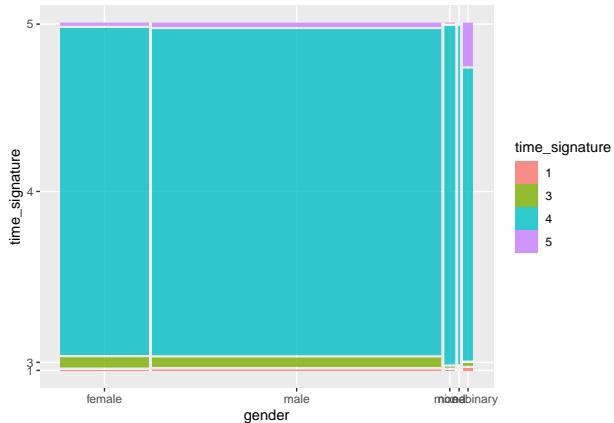
```
data: table(cat_var1, cat_var2)
X-squared = 85.343, df = 3, p-value < 2.2e-16
```

```
[1] "time_signature and gender"
```



	female	male	mixed	na	non-binary
1	1	8	0	0	1
3	45	139	0	0	1
4	1597	5222	185	8	150
5	10	53	0	0	22

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

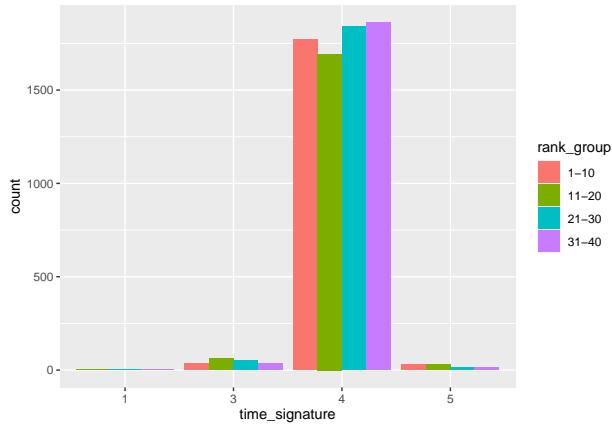


```
[1] "Chi-square test for time_signature and gender"
```

Pearson's Chi-squared test

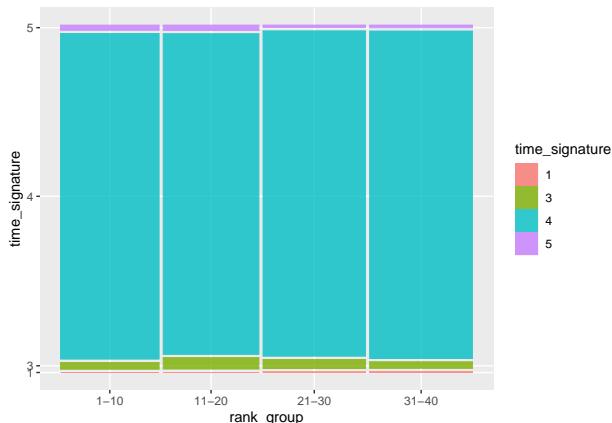
```
data: table(cat_var1, cat_var2)
X-squared = 222.69, df = 12, p-value < 2.2e-16
```

```
[1] "time_signature and rank_group"
```



	1-10	11-20	21-30	31-40
1	0	1	4	5
3	37	60	51	37
4	1769	1693	1839	1861
5	28	28	14	15

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

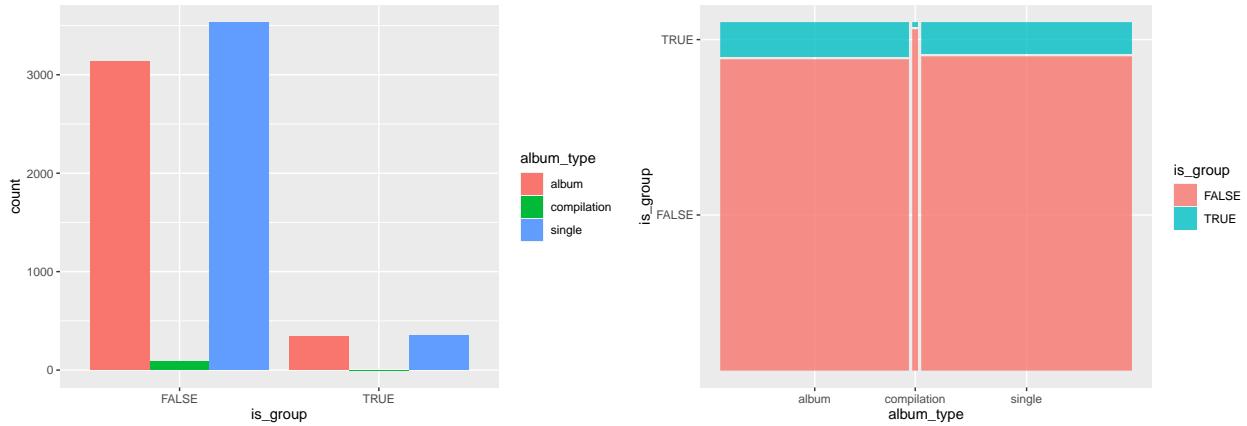


```
[1] "Chi-square test for time_signature and rank_group"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 26.834, df = 9, p-value = 0.00149
```

```
[1] "is_group and album_type"
```



```

  album compilation single
FALSE    3133          89    3529
TRUE     342           1     348
[1] "Chi-square test for is_group and album_type"

```

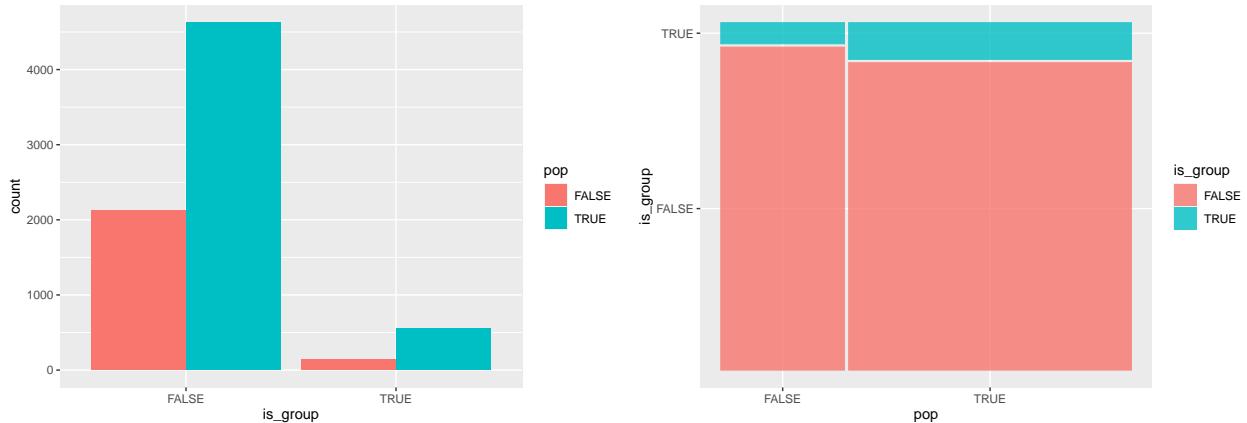
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 8.8571, df = 2, p-value = 0.01193

```

```
[1] "is_group and pop"
```



```

  FALSE TRUE
FALSE   2127 4624
TRUE     139  552
[1] "Chi-square test for is_group and pop"

```

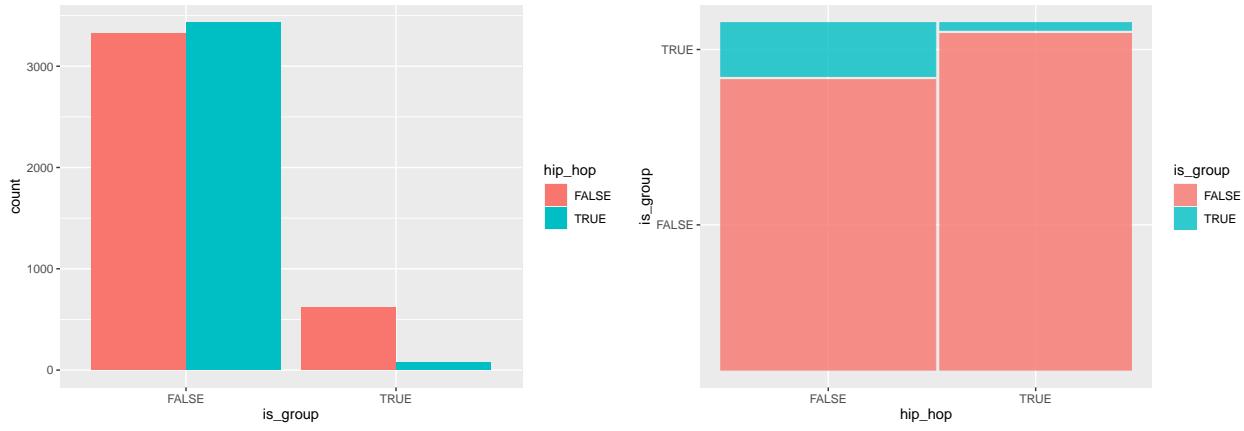
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 38.404, df = 1, p-value = 5.75e-10

```

```
[1] "is_group and hip_hop"
```



```

      FALSE  TRUE
FALSE   3321 3430
TRUE     614  77
[1] "Chi-square test for is_group and hip_hop"

```

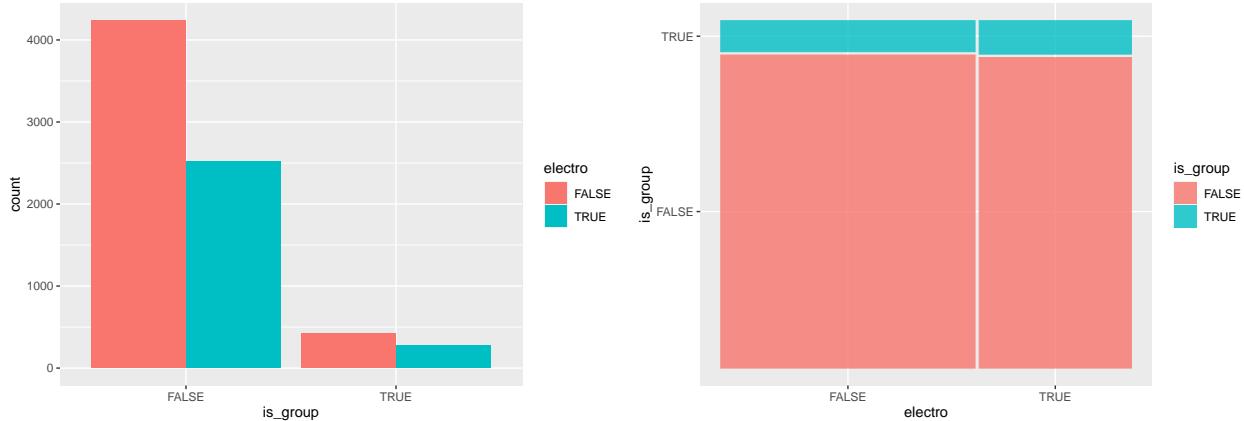
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 395.78, df = 1, p-value < 2.2e-16

```

```
[1] "is_group and electro"
```



```

      FALSE  TRUE
FALSE   4235 2516
TRUE     420  271
[1] "Chi-square test for is_group and electro"

```

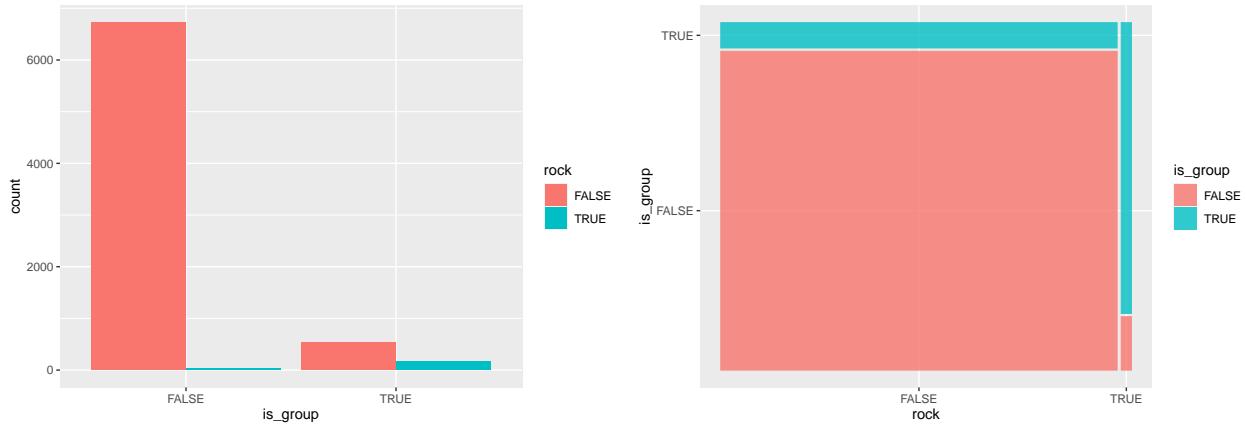
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1.0175, df = 1, p-value = 0.3131

```

```
[1] "is_group and rock"
```



```

      FALSE  TRUE
FALSE  6722   29
TRUE    533  158
[1] "Chi-square test for is_group and rock"

```

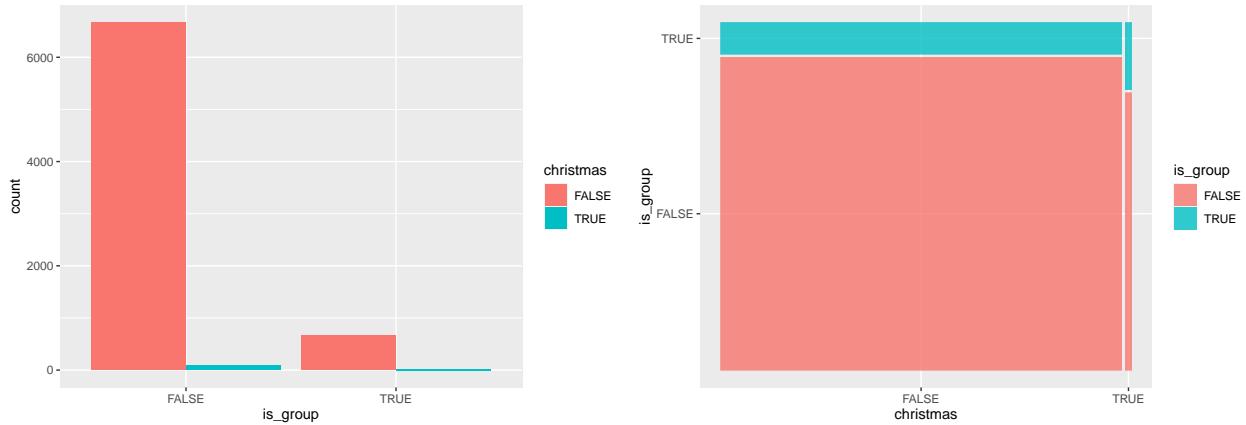
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 1288.1, df = 1, p-value < 2.2e-16

```

[1] "is_group and christmas"



```

      FALSE  TRUE
FALSE  6664   87
TRUE    670   21
[1] "Chi-square test for is_group and christmas"

```

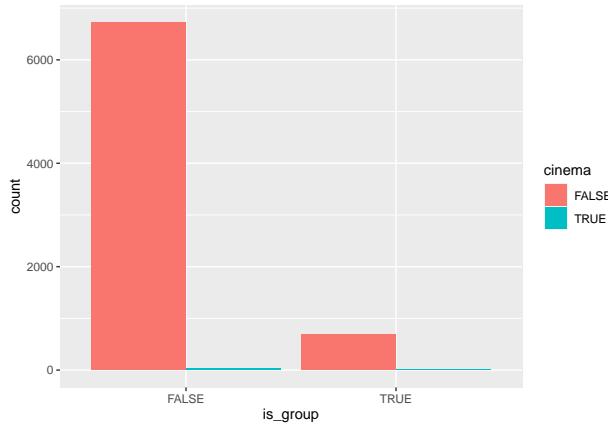
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 13.429, df = 1, p-value = 0.0002478

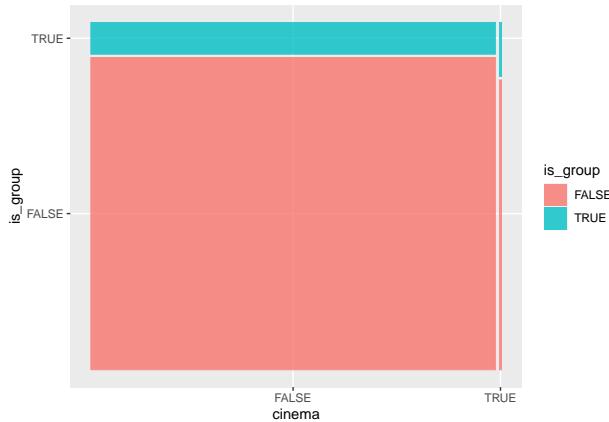
```

[1] "is_group and cinema"



	FALSE	TRUE
FALSE	6719	32
TRUE	685	6

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

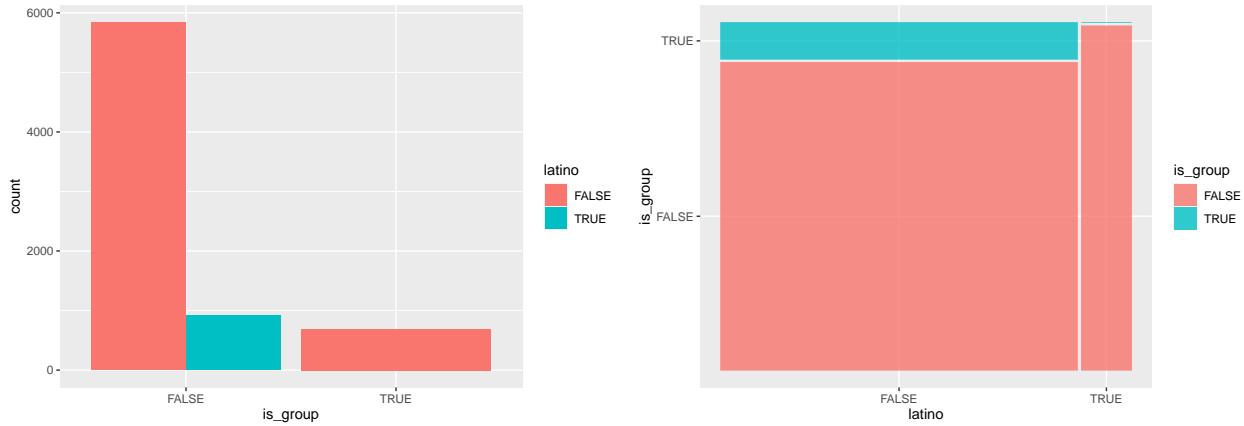


[1] "Chi-square test for is_group and cinema"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 1.9184, df = 1, p-value = 0.166
```

[1] "is_group and latino"



```

      FALSE  TRUE
FALSE  5835  916
TRUE    691   0
[1] "Chi-square test for is_group and latino"

```

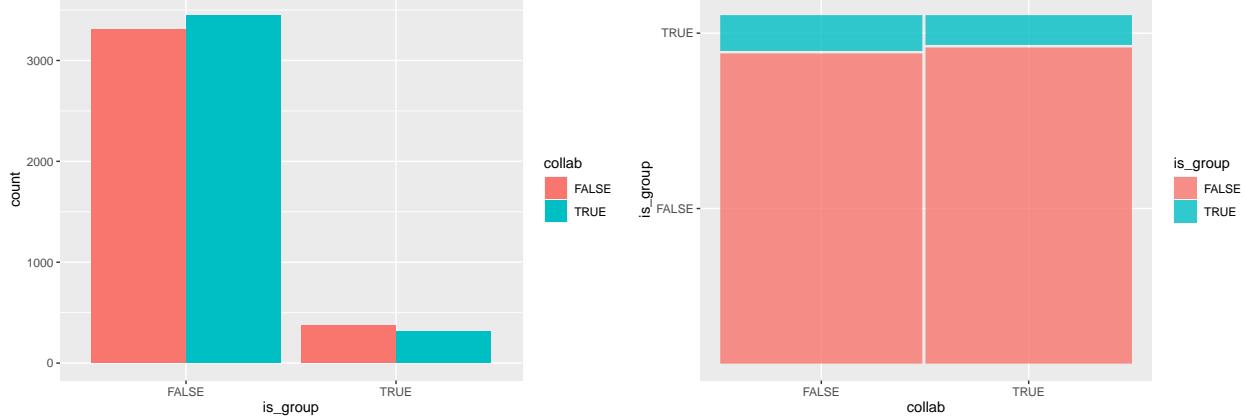
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 106.92, df = 1, p-value < 2.2e-16

```

```
[1] "is_group and collab"
```



```

      FALSE  TRUE
FALSE  3307  3444
TRUE    374   317
[1] "Chi-square test for is_group and collab"

```

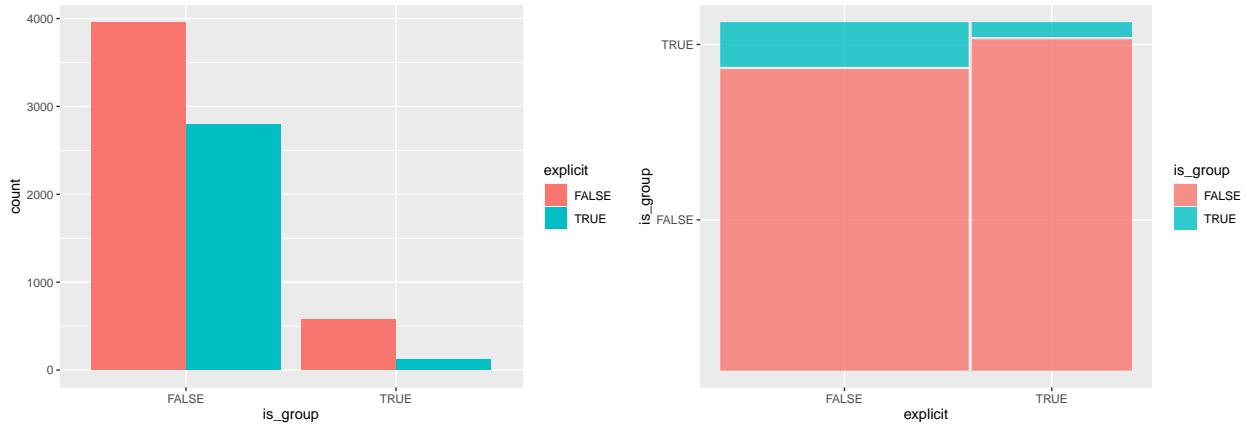
```

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 6.6228, df = 1, p-value = 0.01007

```

```
[1] "is_group and explicit"
```



```

      FALSE  TRUE
FALSE   3953 2798
TRUE     574  117
[1] "Chi-square test for is_group and explicit"

```

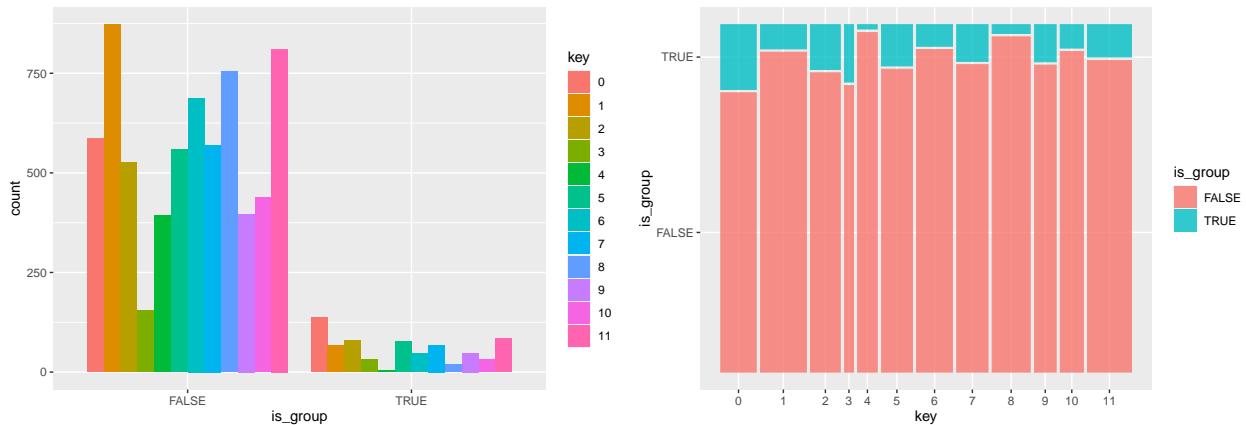
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 158.09, df = 1, p-value < 2.2e-16

```

```
[1] "is_group and key"
```



```

      0    1    2    3    4    5    6    7    8    9    10   11
FALSE 586 872 527 155 394 558 688 570 754 397 439 811
TRUE  136 66  79  31  5  76  46  68  20  48  32  84
[1] "Chi-square test for is_group and key"

```

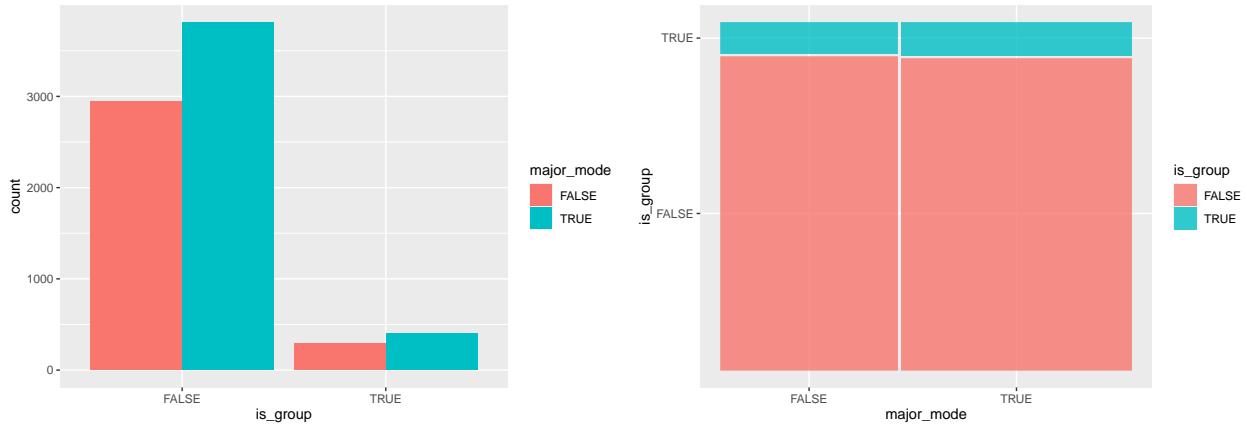
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 197.35, df = 11, p-value < 2.2e-16

```

```
[1] "is_group and major_mode"
```



```

      FALSE TRUE
FALSE 2943 3808
TRUE   290  401
[1] "Chi-square test for is_group and major_mode"

```

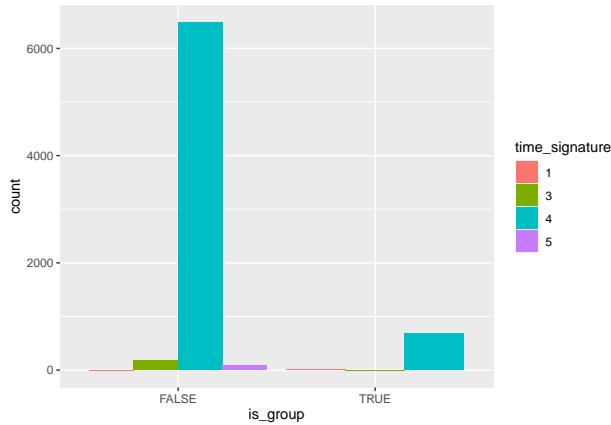
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 0.674, df = 1, p-value = 0.4117

```

[1] "is_group and time_signature"



```

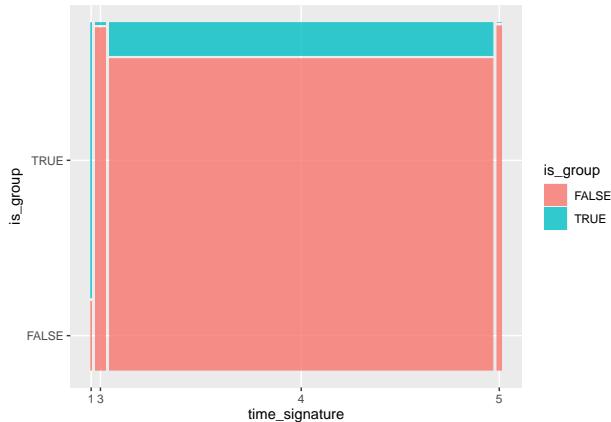
      1     3     4     5
FALSE   2    184  6480    85
TRUE    8      1    682    0

```

```

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

```

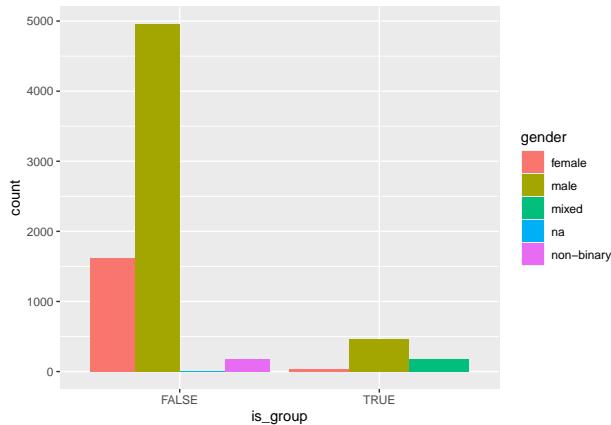


```
[1] "Chi-square test for is_group and time_signature"
```

Pearson's Chi-squared test

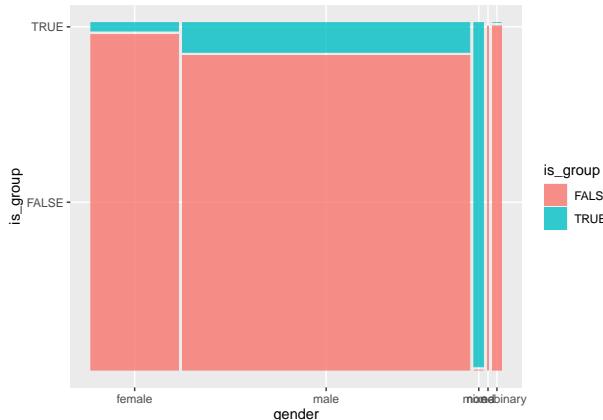
```
data: table(cat_var1, cat_var2)
X-squared = 85.343, df = 3, p-value < 2.2e-16
```

```
[1] "is_group and gender"
```



	female	male	mixed	na	non-binary
FALSE	1613	4956	0	8	174
TRUE	40	466	185	0	0

```
Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect
```

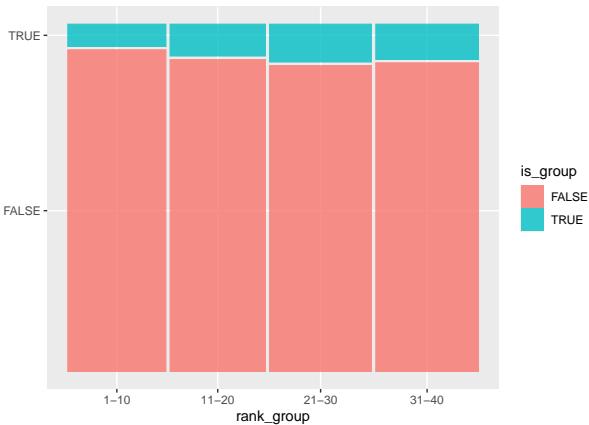
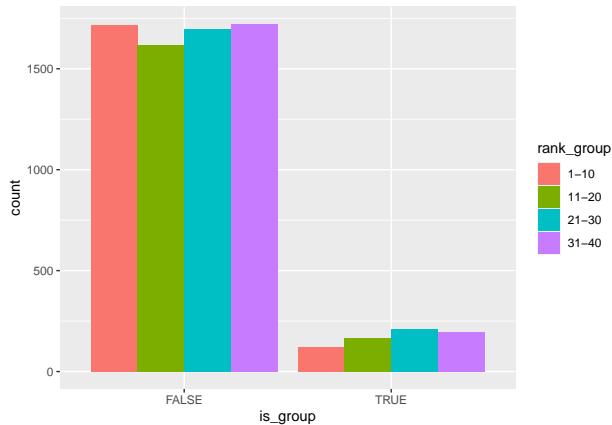


```
[1] "Chi-square test for is_group and gender"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 1921.6, df = 4, p-value < 2.2e-16
```

```
[1] "is_group and rank_group"
```

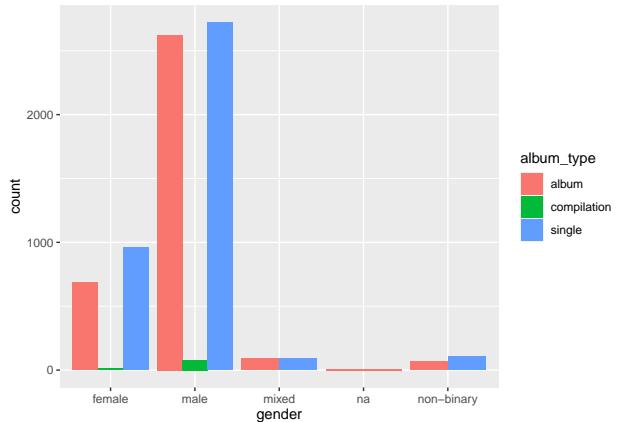


```
1-10 11-20 21-30 31-40
FALSE 1715 1617 1698 1721
TRUE 119 165 210 197
[1] "Chi-square test for is_group and rank_group"
```

Pearson's Chi-squared test

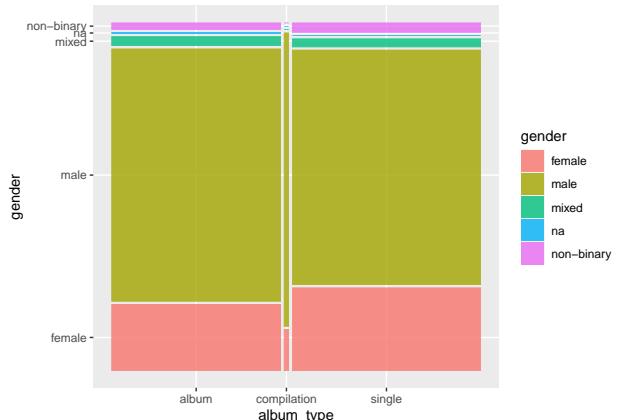
```
data: table(cat_var1, cat_var2)
X-squared = 25.955, df = 3, p-value = 9.749e-06
```

```
[1] "gender and album_type"
```



	album	compilation	single
female	685	11	957
male	2623	79	2720
mixed	93	0	92
na	8	0	0
non-binary	66	0	108

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

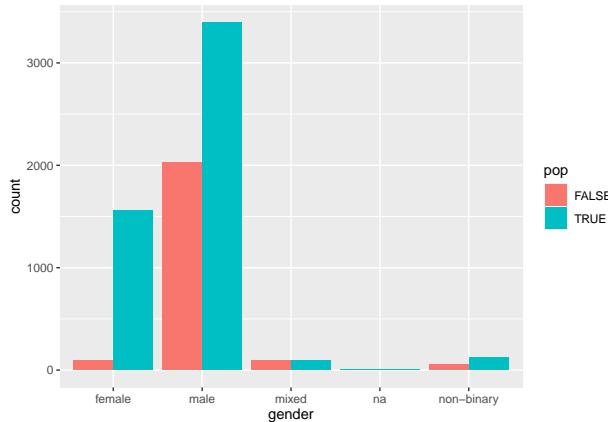


```
[1] "Chi-square test for gender and album_type"
```

Pearson's Chi-squared test

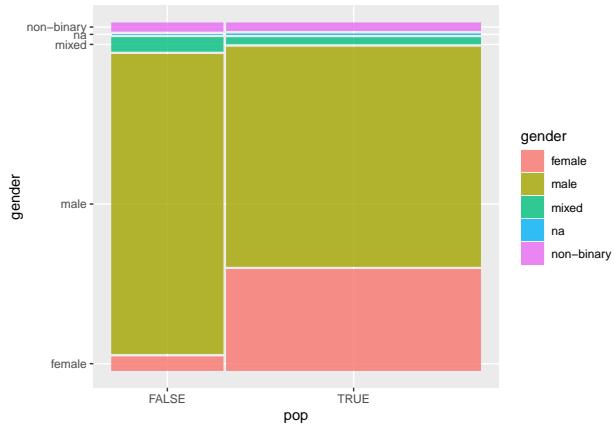
```
data: table(cat_var1, cat_var2)
X-squared = 54.765, df = 8, p-value = 4.905e-09
```

```
[1] "gender and pop"
```



	FALSE	TRUE
female	91	1562
male	2029	3393
mixed	91	94
na	0	8
non-binary	55	119

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

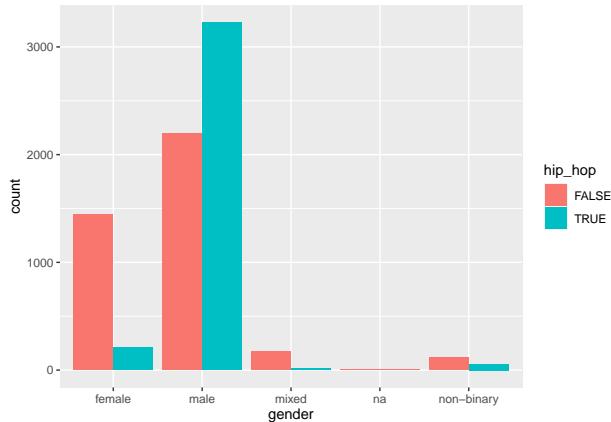


[1] "Chi-square test for gender and pop"

Pearson's Chi-squared test

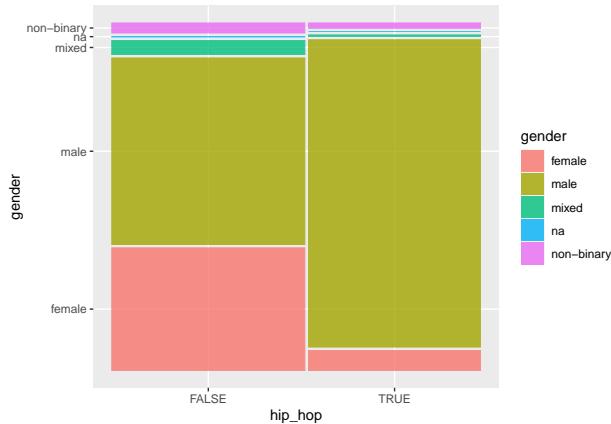
```
data: table(cat_var1, cat_var2)
X-squared = 644.42, df = 4, p-value < 2.2e-16
```

[1] "gender and hip_hop"



	FALSE	TRUE
female	1443	210
male	2197	3225
mixed	169	16
na	8	0
non-binary	118	56

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

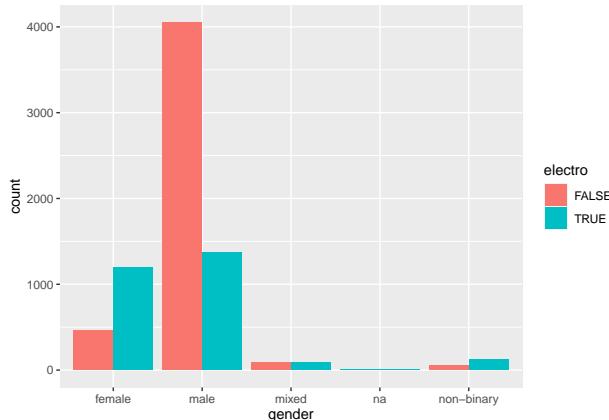


[1] "Chi-square test for gender and hip_hop"

Pearson's Chi-squared test

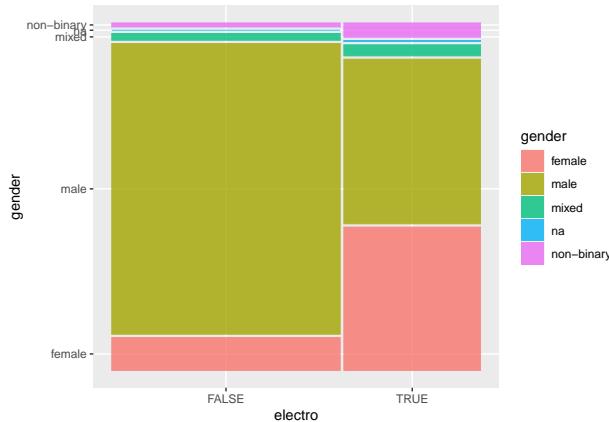
```
data: table(cat_var1, cat_var2)
X-squared = 1250.8, df = 4, p-value < 2.2e-16
```

[1] "gender and electro"



	FALSE	TRUE
female	458	1195
male	4049	1373
mixed	93	92
na	0	8
non-binary	55	119

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

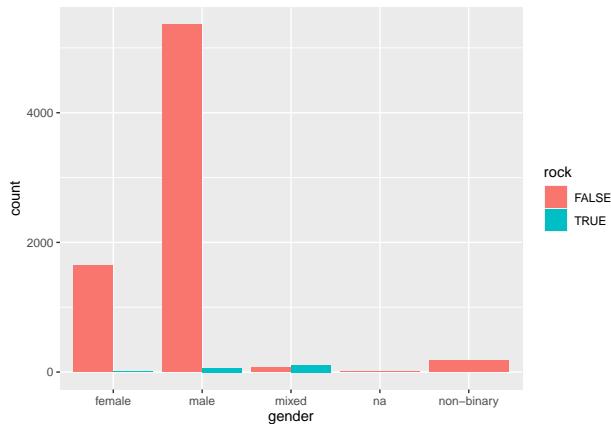


[1] "Chi-square test for gender and electro"

Pearson's Chi-squared test

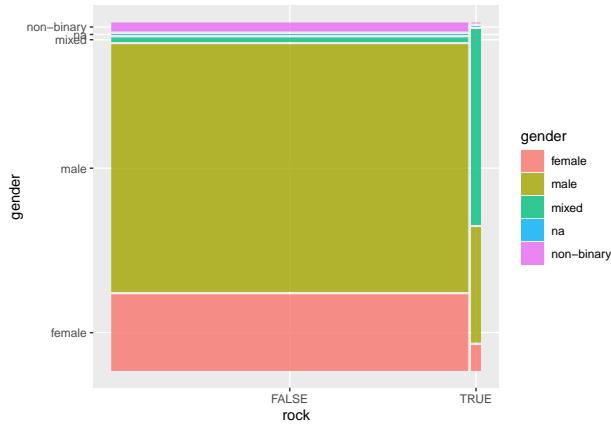
```
data: table(cat_var1, cat_var2)
X-squared = 1293.5, df = 4, p-value < 2.2e-16
```

[1] "gender and rock"



	FALSE	TRUE
female	1639	14
male	5358	64
mixed	76	109
na	8	0
non-binary	174	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

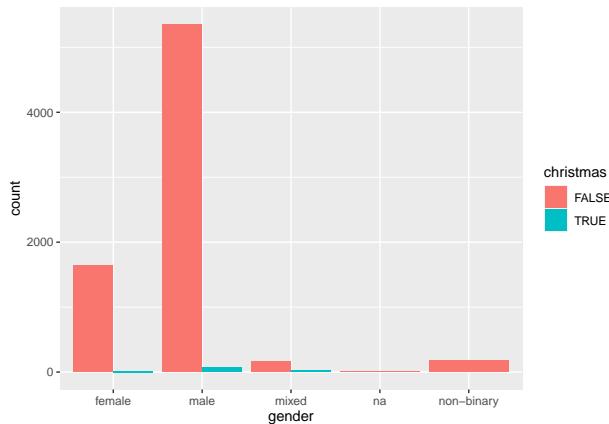


[1] "Chi-square test for gender and rock"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 2465.6, df = 4, p-value < 2.2e-16
```

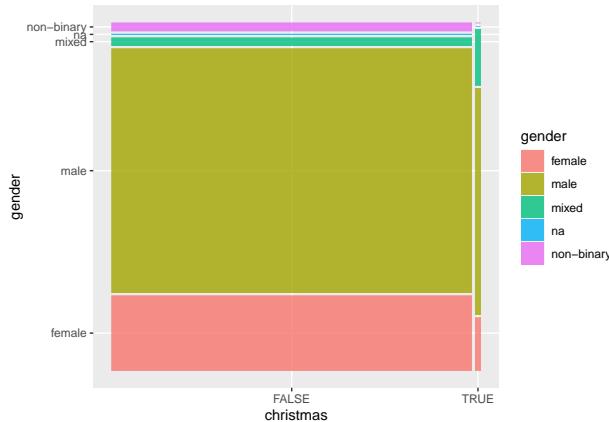
[1] "gender and christmas"



FALSE TRUE

	FALSE	TRUE
female	1636	17
male	5349	73
mixed	167	18
na	8	0
non-binary	174	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

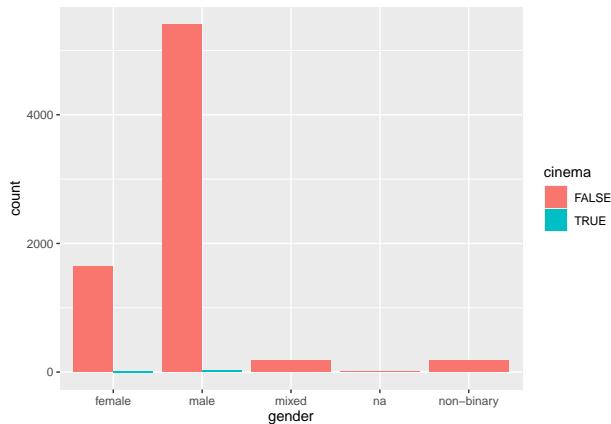


[1] "Chi-square test for gender and christmas"

Pearson's Chi-squared test

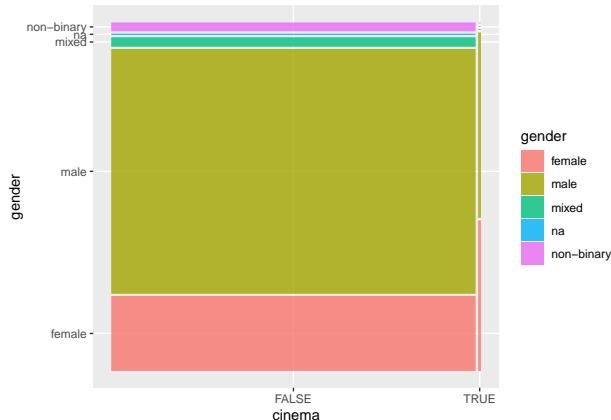
```
data: table(cat_var1, cat_var2)
X-squared = 93.815, df = 4, p-value < 2.2e-16
```

[1] "gender and cinema"



	FALSE	TRUE
female	1636	17
male	5401	21
mixed	185	0
na	8	0
non-binary	174	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

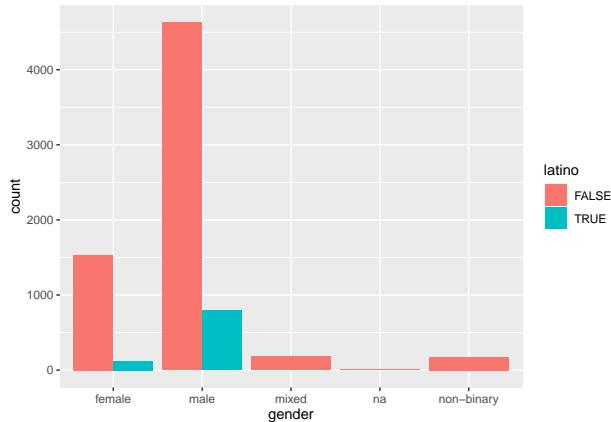


[1] "Chi-square test for gender and cinema"

Pearson's Chi-squared test

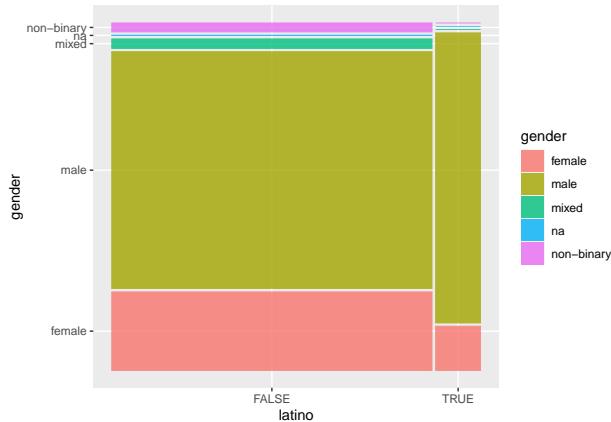
```
data: table(cat_var1, cat_var2)
X-squared = 12.231, df = 4, p-value = 0.01571
```

[1] "gender and latino"



	FALSE	TRUE
female	1532	121
male	4627	795
mixed	185	0
na	8	0
non-binary	174	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

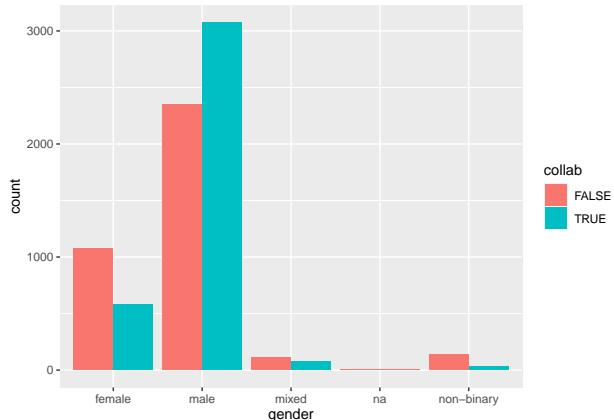


[1] "Chi-square test for gender and latino"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 117.46, df = 4, p-value < 2.2e-16
```

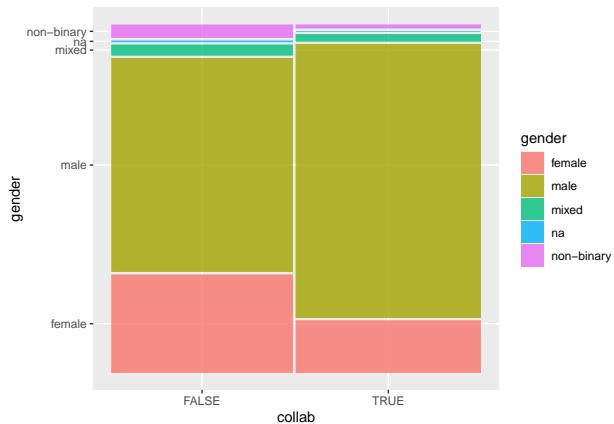
[1] "gender and collab"



FALSE TRUE

	FALSE	TRUE
female	1073	580
male	2349	3073
mixed	111	74
na	8	0
non-binary	140	34

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

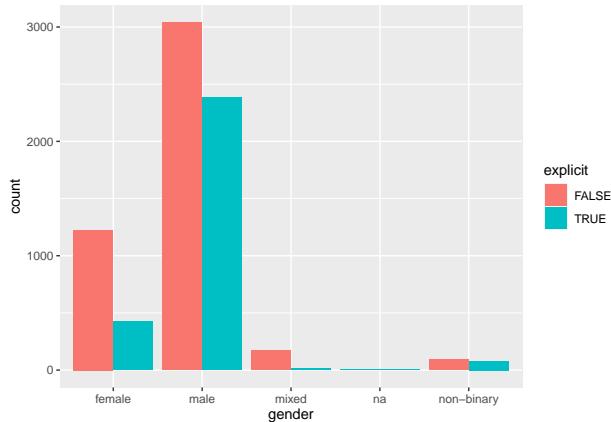


[1] "Chi-square test for gender and collab"

Pearson's Chi-squared test

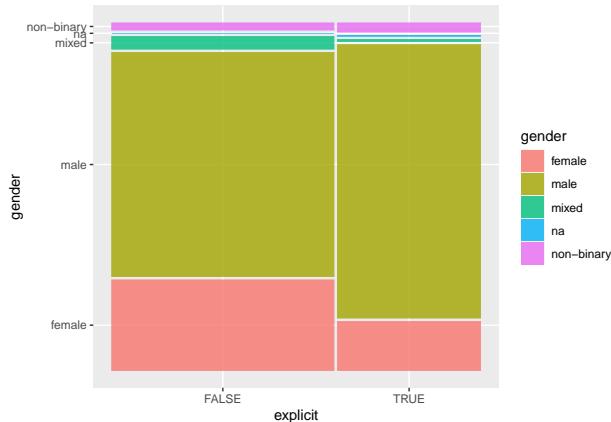
```
data: table(cat_var1, cat_var2)
X-squared = 322.86, df = 4, p-value < 2.2e-16
```

[1] "gender and explicit"



	FALSE	TRUE
female	1225	428
male	3038	2384
mixed	169	16
na	0	8
non-binary	95	79

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

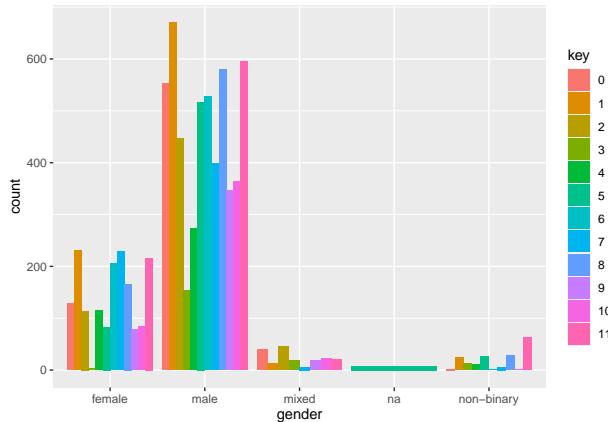


[1] "Chi-square test for gender and explicit"

Pearson's Chi-squared test

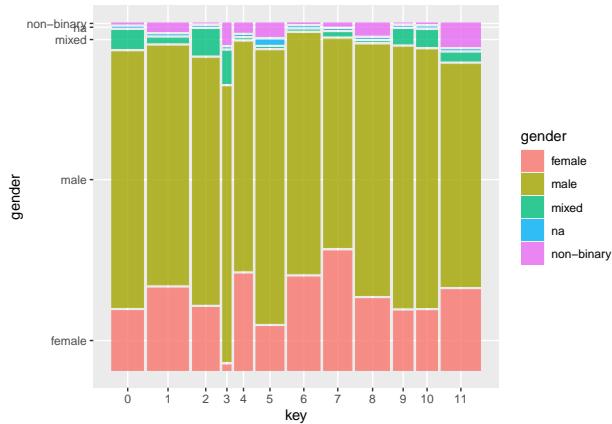
```
data: table(cat_var1, cat_var2)
X-squared = 262.3, df = 4, p-value < 2.2e-16
```

[1] "gender and key"



	0	1	2	3	4	5	6	7	8	9	10	11
female	129	231	114	3	115	83	205	228	166	79	84	216
male	552	670	446	153	273	517	528	398	580	347	363	595
mixed	39	13	46	18	0	0	0	6	0	19	23	21
na	0	0	0	0	0	8	0	0	0	0	0	0
non-binary	2	24	0	12	11	26	1	6	28	0	1	63

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

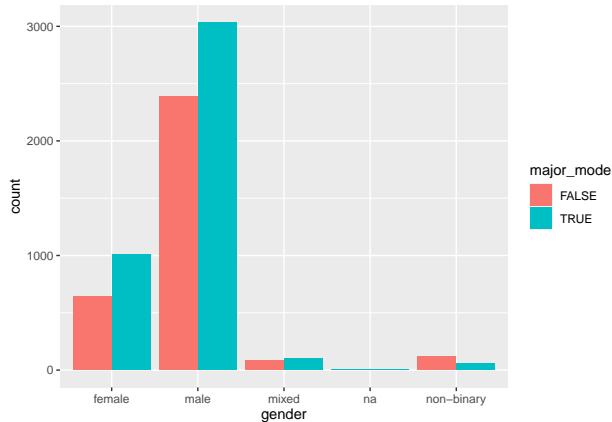


[1] "Chi-square test for gender and key"

Pearson's Chi-squared test

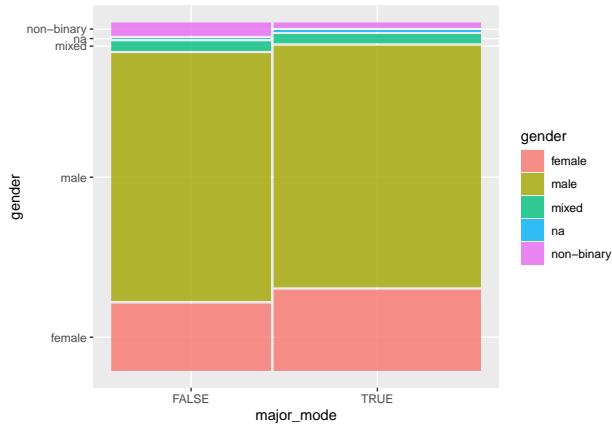
```
data: table(cat_var1, cat_var2)
X-squared = 664.43, df = 44, p-value < 2.2e-16
```

[1] "gender and major_mode"



	FALSE	TRUE
female	642	1011
male	2390	3032
mixed	82	103
na	0	8
non-binary	119	55

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

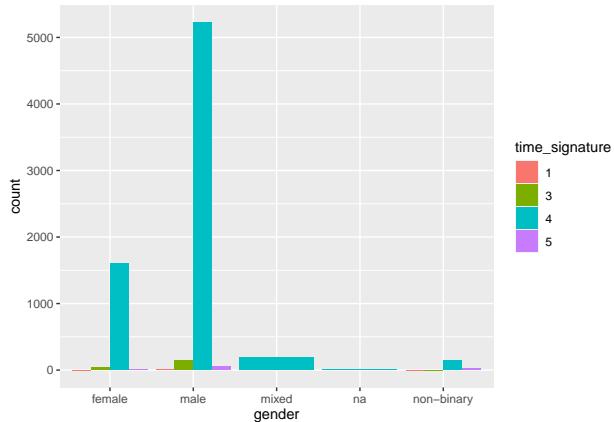


```
[1] "Chi-square test for gender and major_mode"
```

Pearson's Chi-squared test

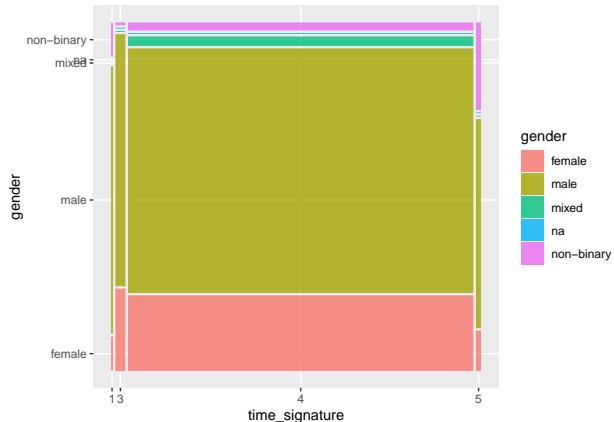
```
data: table(cat_var1, cat_var2)
X-squared = 65.439, df = 4, p-value = 2.08e-13
```

```
[1] "gender and time_signature"
```



	1	3	4	5
female	1	45	1597	10
male	8	139	5222	53
mixed	0	0	185	0
na	0	0	8	0
non-binary	1	1	150	22

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

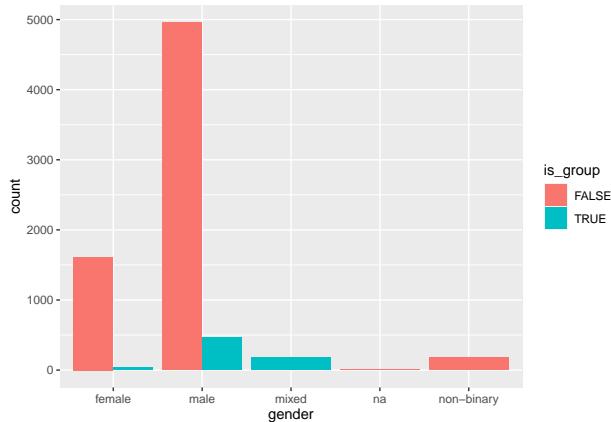


```
[1] "Chi-square test for gender and time_signature"
```

Pearson's Chi-squared test

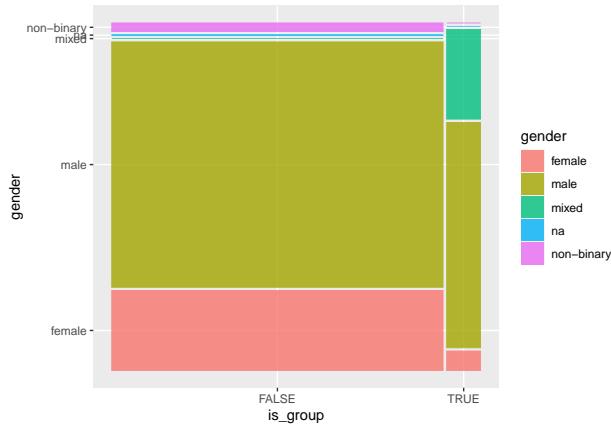
```
data: table(cat_var1, cat_var2)
X-squared = 222.69, df = 12, p-value < 2.2e-16
```

```
[1] "gender and is_group"
```



	FALSE	TRUE
female	1613	40
male	4956	466
mixed	0	185
na	8	0
non-binary	174	0

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

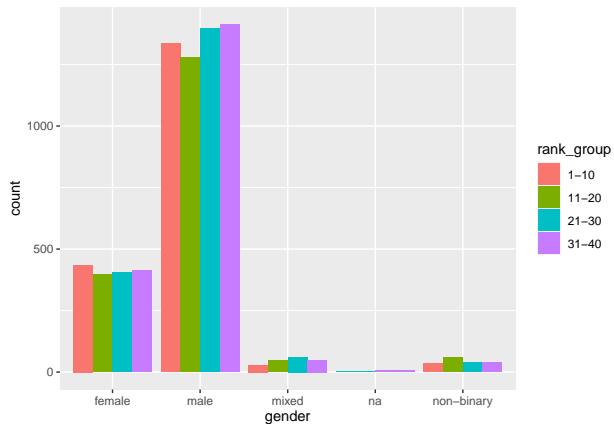


[1] "Chi-square test for gender and is_group"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 1921.6, df = 4, p-value < 2.2e-16
```

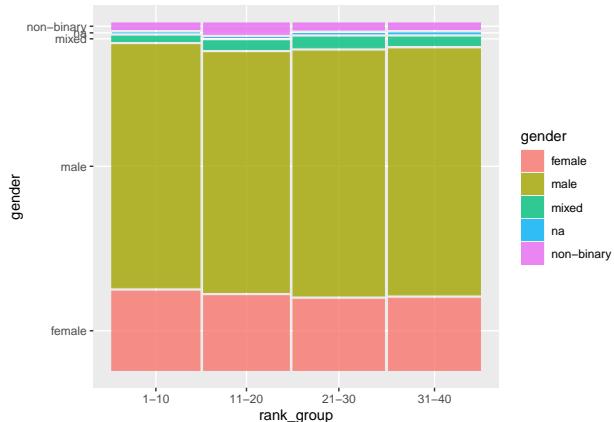
[1] "gender and rank_group"



1-10 11-20 21-30 31-40

	1-10	11-20	21-30	31-40
female	435	398	406	414
male	1334	1278	1398	1412
mixed	29	46	61	49
na	0	0	3	5
non-binary	36	60	40	38

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect

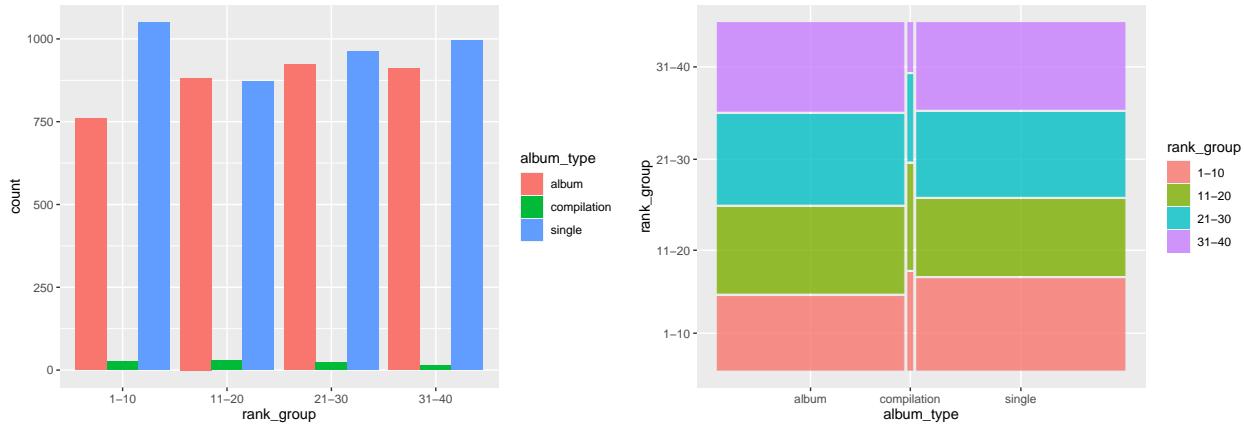


[1] "Chi-square test for gender and rank_group"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 32.721, df = 12, p-value = 0.00107
```

[1] "rank_group and album_type"



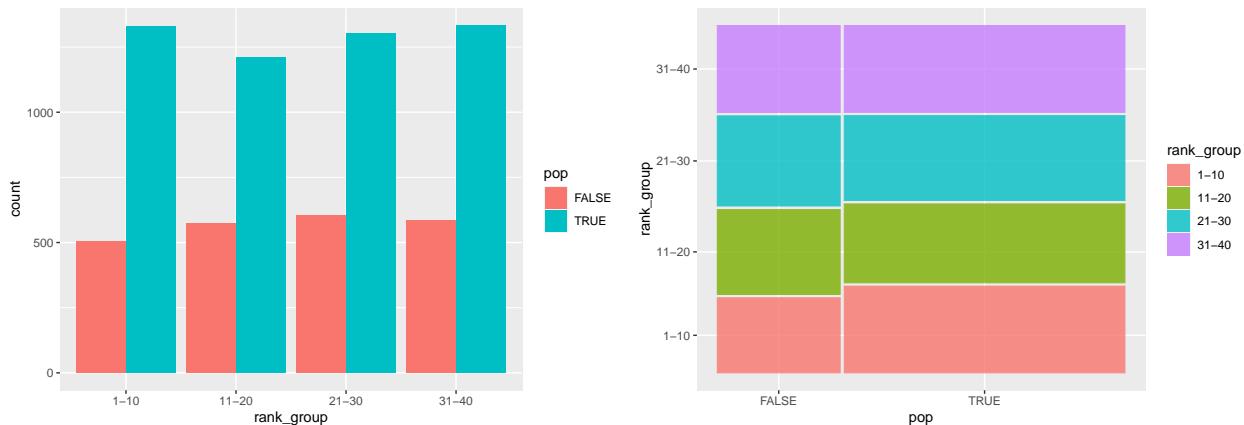
	album	compilation	single
1-10	759	26	1049
11-20	882	28	872
21-30	923	23	962
31-40	911	13	994

```
[1] "Chi-square test for rank_group and album_type"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 36.193, df = 6, p-value = 2.528e-06
```

```
[1] "rank_group and pop"
```



	FALSE	TRUE
1-10	504	1330
11-20	572	1210
21-30	605	1303
31-40	585	1333

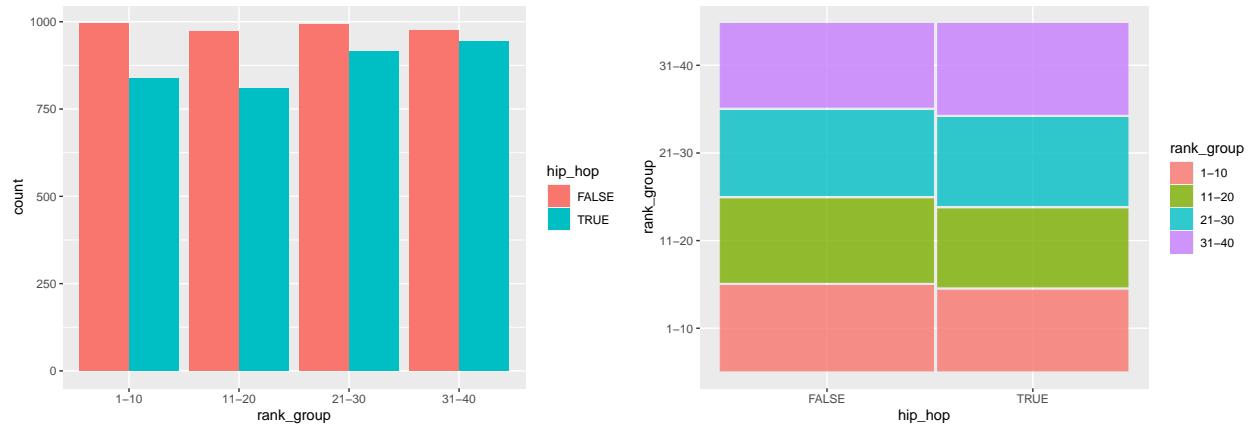
```
[1] "Chi-square test for rank_group and pop"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
```

```
X-squared = 11.351, df = 3, p-value = 0.009971
```

```
[1] "rank_group and hip_hop"
```



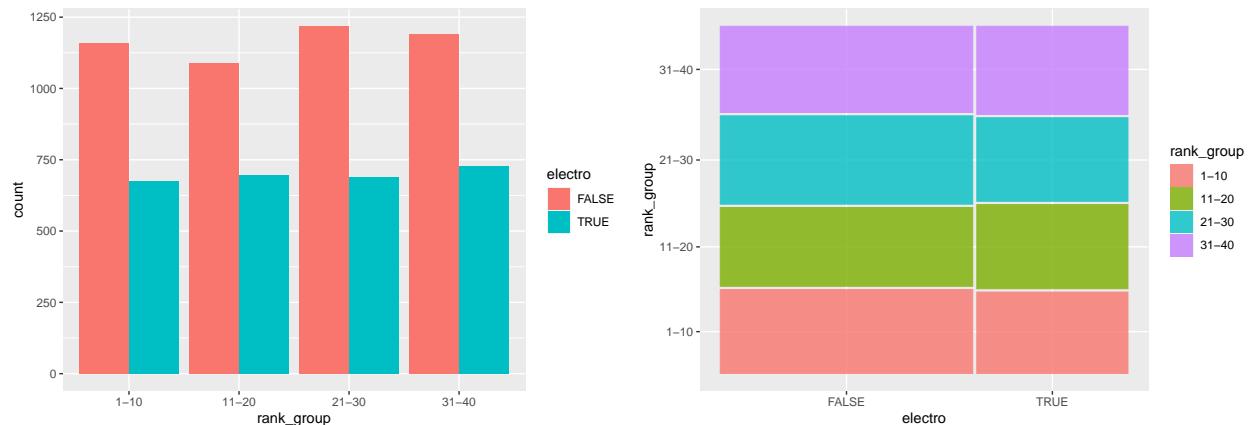
	FALSE	TRUE
1-10	995	839
11-20	972	810
21-30	993	915
31-40	975	943

```
[1] "Chi-square test for rank_group and hip_hop"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 7.1279, df = 3, p-value = 0.06793
```

```
[1] "rank_group and electro"
```



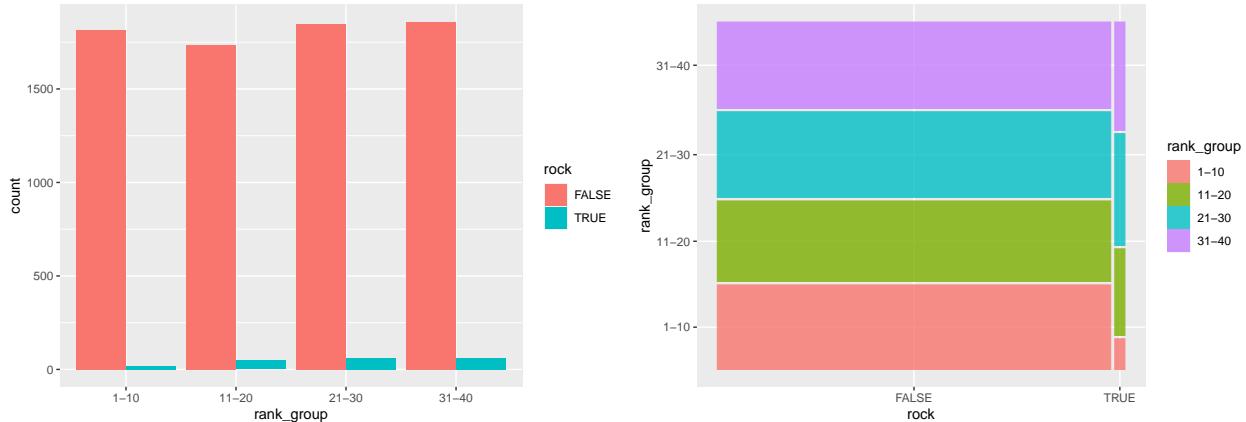
	FALSE	TRUE
1-10	1160	674
11-20	1087	695
21-30	1218	690
31-40	1190	728

```
[1] "Chi-square test for rank_group and electro"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 3.7715, df = 3, p-value = 0.2872
```

```
[1] "rank_group and rock"
```



FALSE TRUE

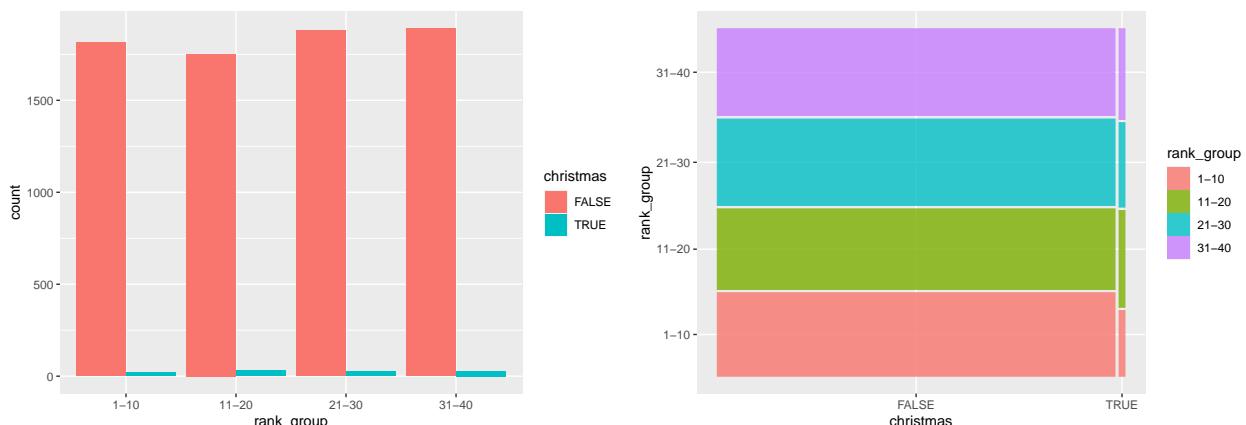
rank_group	rock FALSE	rock TRUE
1-10	1817	17
11-20	1734	48
21-30	1846	62
31-40	1858	60

```
[1] "Chi-square test for rank_group and rock"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 26.26, df = 3, p-value = 8.414e-06
```

```
[1] "rank_group and christmas"
```



FALSE TRUE

rank_group	christmas FALSE	christmas TRUE
1-10	1813	21

```

11-20 1751 31
21-30 1881 27
31-40 1889 29
[1] "Chi-square test for rank_group and christmas"

```

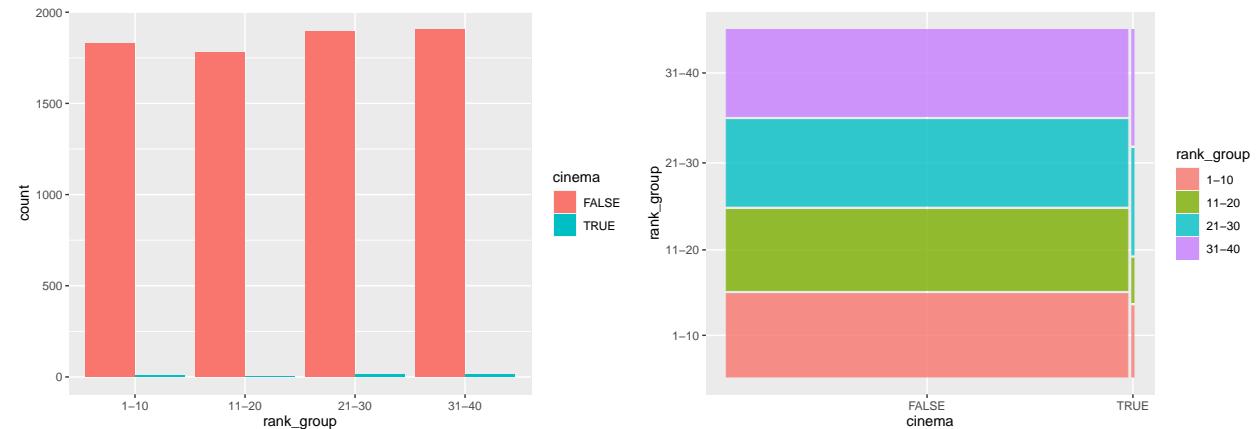
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 2.3055, df = 3, p-value = 0.5115

```

```
[1] "rank_group and cinema"
```



	FALSE	TRUE
1-10	1826	8
11-20	1777	5
21-30	1896	12
31-40	1905	13

```
[1] "Chi-square test for rank_group and cinema"
```

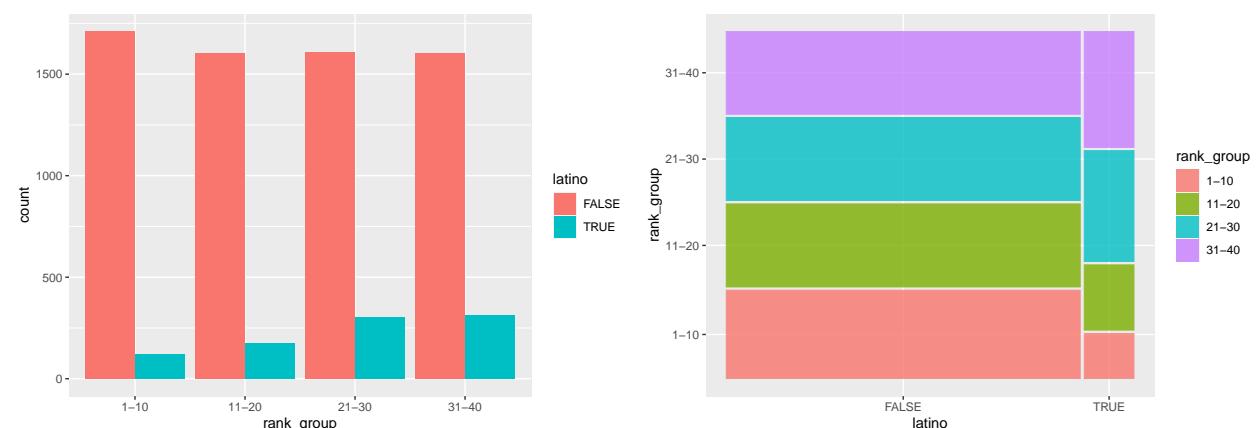
Pearson's Chi-squared test

```

data: table(cat_var1, cat_var2)
X-squared = 3.637, df = 3, p-value = 0.3034

```

```
[1] "rank_group and latino"
```



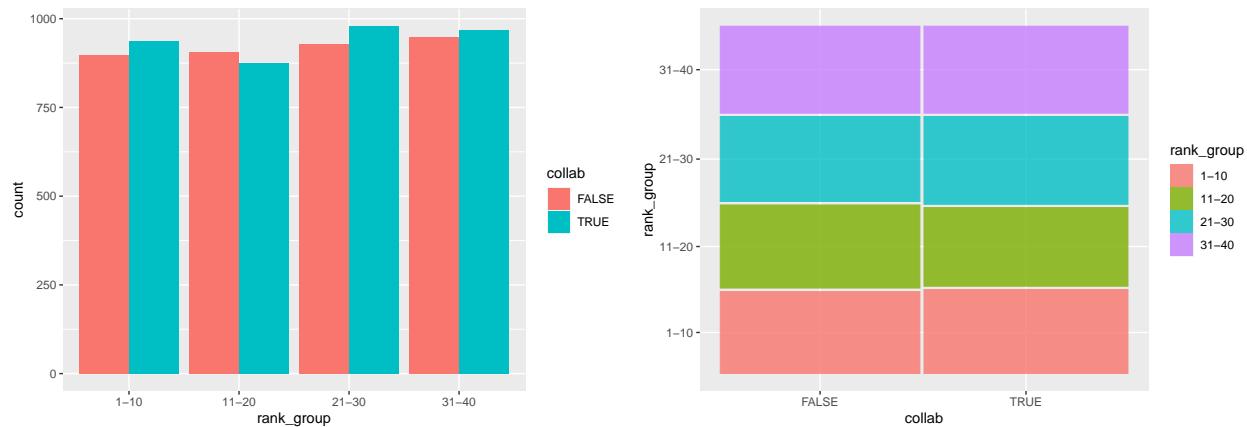
	FALSE	TRUE
1-10	1711	123
11-20	1605	177
21-30	1607	301
31-40	1603	315

```
[1] "Chi-square test for rank_group and latino"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 113.98, df = 3, p-value < 2.2e-16
```

```
[1] "rank_group and collab"
```



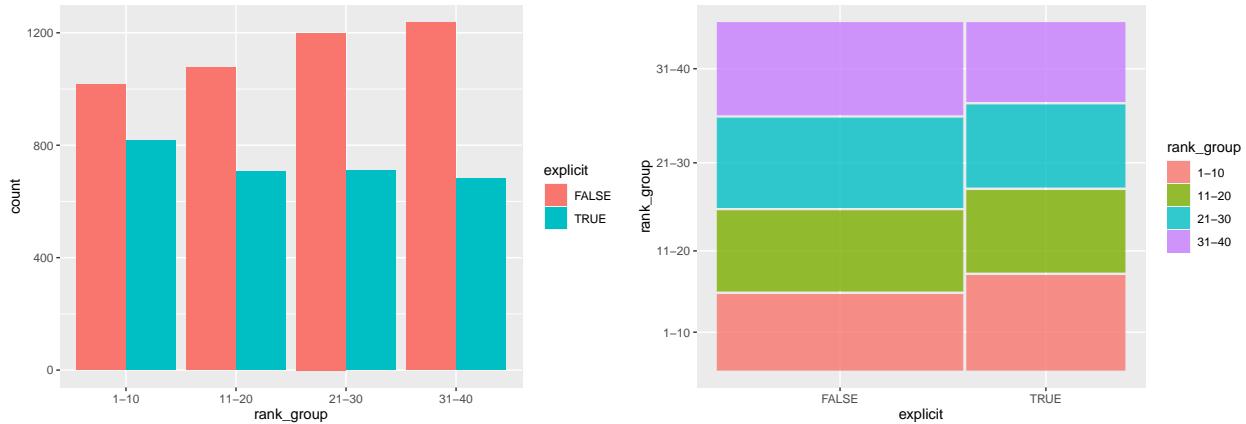
	FALSE	TRUE
1-10	897	937
11-20	906	876
21-30	929	979
31-40	949	969

```
[1] "Chi-square test for rank_group and collab"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 2.0365, df = 3, p-value = 0.5649
```

```
[1] "rank_group and explicit"
```



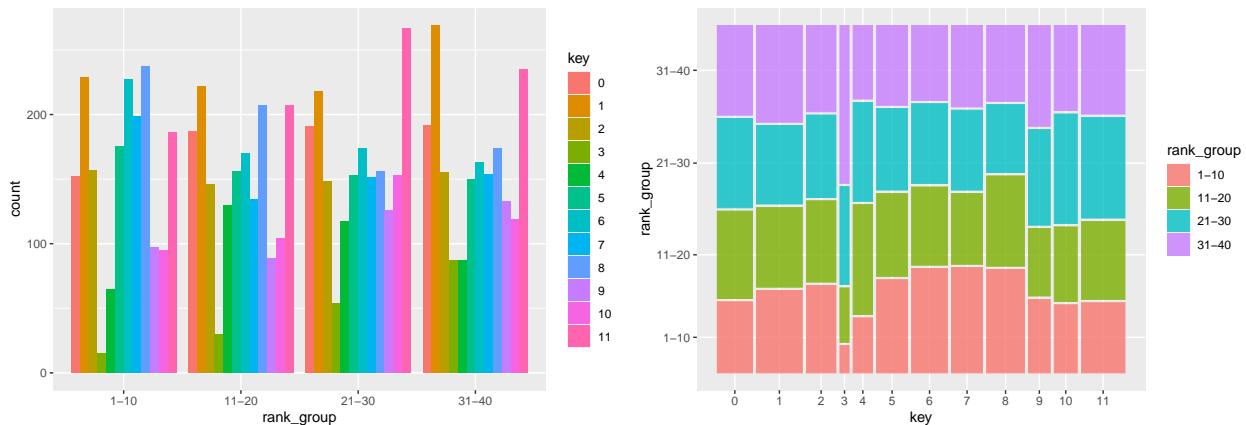
	FALSE	TRUE
1-10	1016	818
11-20	1076	706
21-30	1199	709
31-40	1236	682

```
[1] "Chi-square test for rank_group and explicit"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 36.602, df = 3, p-value = 5.586e-08
```

```
[1] "rank_group and key"
```



	0	1	2	3	4	5	6	7	8	9	10	11
1-10	152	229	157	15	65	175	227	199	237	97	95	186
11-20	187	222	146	30	130	156	170	134	207	89	104	207
21-30	191	218	148	54	117	153	174	151	156	126	153	267
31-40	192	269	155	87	87	150	163	154	174	133	119	235

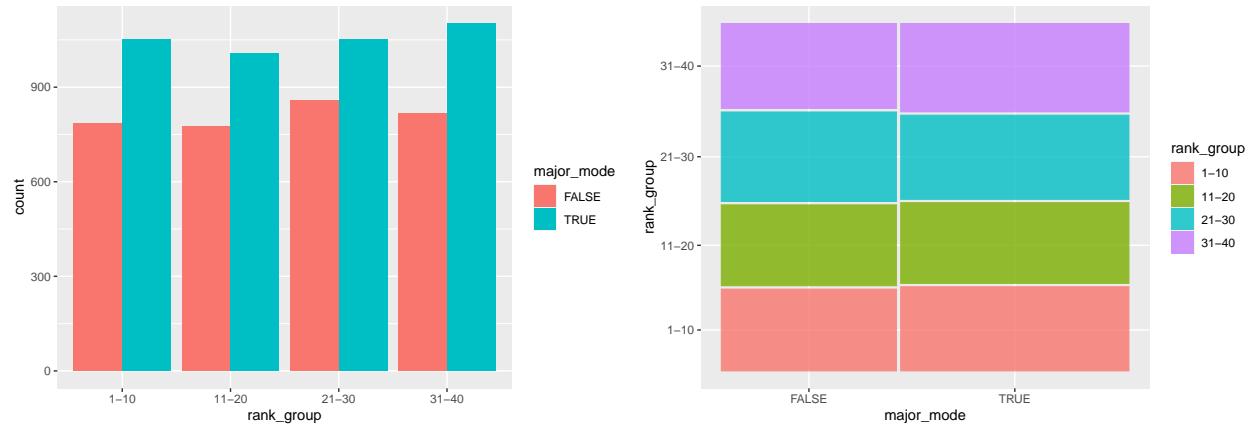
```
[1] "Chi-square test for rank_group and key"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
```

X-squared = 193.07, df = 33, p-value < 2.2e-16

[1] "rank_group and major_mode"



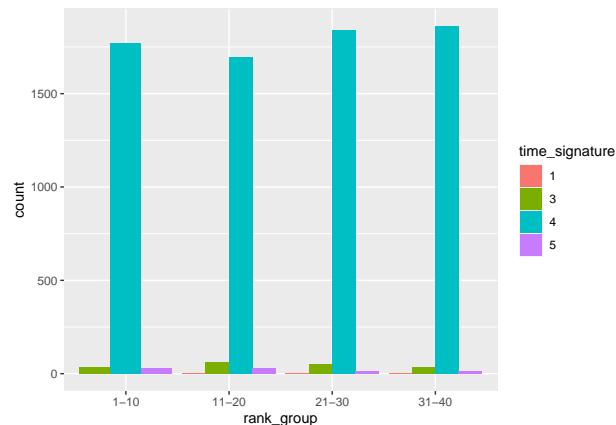
	FALSE	TRUE
1-10	784	1050
11-20	775	1007
21-30	858	1050
31-40	816	1102

[1] "Chi-square test for rank_group and major_mode"

Pearson's Chi-squared test

data: table(cat_var1, cat_var2)
X-squared = 2.7998, df = 3, p-value = 0.4235

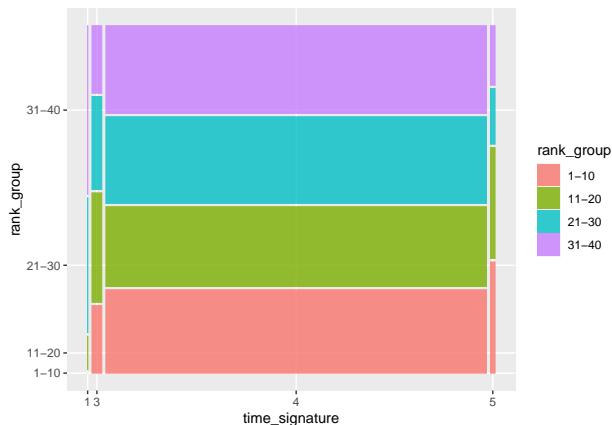
[1] "rank_group and time_signature"



	1	3	4	5
1-10	0	37	1769	28
11-20	1	60	1693	28
21-30	4	51	1839	14
31-40	5	37	1861	15

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared

approximation may be incorrect

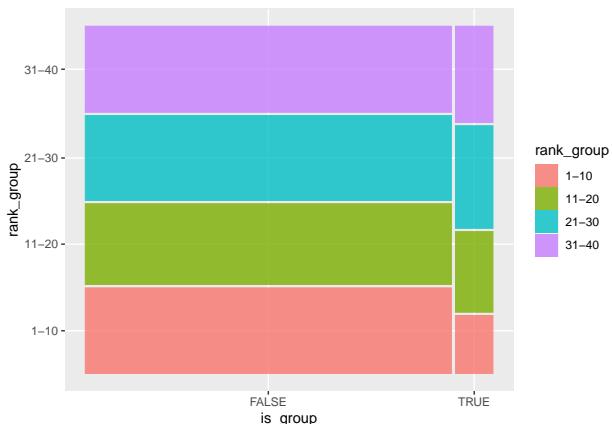
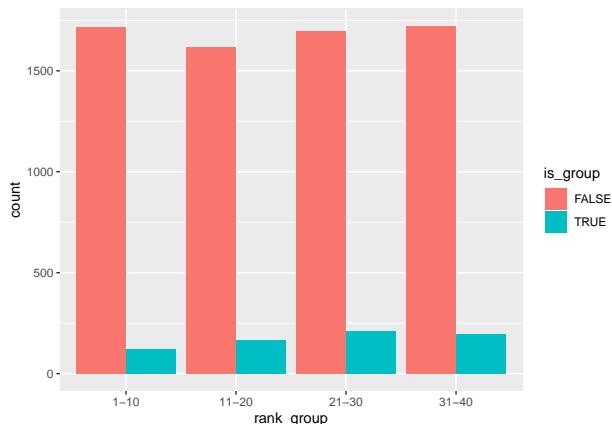


```
[1] "Chi-square test for rank_group and time_signature"
```

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 26.834, df = 9, p-value = 0.00149
```

```
[1] "rank_group and is_group"
```



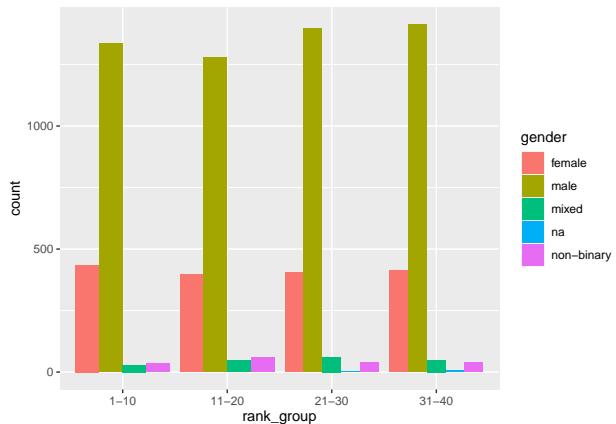
	FALSE	TRUE
1-10	1715	119
11-20	1617	165
21-30	1698	210
31-40	1721	197

```
[1] "Chi-square test for rank_group and is_group"
```

Pearson's Chi-squared test

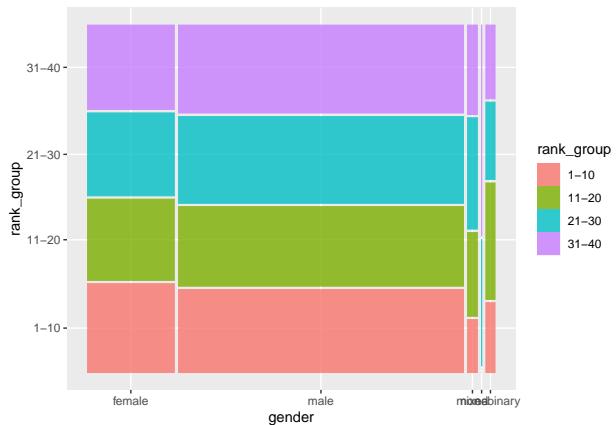
```
data: table(cat_var1, cat_var2)
X-squared = 25.955, df = 3, p-value = 9.749e-06
```

```
[1] "rank_group and gender"
```



	female	male	mixed	na	non-binary
1-10	435	1334	29	0	36
11-20	398	1278	46	0	60
21-30	406	1398	61	3	40
31-40	414	1412	49	5	38

Warning in chisq.test(table(cat_var1, cat_var2), correct = FALSE): Chi-squared approximation may be incorrect



[1] "Chi-square test for rank_group and gender"

Pearson's Chi-squared test

```
data: table(cat_var1, cat_var2)
X-squared = 32.721, df = 12, p-value = 0.00107
```