

Stylebot Experiment

Wafa Johal

October 7, 2016

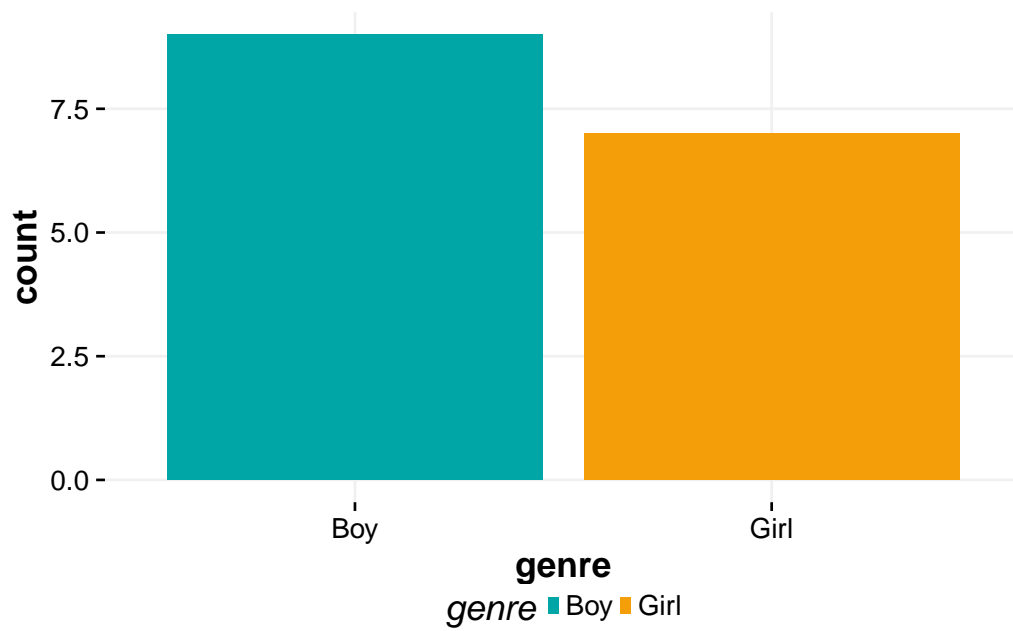
1 Interviews

Table 1: Summary statistics of activities metadata

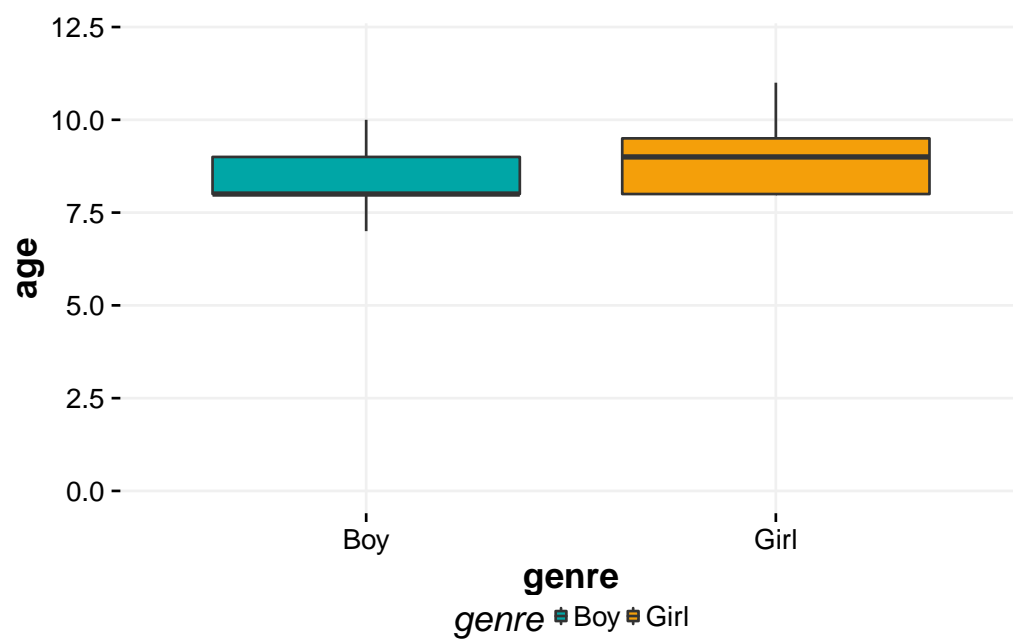
Statistic	N	Mean	St. Dev.	Min	Max
ordre	16	8.500	4.761	1	16
age	16	8.688	1.014	7	11
p_robot	16	3.125	1.258	1	5
p_videogame	16	3.500	1.414	1	5
p_bike	16	2.375	1.310	1	5
p_book	16	2.312	1.138	1	4
p_clothes	16	3.688	1.537	1	5
p_homeworks	16	3.375	1.147	1	4
p_play	16	3.562	0.892	1	4
p_teach	16	3.938	0.250	3	4
p_phone	15	1.867	1.302	1	4
p_webbrowser	15	2.067	1.335	1	4
prefered_session	14	1.643	0.497	1	2
e_robot	13	1.077	0.277	1	2
e_videogame	13	2.615	1.193	1	5
e_bike	12	3.250	0.965	2	5
e_book	12	3.417	1.379	1	5
e_clothes	13	4.308	0.751	3	5
e_homeworks	13	3.115	0.650	2.000	4.000
e_play	13	3.115	0.618	2.000	4.000
e_rules	12	3.167	0.577	2	4
e_learn	13	3.500	0.577	2.500	4.000
e_sport	12	3.000	0.603	2	4
e_teach	12	3.500	0.674	2	4
e_outside	12	2.917	0.900	1	4
e_mood	12	3.375	0.569	2.500	4.000
e_phone	13	2.308	1.109	1	4
e_webbrowser	13	2.500	0.957	1.000	4.000

1.1 General

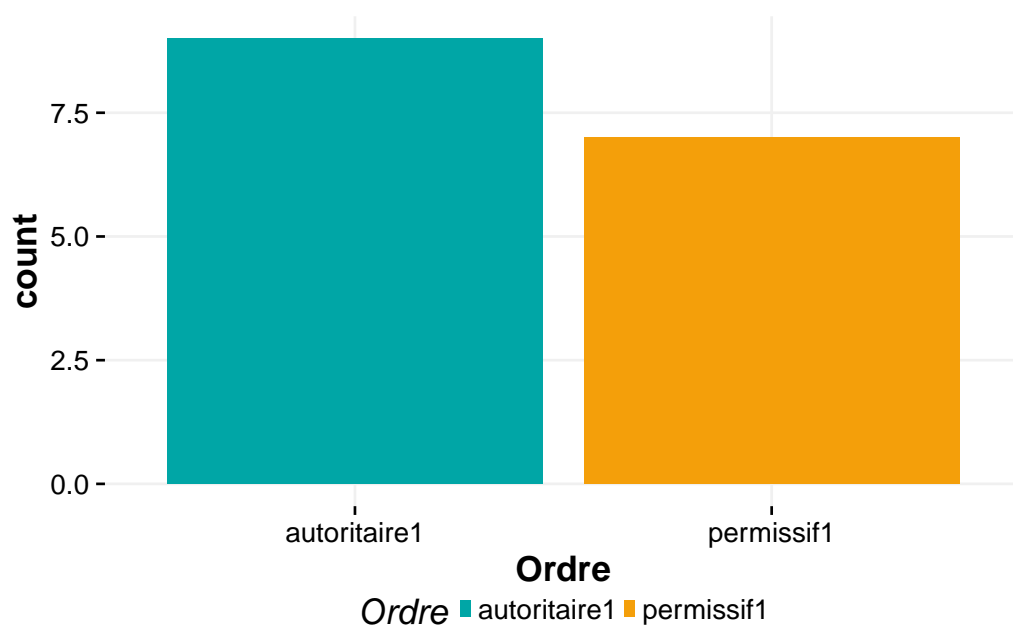
1.1.1 Gender



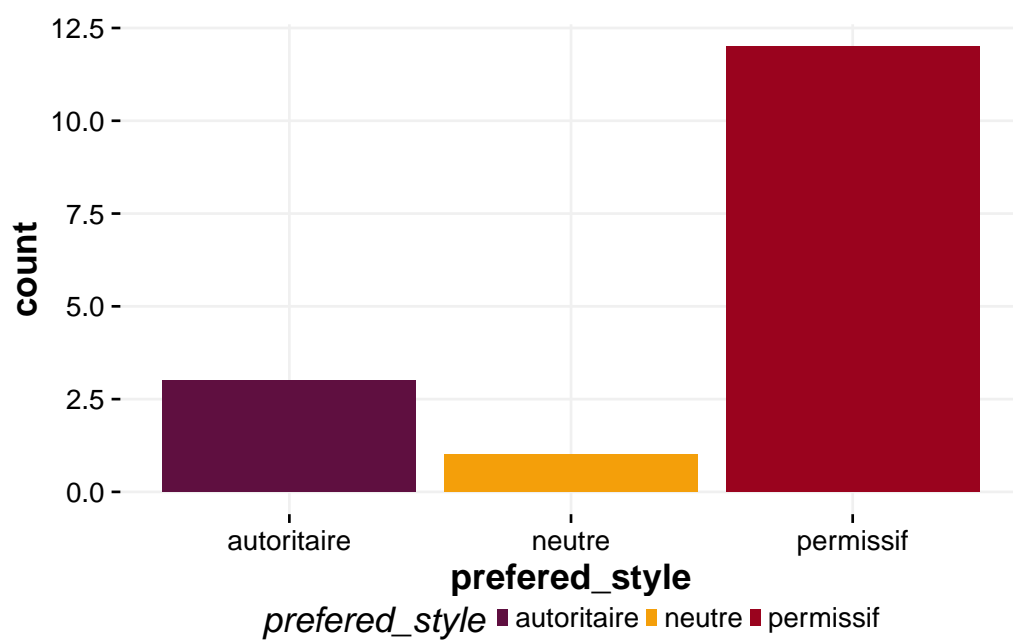
1.1.2 Age



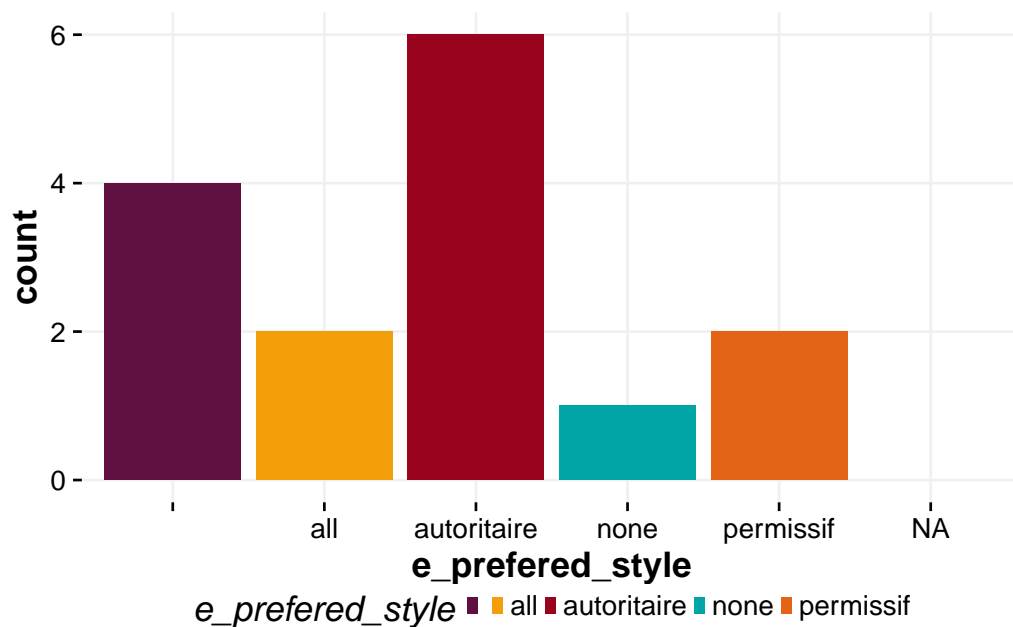
1.1.3 order



1.1.4 Preferred style parent

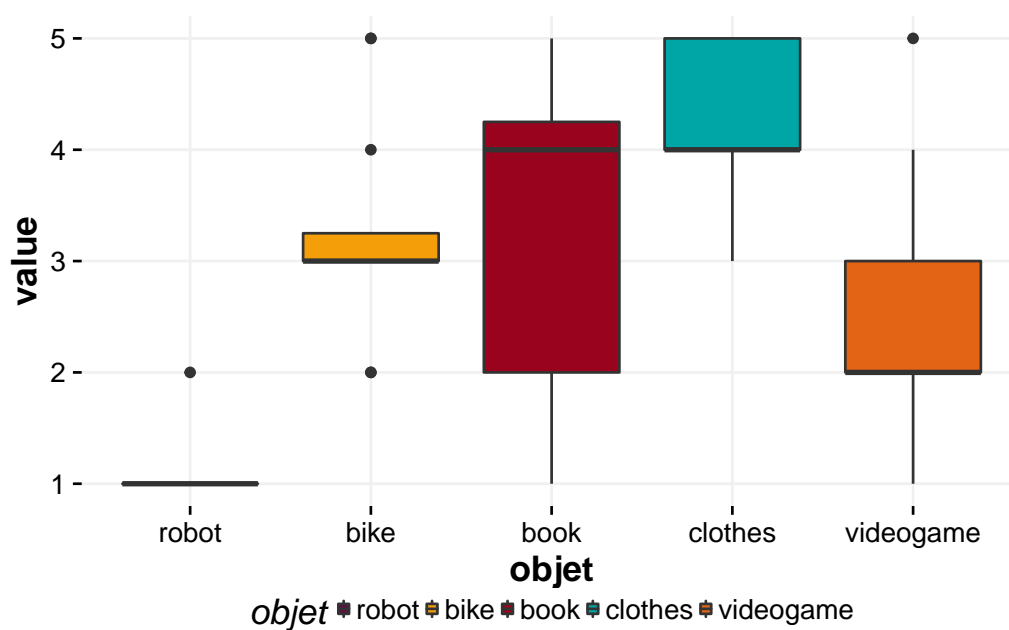


1.1.5 Preferred style children

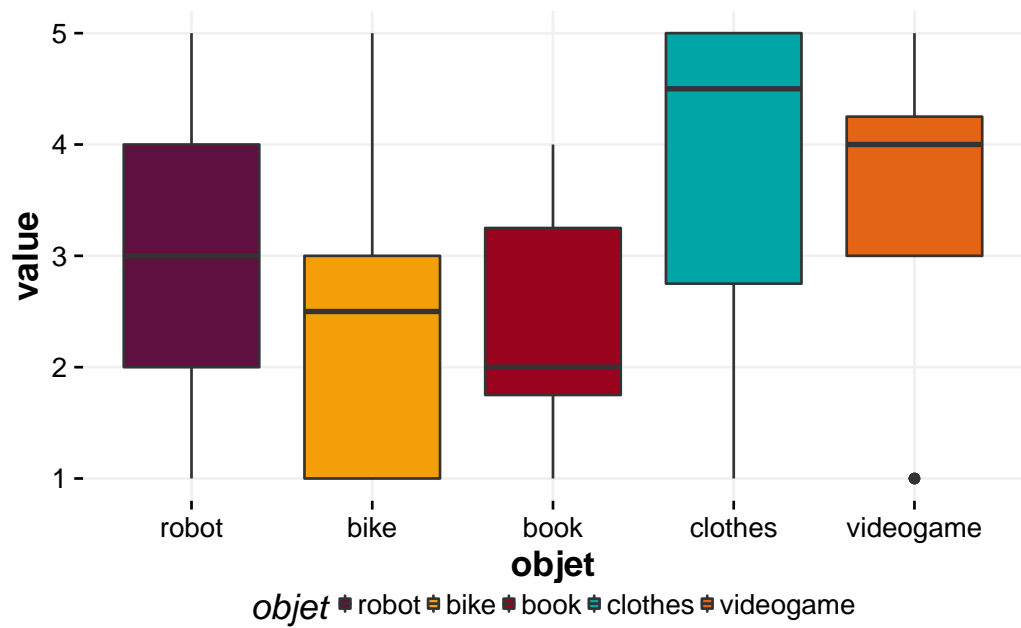


1.2 COIRS - CHILD ORIENTAION IN INTERACTING WITH ROBOT

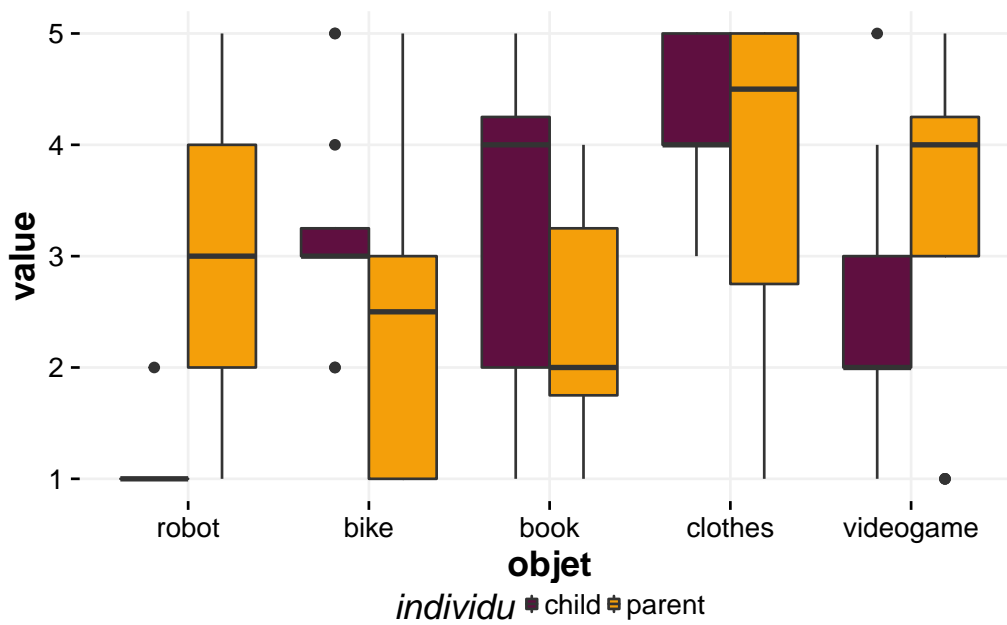
The following plot shows the average ranking for children for each of the object (1: first in the child's wish list)



The following plot shows the average ranking for parents for each of the object (1: first in the parent's wish list as

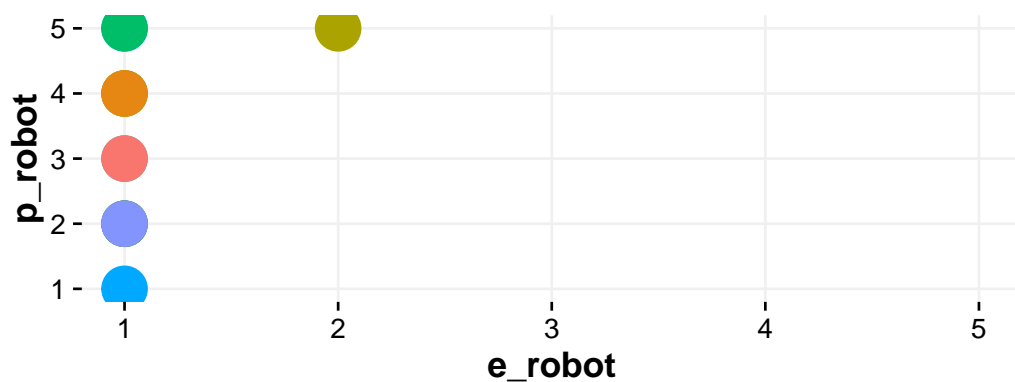


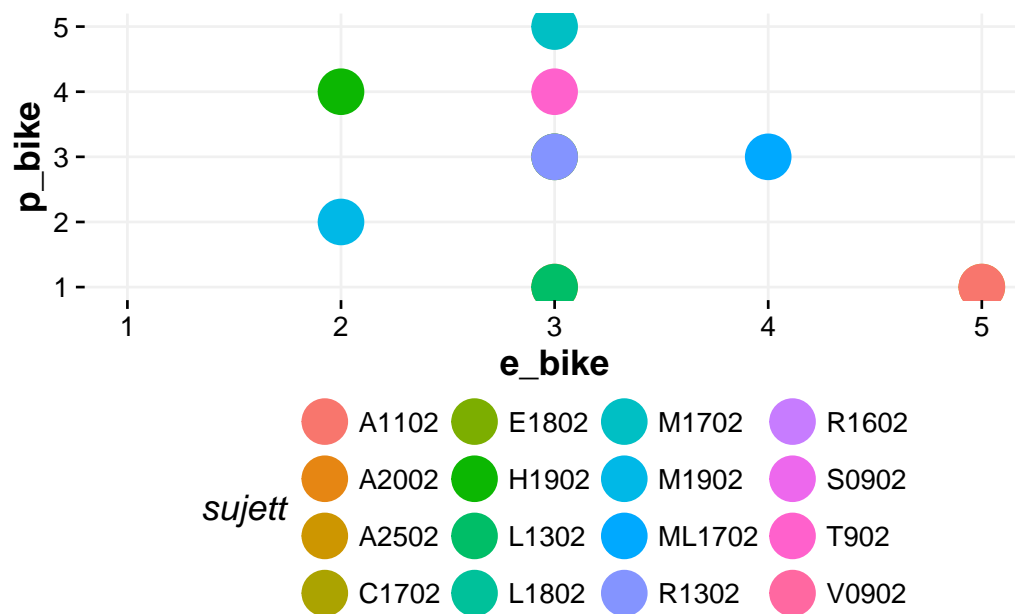
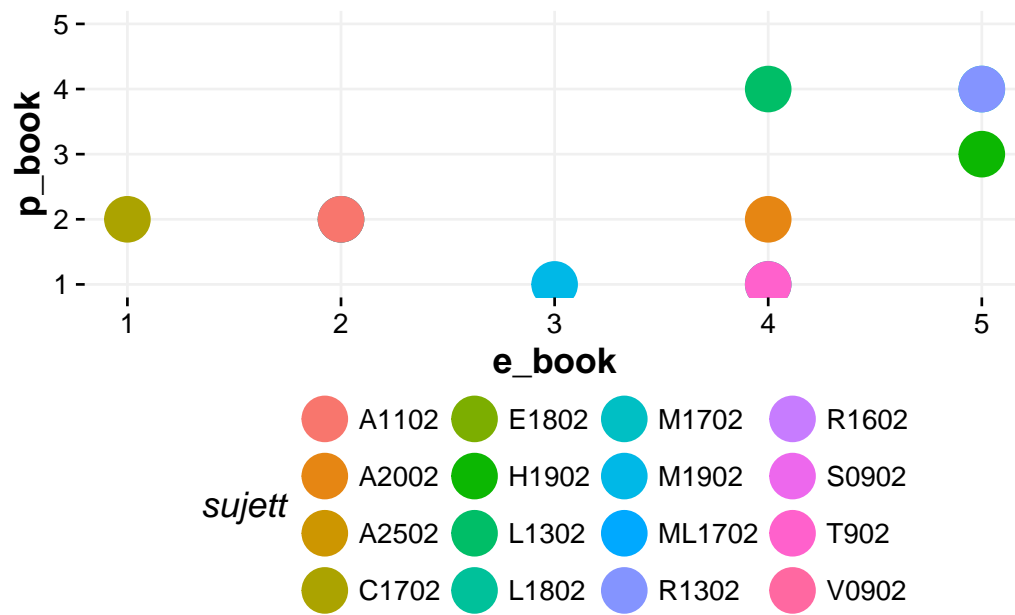
a gift for thei child)

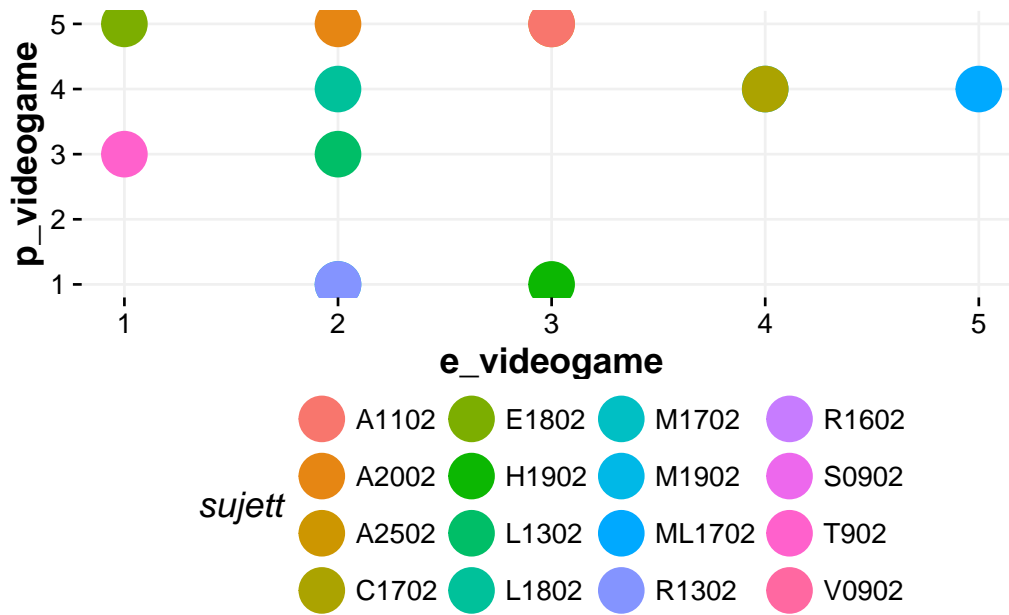


1.2.1 Child-parent correlation in object ranking

Next graphs show the correlation between parent and children ranking for each of the child subject

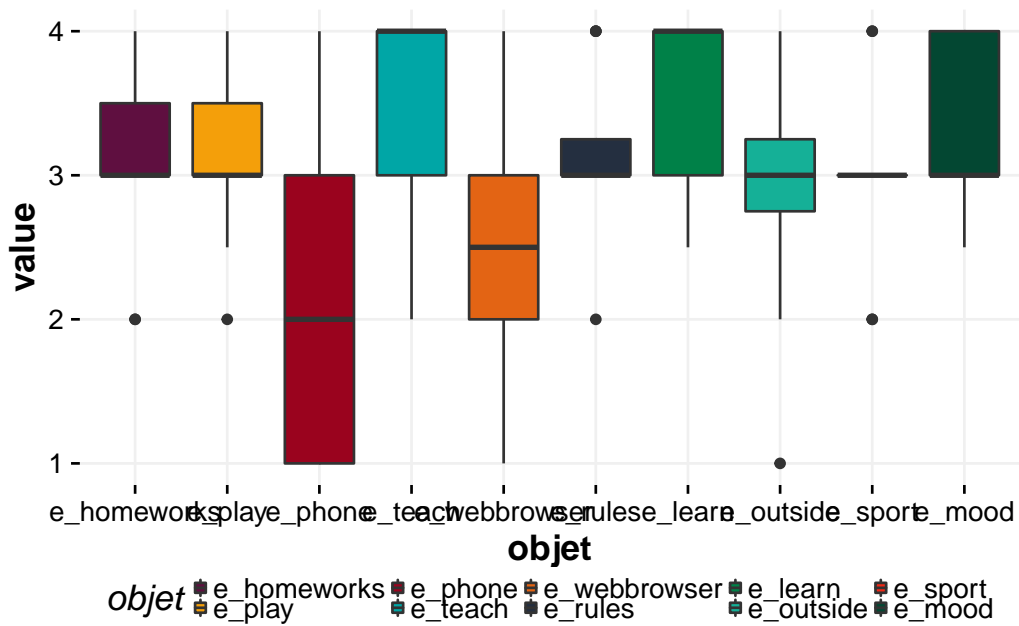




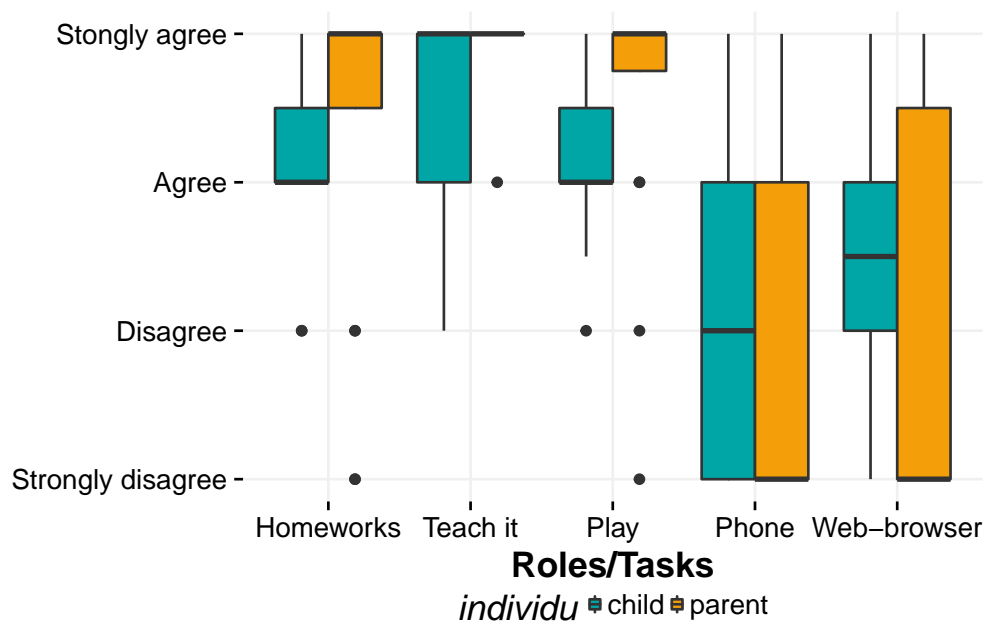
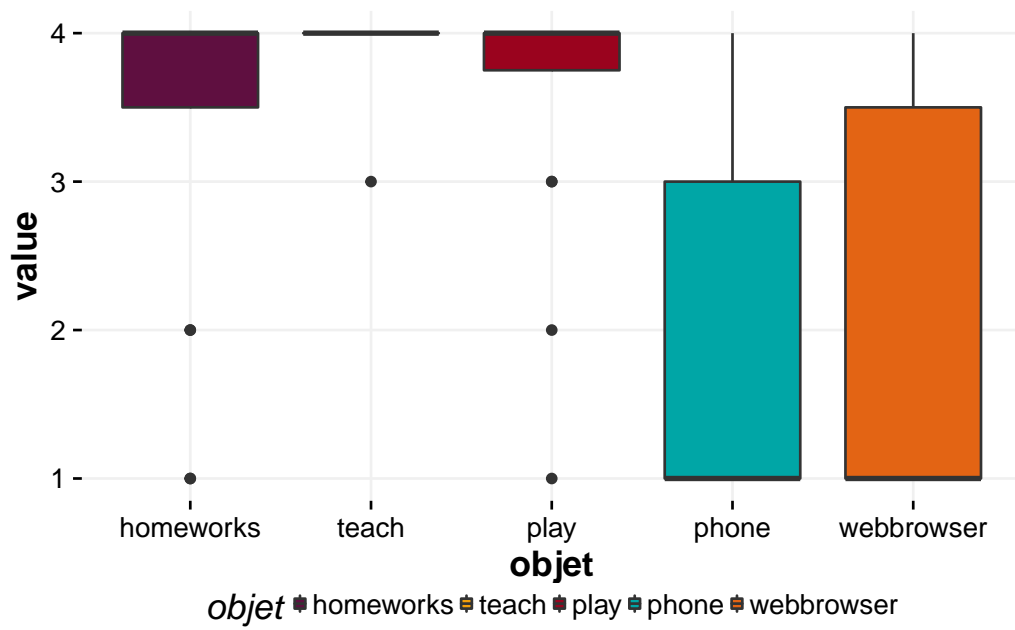


1.3 Functionality preferences

The following plot shows the average preference of children for each functionality (4: very preferred, 1: not preferred)

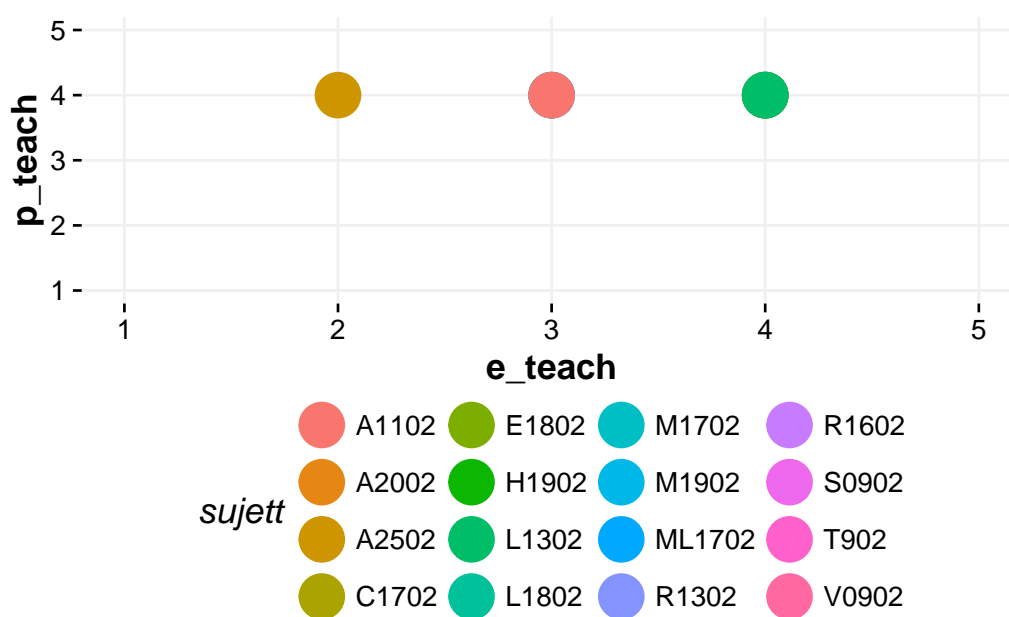
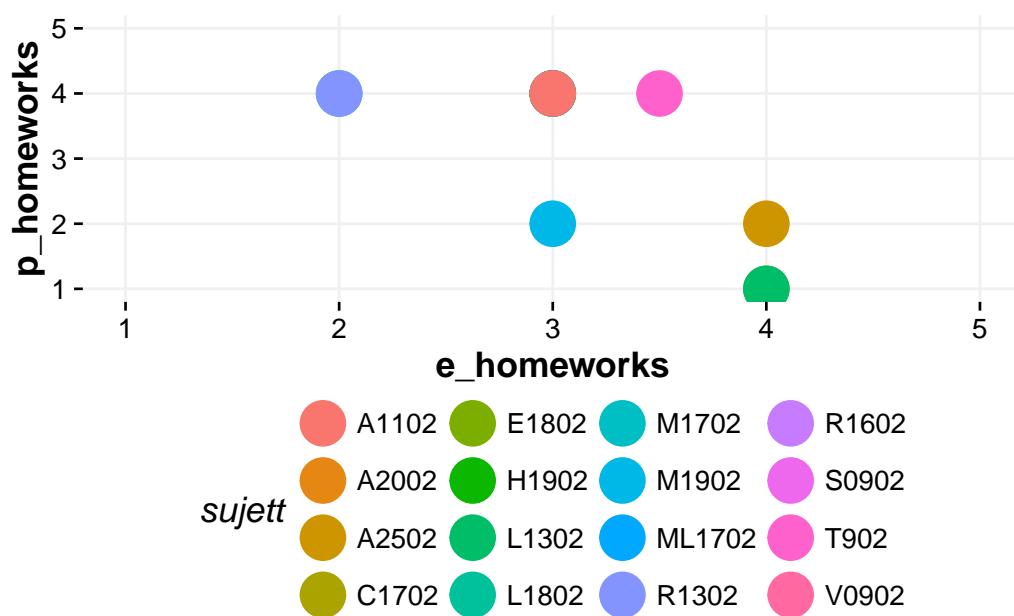


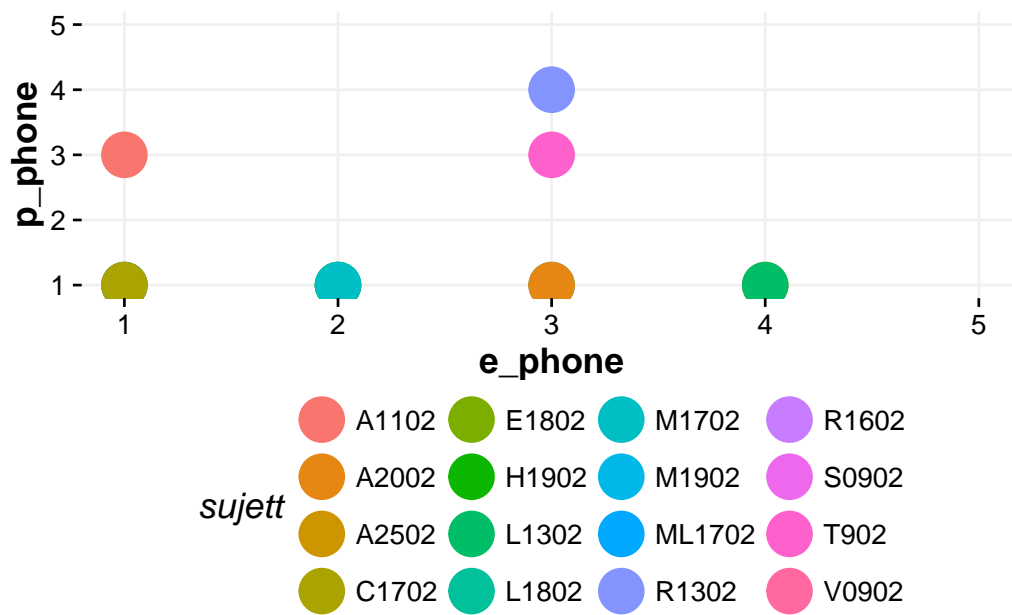
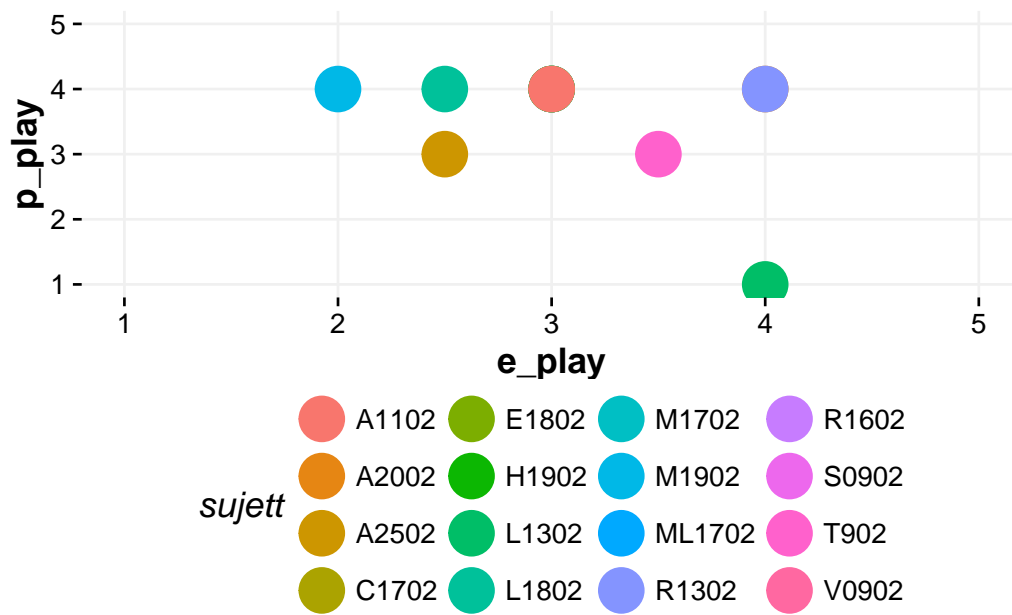
The following plot shows the average preference of parents for each functionality (4: very preferred, 1: not preferred)

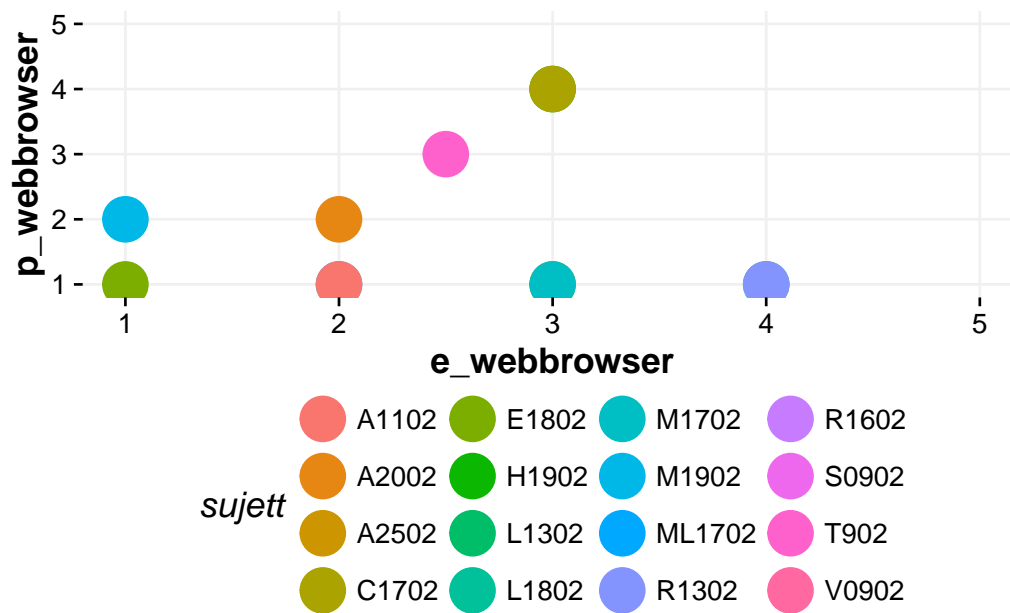


1.3.1 Child-parent correlation in functionality preference

Next graphs show the correlation between parent and children ranking for each of the child subject





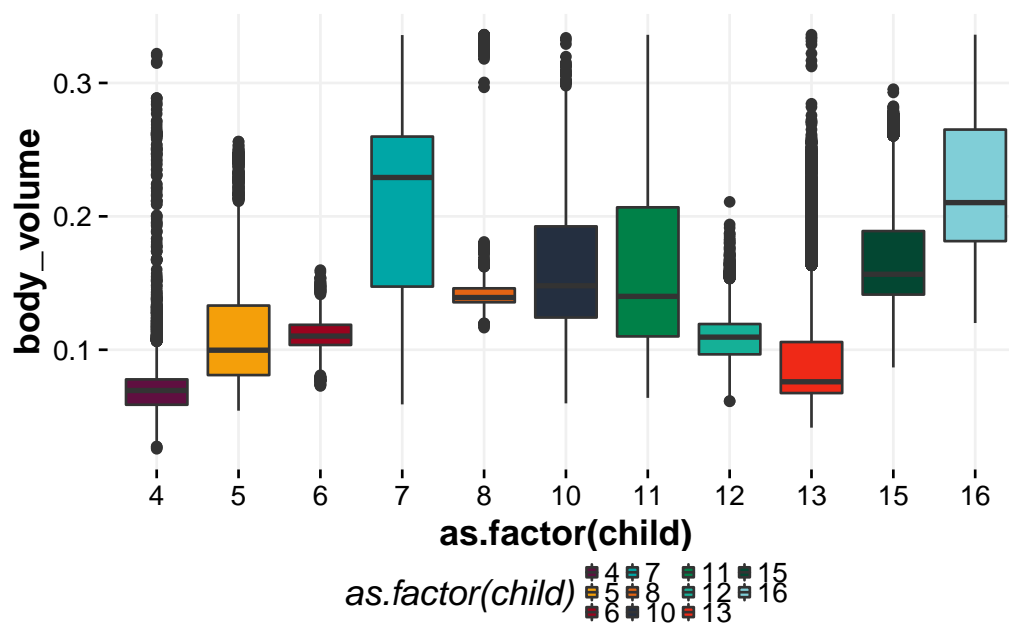


2 Features

2.1 Static Features

2.1.1 Body Volume

We filtered the data as follow



Child

Error: session

	Df	Sum Sq	Mean Sq
factor(child)	1	49.97	49.97

Error: style

	Df	Sum Sq	Mean Sq
factor(child)	1	0.5028	0.5028

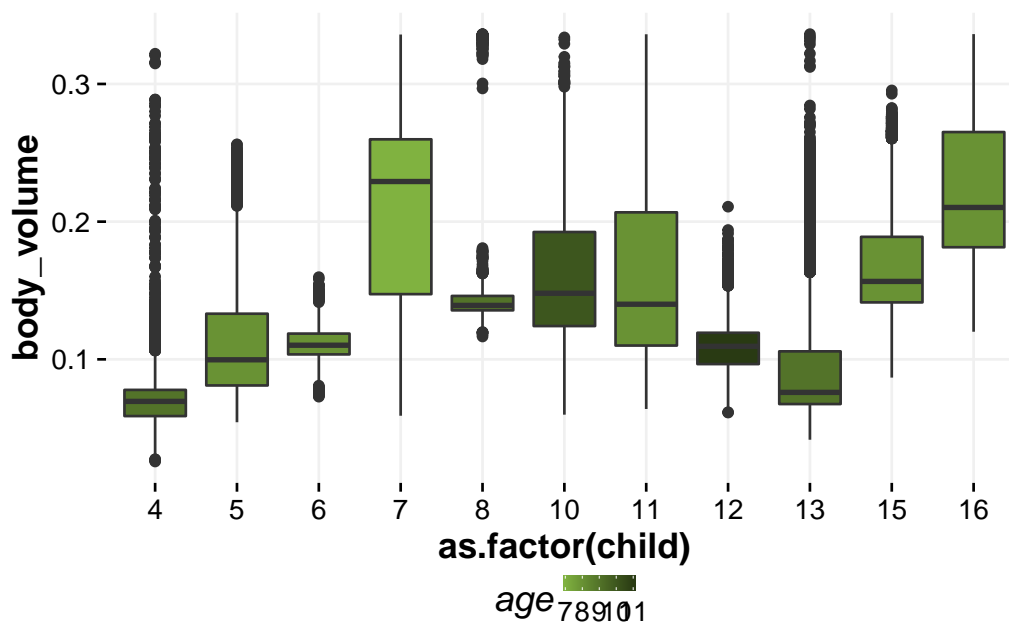
Error: session:style

	Df	Sum Sq	Mean Sq
factor(child)	1	91.12	91.12

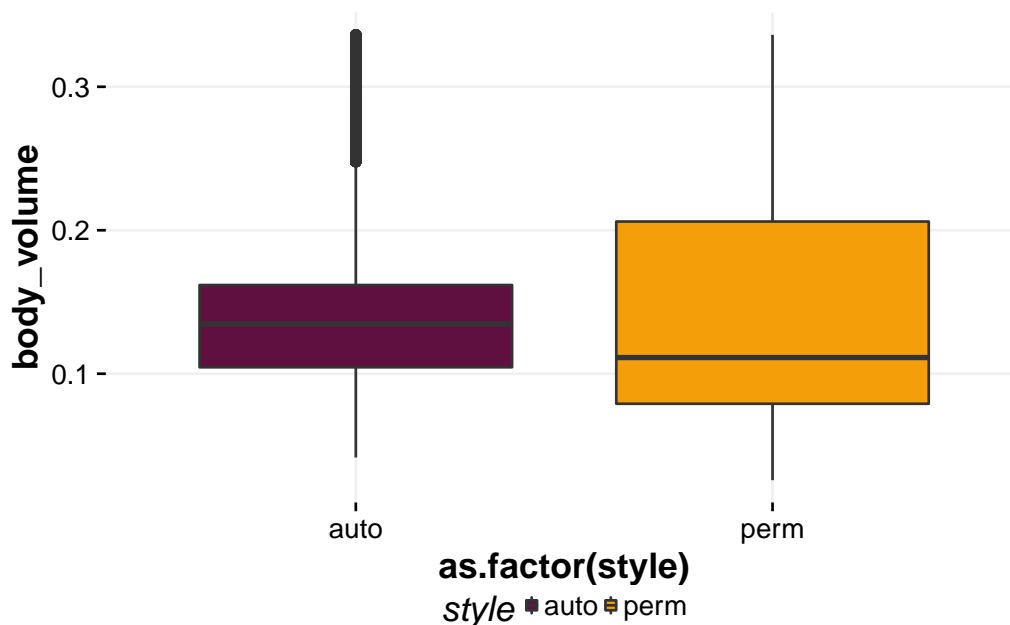
Error: Within

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(child)	9	152.5	16.941	7978	<2e-16 ***
Residuals	138529	294.2	0.002		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

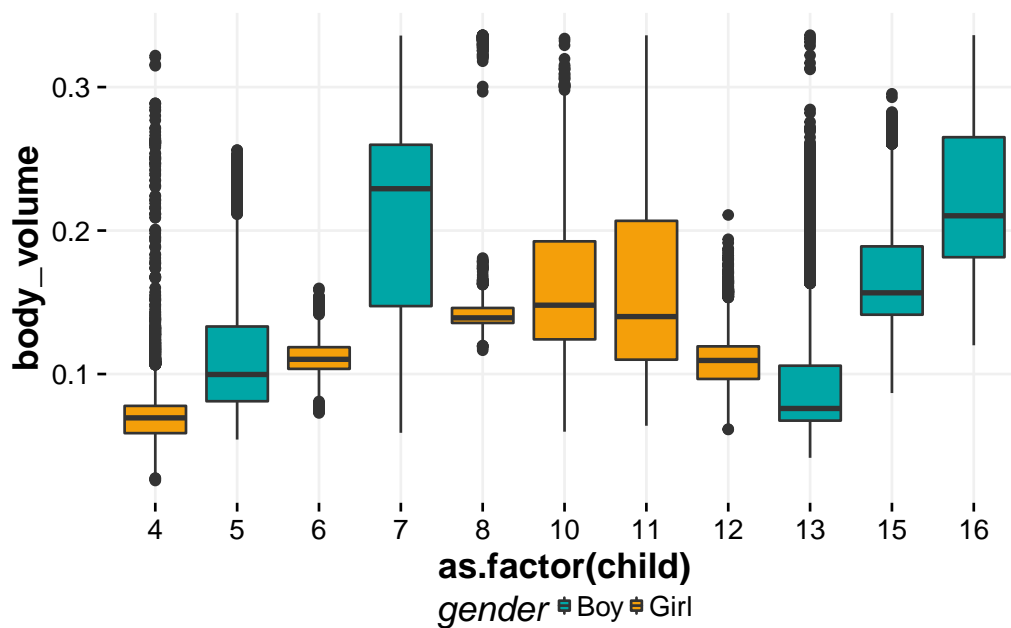


Age

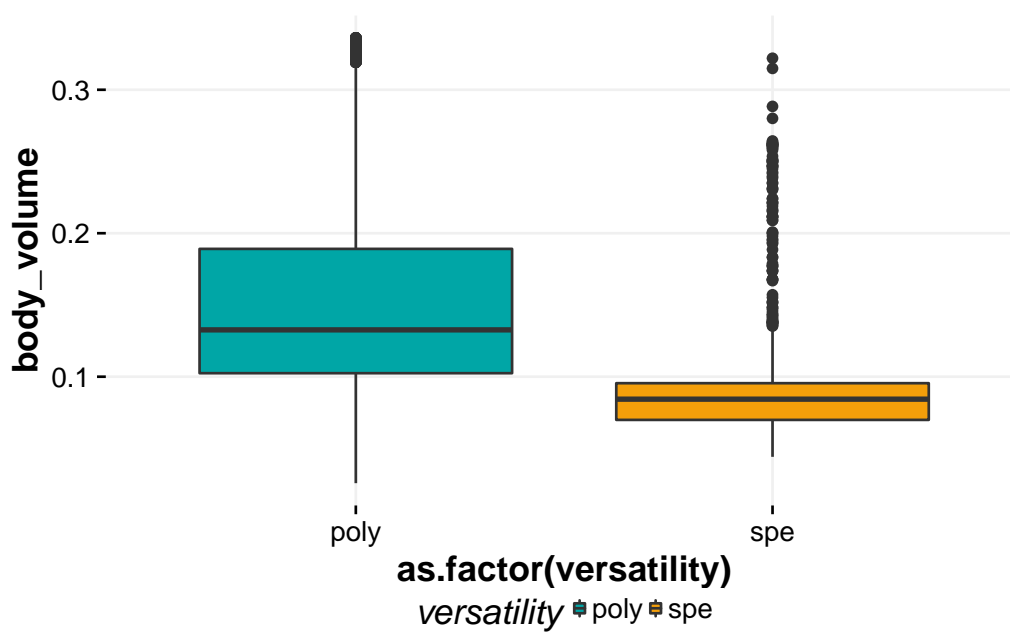


	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(age)	4	185.0	46.24	15883	<2e-16 ***
Residuals	138537	403.3	0.00		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
15181 observations deleted due to missingness

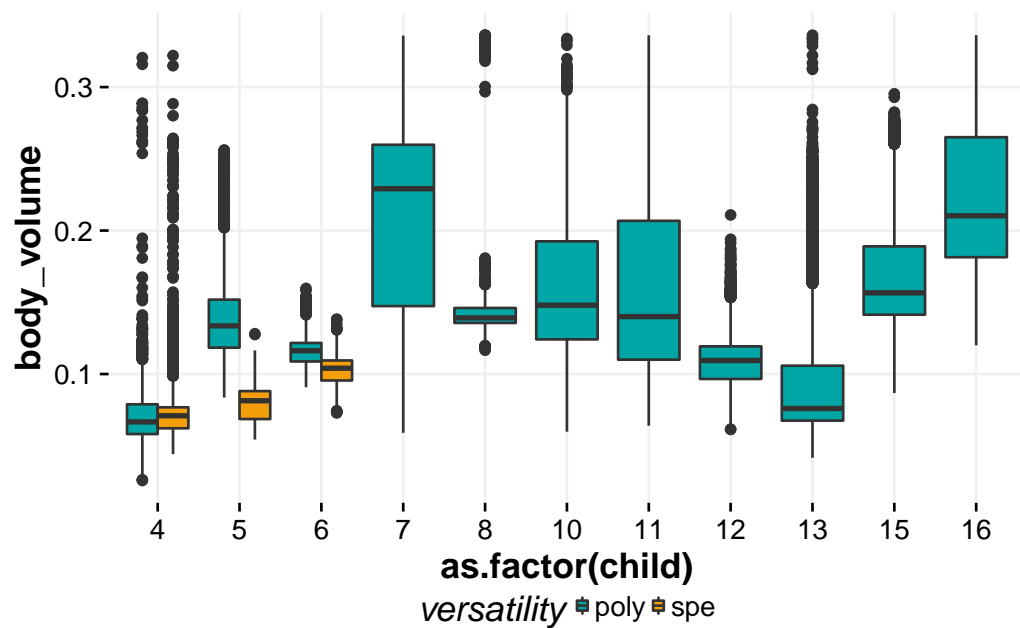


Gender

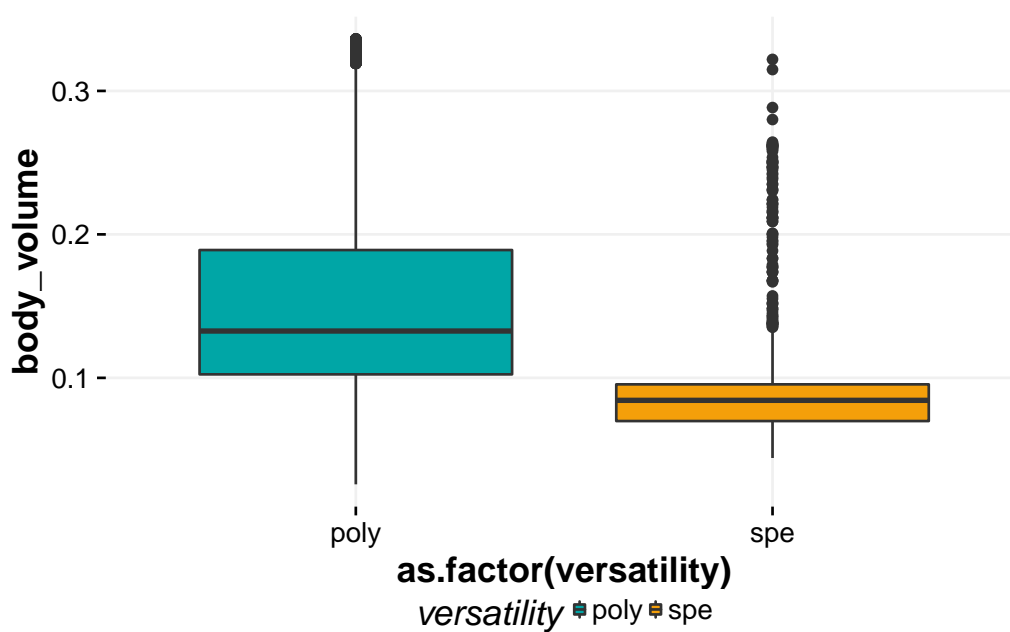


	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(gender)	1	22.5	22.472	5503	<2e-16 ***
Residuals	138540	565.8	0.004		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
 15181 observations deleted due to missingness

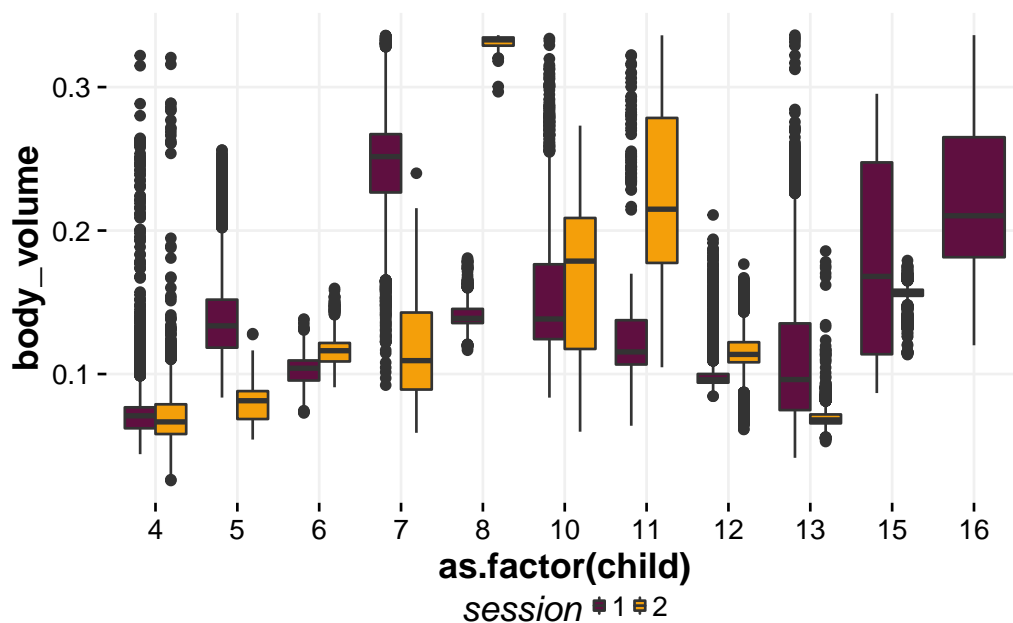


Versatility

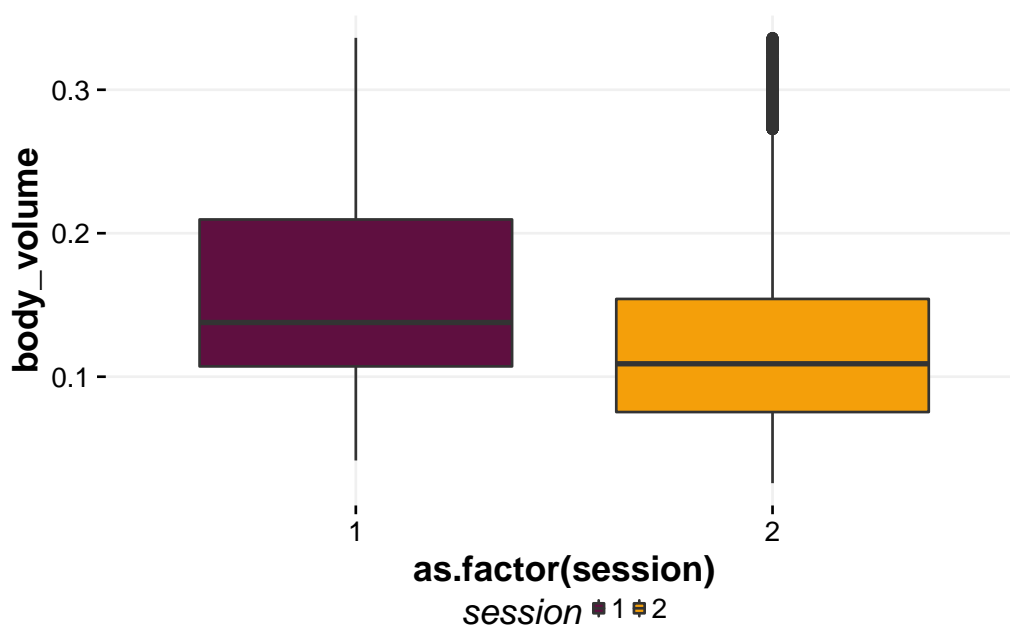


	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(versatility)	1	56.2	56.19	14631	<2e-16 ***
Residuals	138540	532.1	0.00		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
 15181 observations deleted due to missingness



Session



Error: child

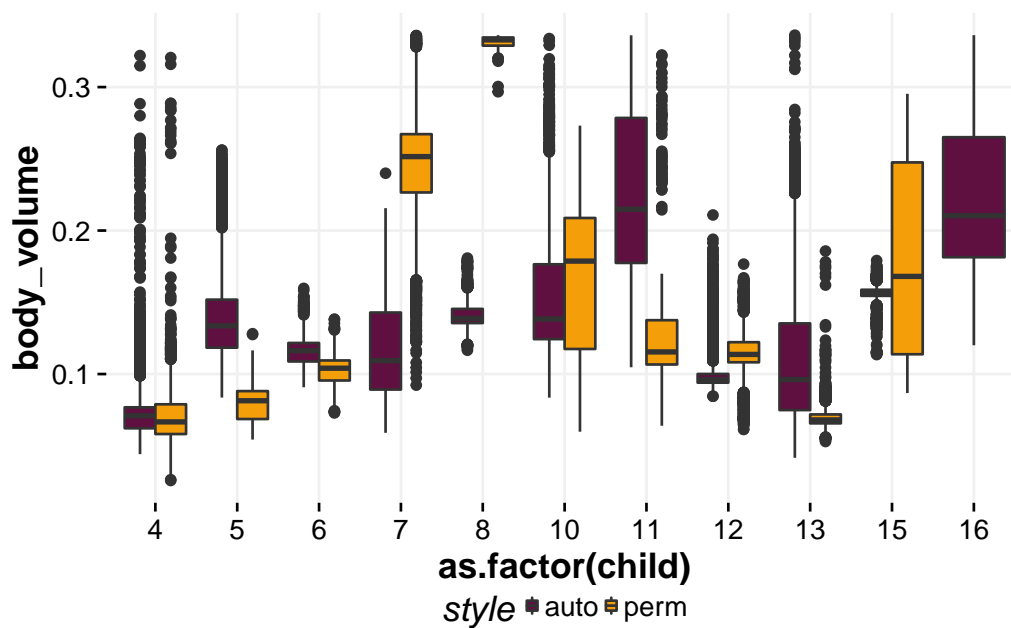
	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(session)	1	124.1	124.1	7.131	0.0256 *
Residuals	9	156.6	17.4		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

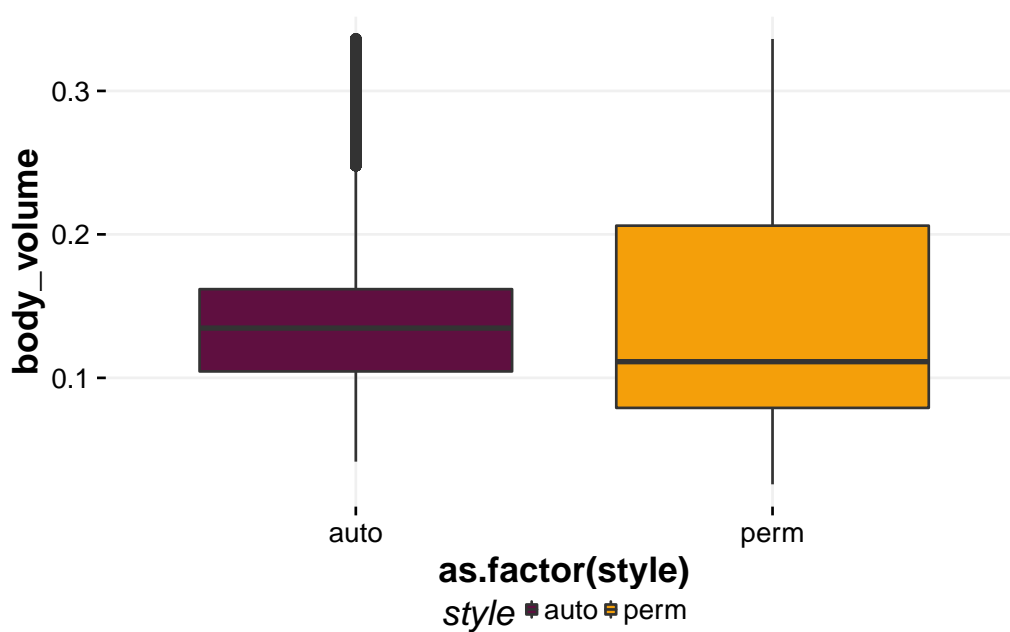
Error: Within

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(session)	1	13.29	13.287	6256	<2e-16 ***
Residuals	138530	294.22	0.002		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1



Style



Error: child

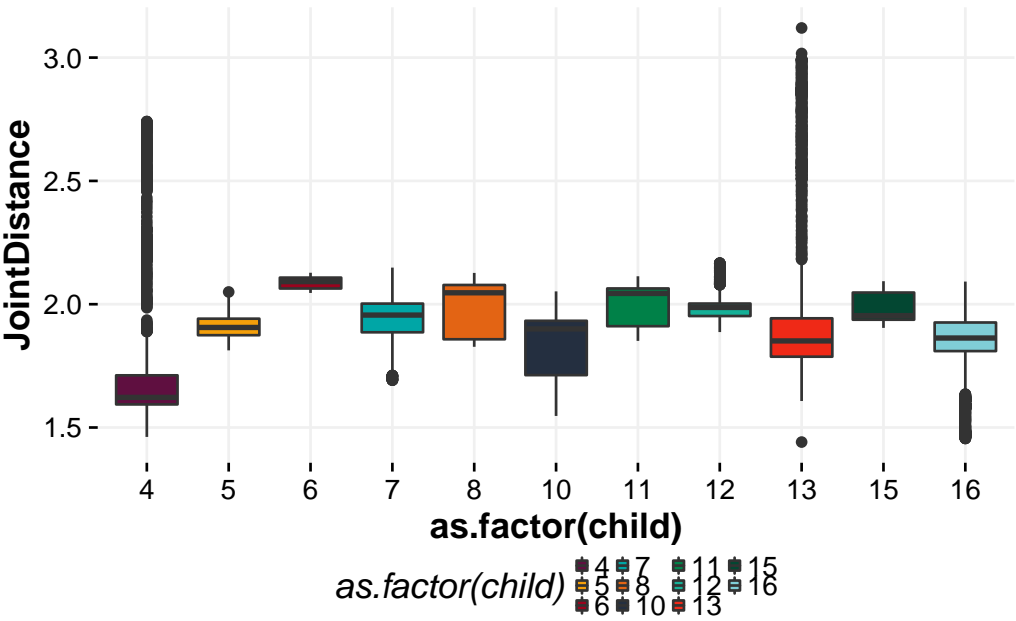
	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(style)	1	0.47	0.473	0.015	0.905
Residuals	9	280.26	31.140		

Error: Within

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(style)	1	0.02	0.02324	10.47	0.00121 **
Residuals	138530	307.48	0.00222		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

2.1.2 Distance



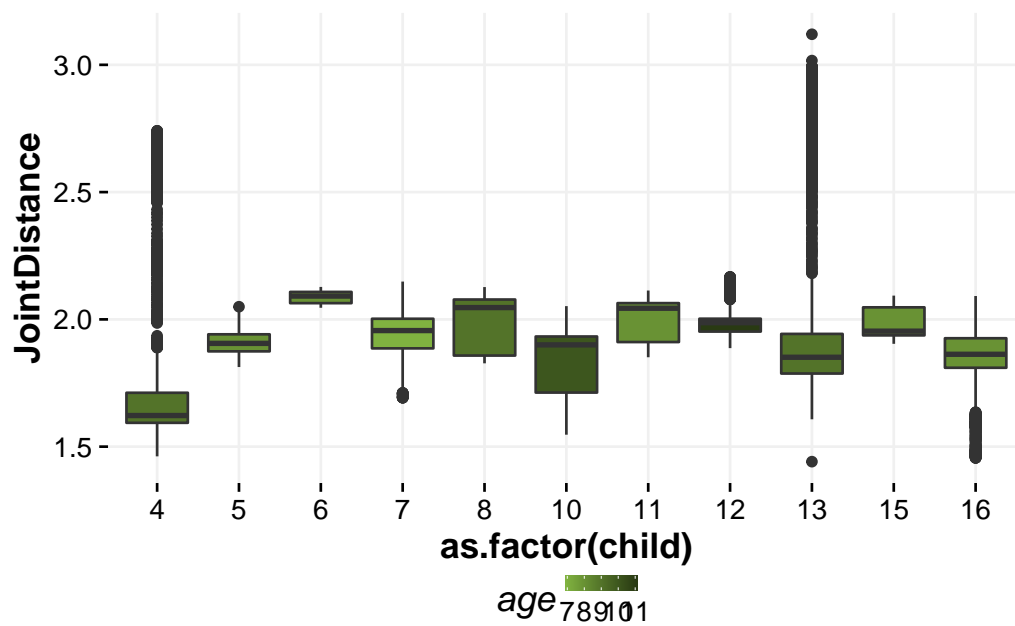
Child

```
Error: session
      Df Sum Sq Mean Sq
factor(child) 1  60.39   60.39

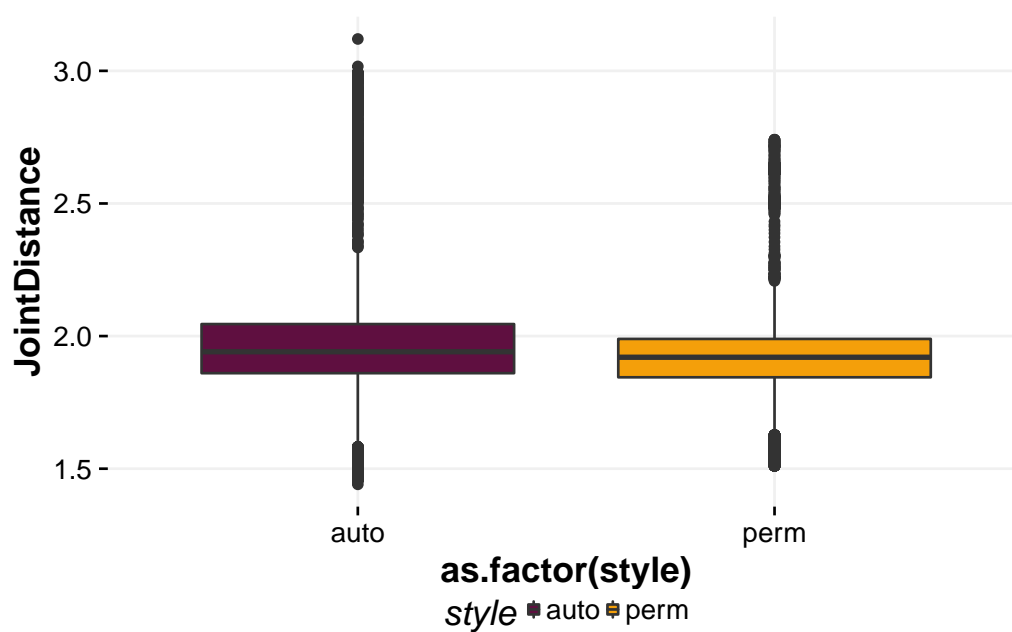
Error: style
      Df Sum Sq Mean Sq
factor(child) 1  35.92   35.92

Error: session:style
      Df Sum Sq Mean Sq
factor(child) 1 626.8   626.8

Error: Within
      Df Sum Sq Mean Sq F value Pr(>F)
factor(child) 9  882.9   98.10   9457 <2e-16 ***
Residuals 153710 1594.5    0.01
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

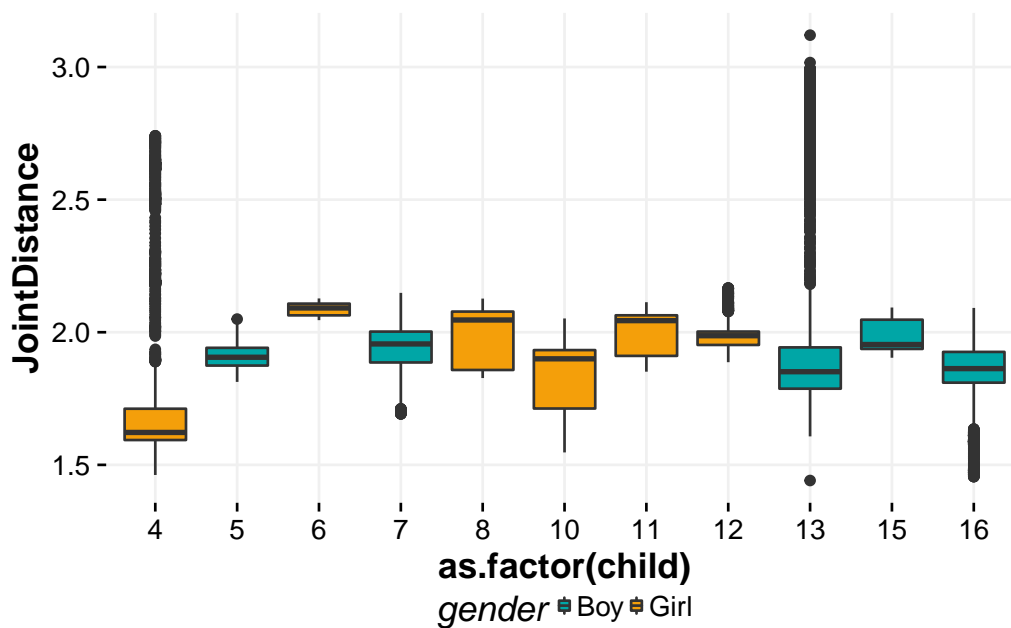


Age

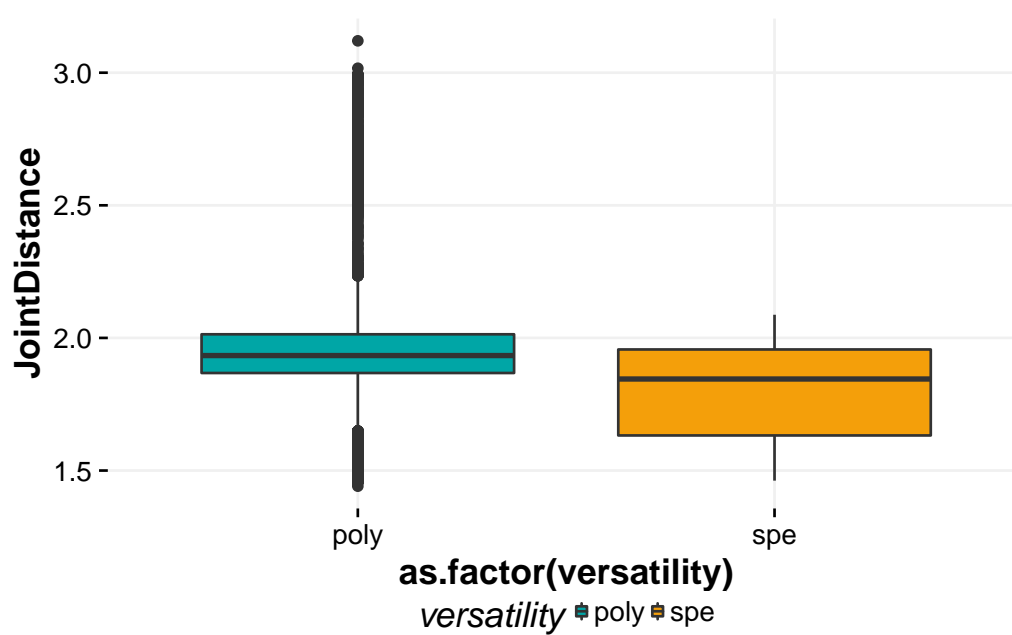


	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(age)	4	665.1	166.27	10080	<2e-16 ***
Residuals	153718	2535.4	0.02		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

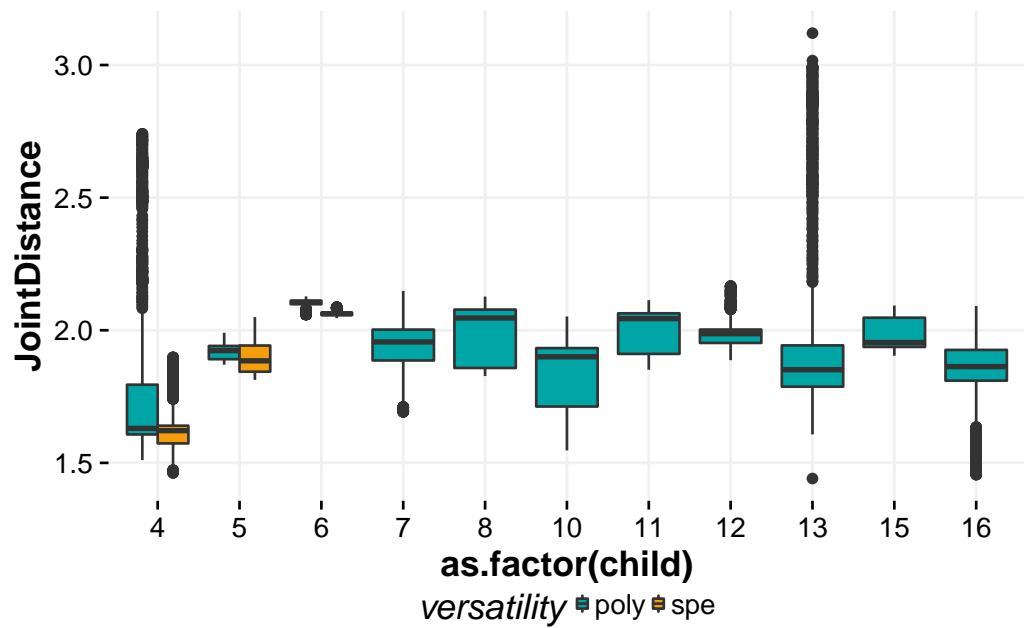


Gender

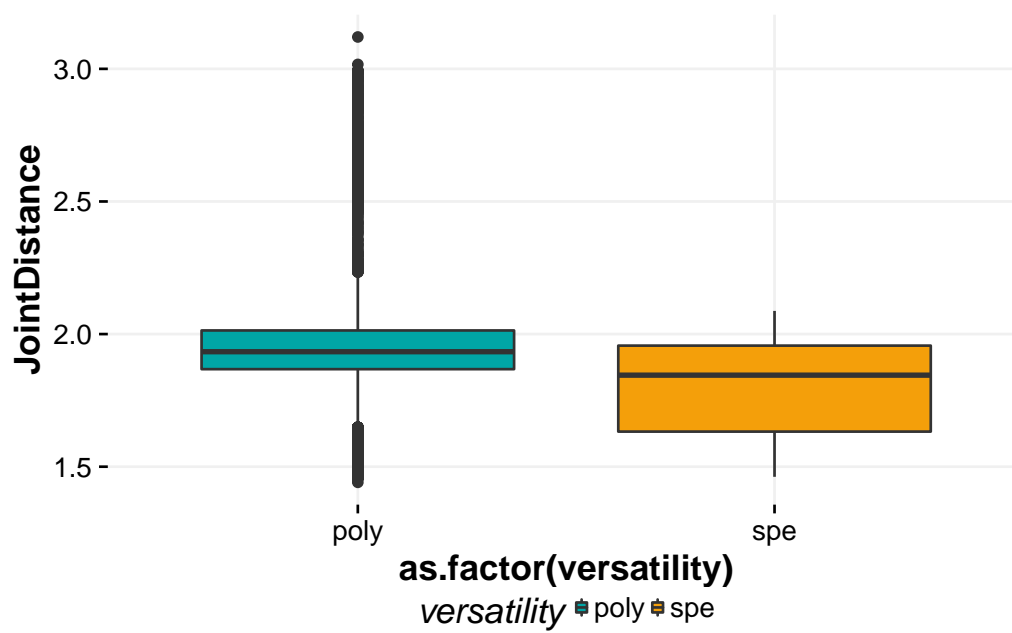


	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(gender)	1	5	5.478	263.6	<2e-16 ***
Residuals	153721	3195	0.021		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

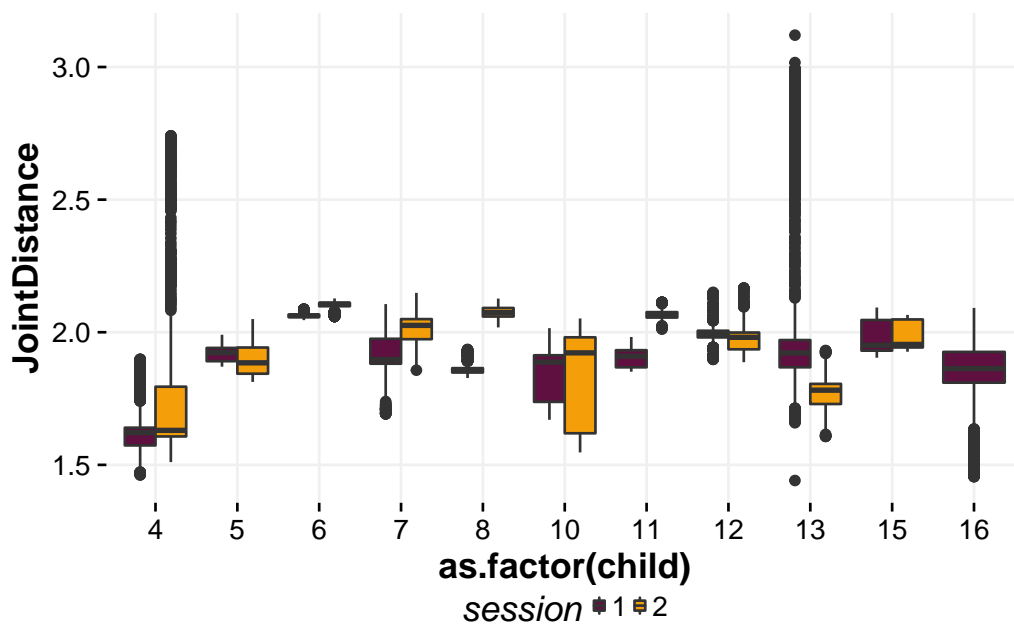


Versatility

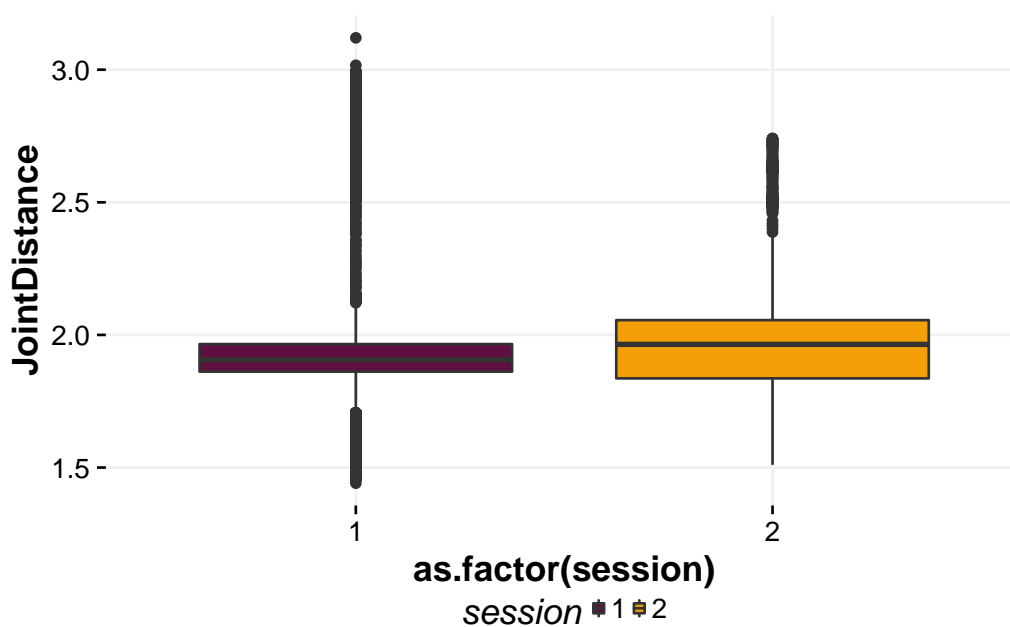


	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(versatility)	1	155.9	155.91	7872	<2e-16 ***
Residuals	153721	3044.6	0.02		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1



Session



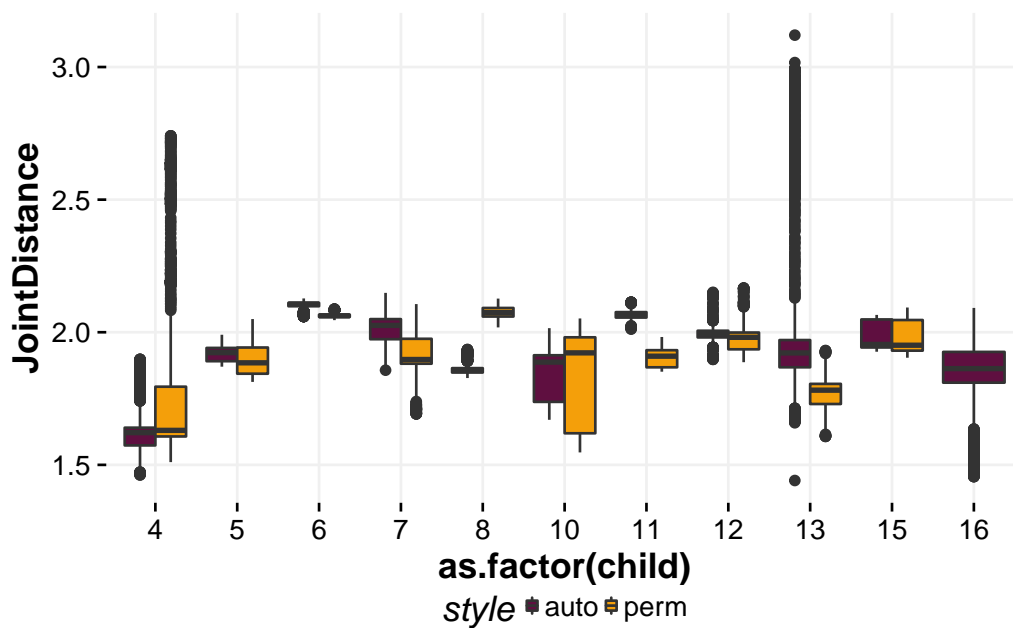
Error: child

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(session)	1	59.1	59.08	0.368	0.559
Residuals	9	1446.0	160.67		

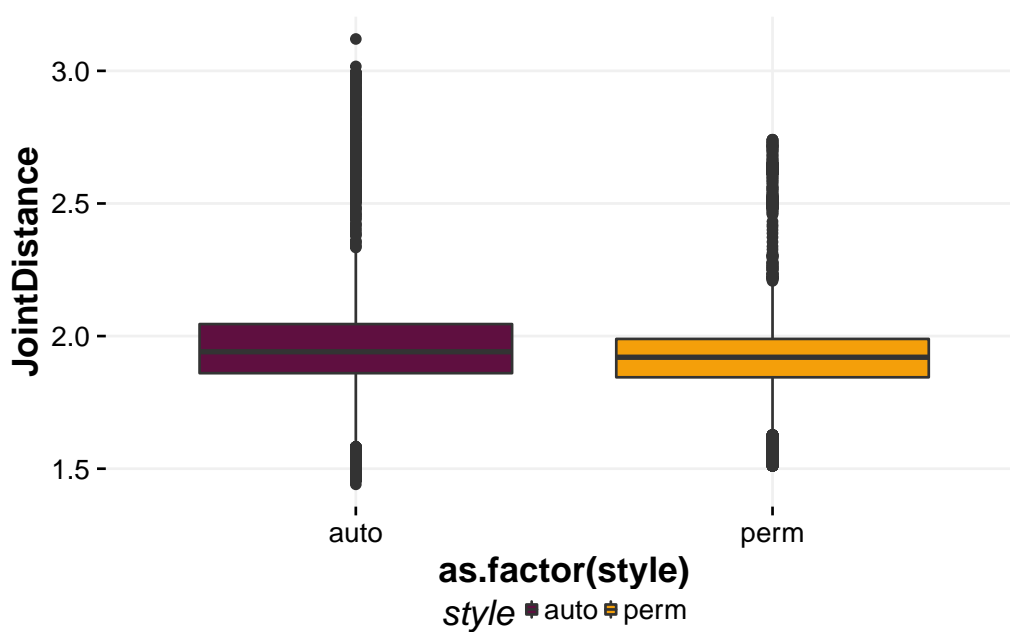
Error: Within

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(session)	1	33.3	33.33	3082	<2e-16 ***
Residuals	153711	1662.1	0.01		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1



Style



Error: child

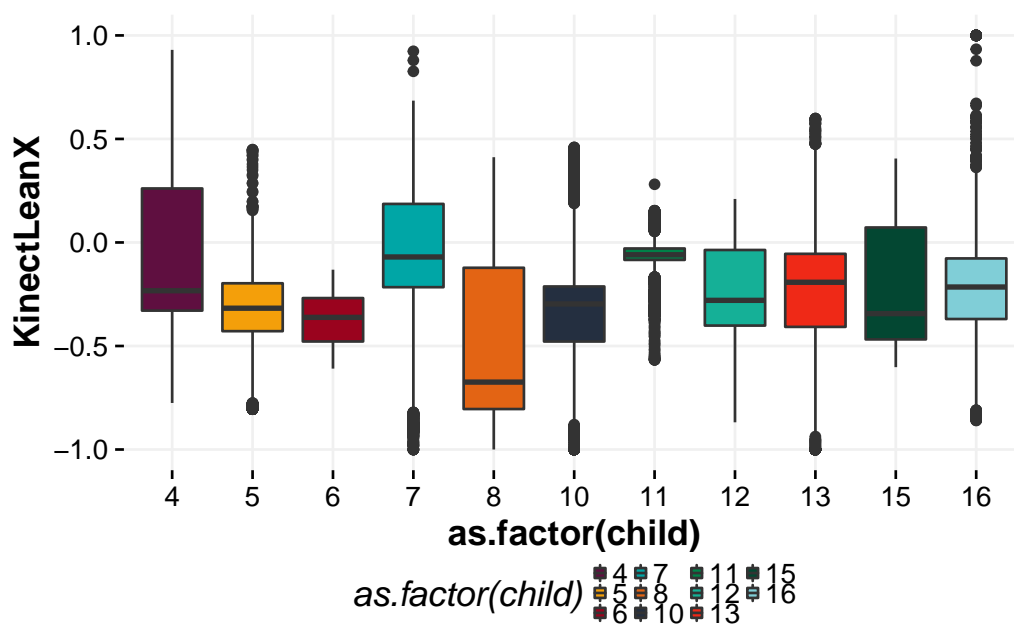
	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(style)	1	64.1	64.12	0.4	0.543
Residuals	9	1441.0	160.11		

Error: Within

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(style)	1	52.5	52.47	4909	<2e-16 ***
Residuals	153711	1642.9	0.01		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

- 2.1.3 Center of Mass
- 2.1.4 Center of Mass Displacement
- 2.1.5 Distance Covered
- 2.1.6 Hand Relationship
- 2.1.7 Shoulder Angle
- 2.1.8 Elbow Flexion
- 2.1.9 Feet Relationship
- 2.1.10 Torso Neck Orientation
- 2.1.11 Body lean angle - Frontal



Child

Error: session

	Df	Sum Sq	Mean Sq
factor(child)	1	1307	1307

Error: style

	Df	Sum Sq	Mean Sq
factor(child)	1	6.239	6.239

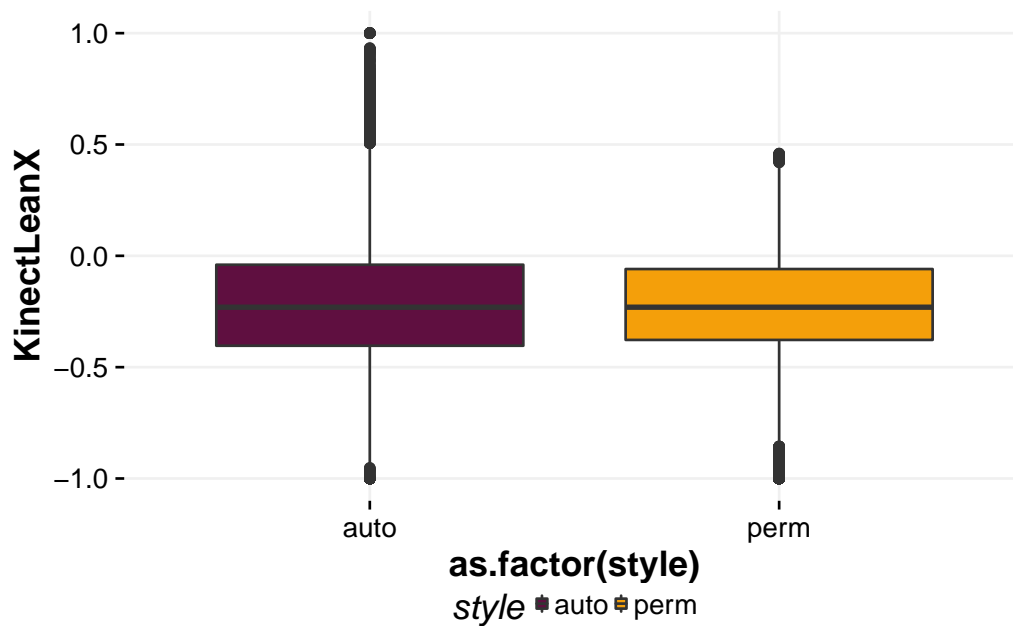
Error: session:style

	Df	Sum Sq	Mean Sq
factor(child)	1	343.9	343.9

Error: Within

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(child)	9	1728	192.03	3762	<2e-16 ***
Residuals	153710	7845	0.05		

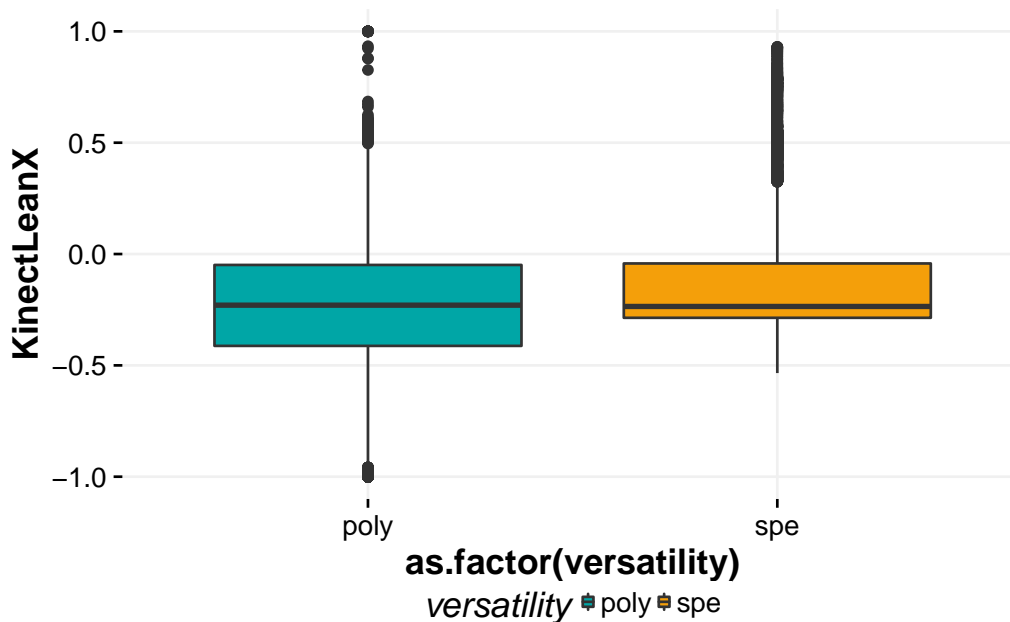
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1



Age

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(age)	4	743	185.85	2724	<2e-16 ***
Residuals	153718	10487	0.07		

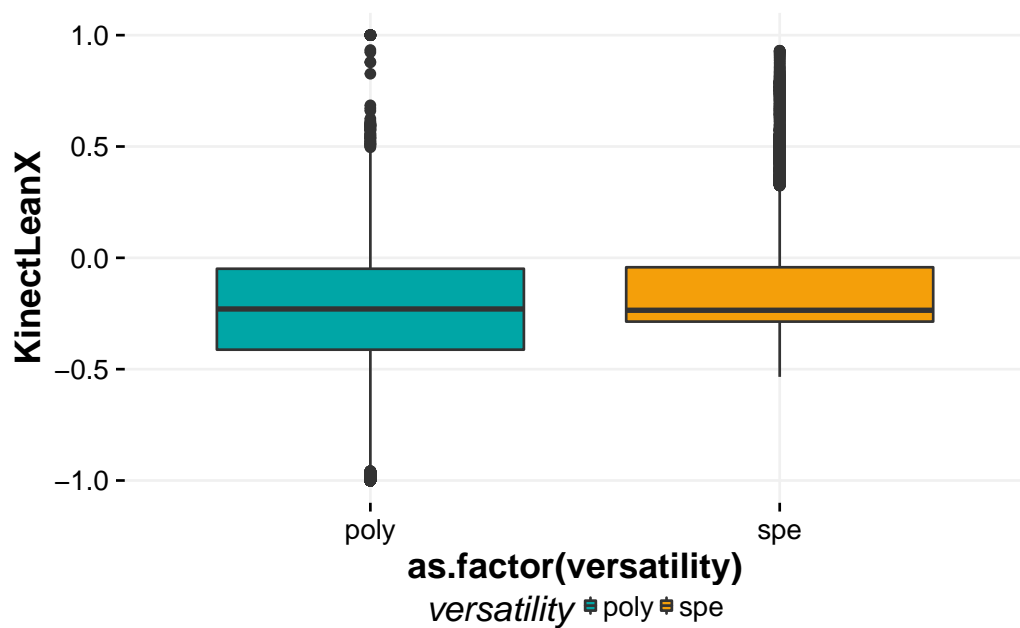
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1



Gender

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(gender)	1	40	40.39	554.9	<2e-16 ***
Residuals	153721	11190	0.07		

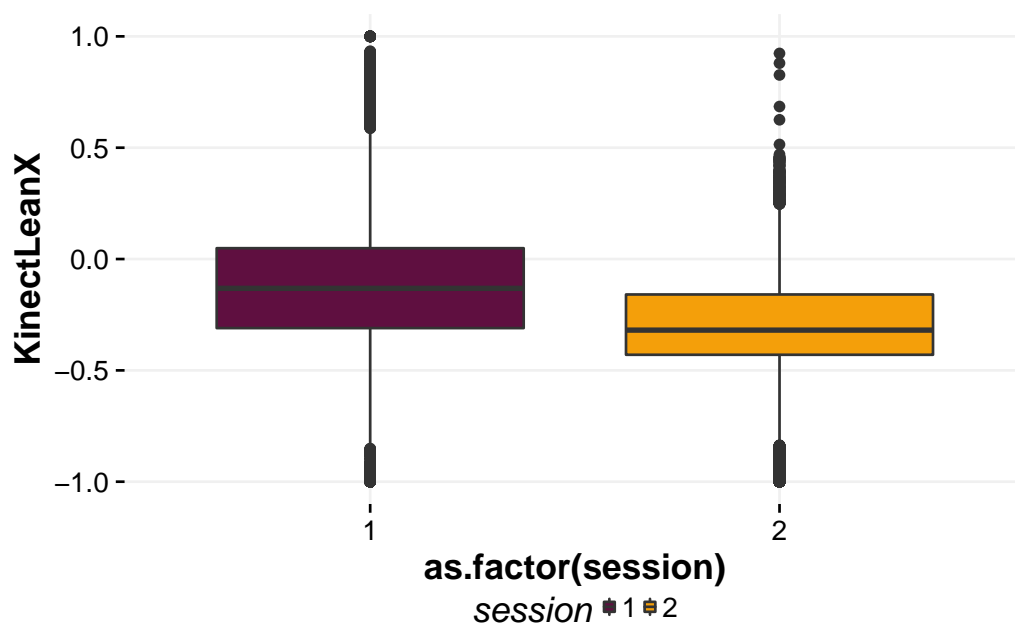
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1



Versatility

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(versatility)	1	258	258.37	3620	<2e-16 ***
Residuals	153721	10972	0.07		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1



Session

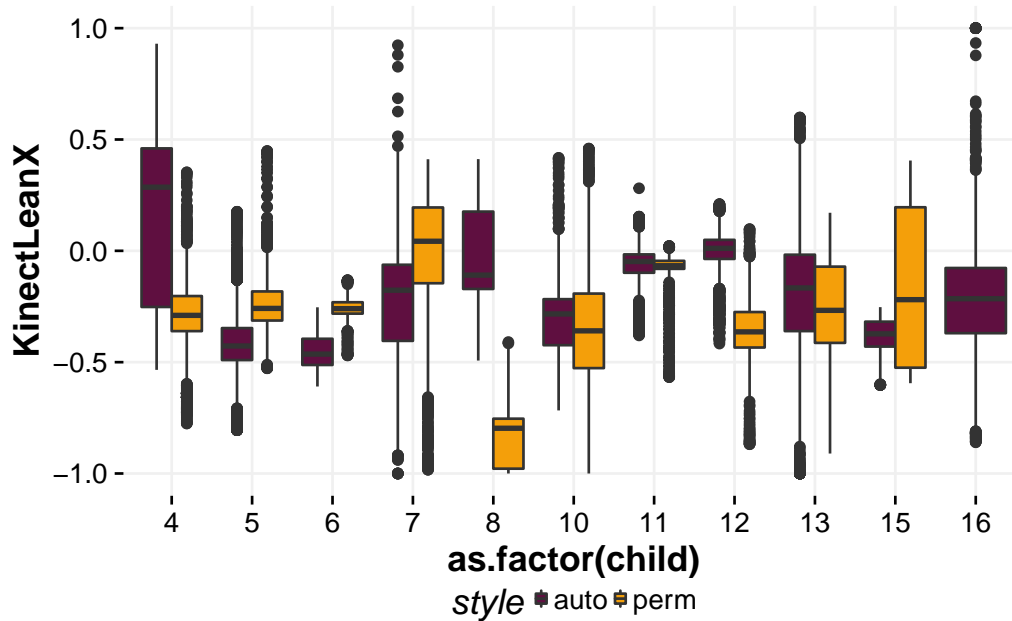
Error: child

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(session)	1	166.6	166.6	0.727	0.416
Residuals	9	2061.7	229.1		

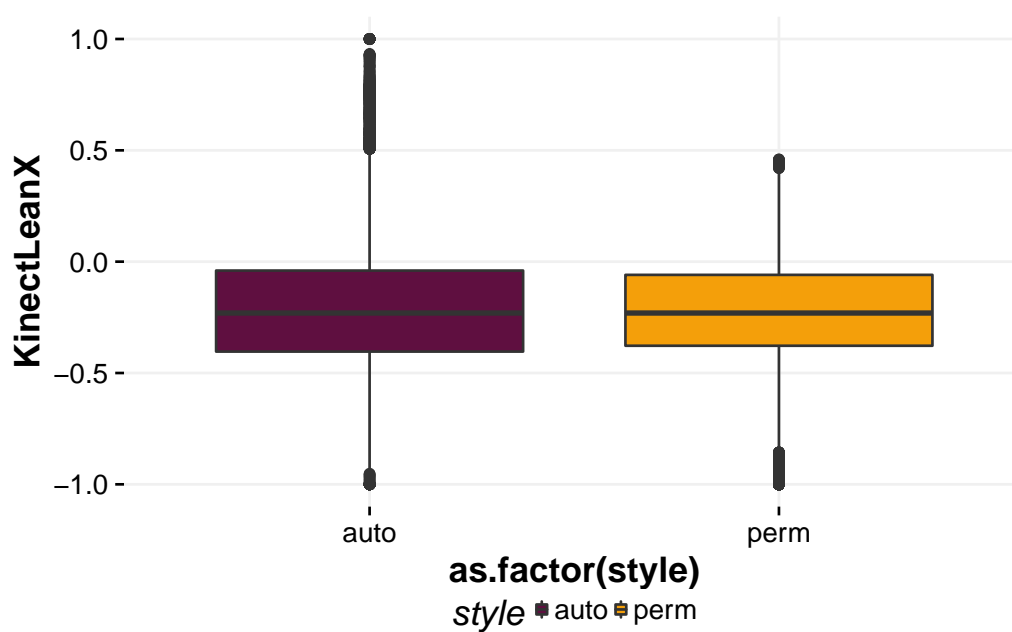
Error: Within

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(session)	1	1146	1145.9	22420	<2e-16 ***
Residuals	153711	7856	0.1		

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1



Style



Error: child

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(style)	1	64.1	64.12	0.4	0.543
Residuals	9	1441.0	160.11		

Error: Within

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
factor(style)	1	52.5	52.47	4909	<2e-16 ***
Residuals	153711	1642.9	0.01		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

2.1.12 Hands Status

2.2 Dynamic Features

3 Postures

Table 2: Summary statistics of activities metadata

Statistic	N	Mean	St. Dev.	Min	Max
ordre	16	8.500	4.761	1	16
age	16	8.688	1.014	7	11
p_robot	16	3.125	1.258	1	5
p_videogame	16	3.500	1.414	1	5
p_bike	16	2.375	1.310	1	5
p_book	16	2.312	1.138	1	4
p_clothes	16	3.688	1.537	1	5
p_homeworks	16	3.375	1.147	1	4
p_play	16	3.562	0.892	1	4
p_teach	16	3.938	0.250	3	4
p_phone	15	1.867	1.302	1	4
p_webbrowser	15	2.067	1.335	1	4
prefered_session	14	1.643	0.497	1	2
e_robot	13	1.077	0.277	1	2
e_videogame	13	2.615	1.193	1	5
e_bike	12	3.250	0.965	2	5
e_book	12	3.417	1.379	1	5
e_clothes	13	4.308	0.751	3	5
e_homeworks	13	3.115	0.650	2.000	4.000
e_play	13	3.115	0.618	2.000	4.000
e_rules	12	3.167	0.577	2	4
e_learn	13	3.500	0.577	2.500	4.000
e_sport	12	3.000	0.603	2	4
e_teach	12	3.500	0.674	2	4
e_outside	12	2.917	0.900	1	4
e_mood	12	3.375	0.569	2.500	4.000
e_phone	13	2.308	1.109	1	4
e_webbrowser	13	2.500	0.957	1.000	4.000