

# Normal\_cor\_simulation

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## 1 Motivation

## 2 Simulation result

### 2.1 Setup

#### 2.1.1 Averaged estimation

Table 1: correlation-0.1-null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
3.088373	2.2629134	2.6810971	6.445714	7.7078883	6.3421346
0.000000	0.5095913	0.4890747	0.000000	1.4190317	0.9831575
3.712037	3.2604039	4.0312605	4.752567	5.3313724	5.6001181
0.000000	0.5476864	0.5132892	0.000000	1.0871311	1.0439581
2.681057	2.1712492	2.9792021	5.469751	3.6457060	6.1875434
0.000000	0.3667526	0.4521873	0.000000	0.7242043	0.9909888

Table 2: correlation-0.2-null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
3.053130	2.2170802	2.6678900	6.214107	6.4985646	5.6397438
0.000000	0.5944800	0.4480933	0.000000	1.4905036	1.0466755
3.553199	1.8826877	3.4683129	4.475504	1.1963946	4.0876341
0.000000	0.4518005	0.5279246	0.000000	0.3304510	0.8316342
2.346156	0.9602659	2.4056761	5.452543	1.5006302	5.3123168
0.000000	0.2237377	0.4383947	0.000000	0.2875944	0.8173162

Table 3: correlation-0.3-null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
2.923335	3.1116123	3.0790003	7.493621	9.9872651	6.7525273
0.000000	0.7168690	0.4625207	0.000000	1.5570798	1.1331375
3.177118	1.4836731	2.9450186	4.135163	0.5568038	3.6233722
0.000000	0.5075044	0.4244663	0.000000	0.2191097	0.7248550
2.082130	0.6638717	1.8373159	4.419051	0.8571361	3.5220102
0.000000	0.2459053	0.3655716	0.000000	0.3173453	0.7818311

Table 4: correlation-0.4-null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
2.967121	3.1046591	3.6375580	8.101689	10.4165112	6.5820007
0.000000	0.7063818	0.5403943	0.000000	1.5469132	0.9358535
2.900933	1.2218489	2.9546162	3.773409	0.2746577	3.3916797
0.000000	0.4011364	0.4510457	0.000000	0.0878513	0.7950213
1.843065	0.4277090	1.9797686	3.880287	0.2210265	3.1506855
0.000000	0.1895094	0.3919166	0.000000	0.0959511	0.6900077

Table 5: correlation-0.5-null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
2.945555	2.1497417	2.7830068	9.512110	8.6159597	7.4123267
0.000000	0.4807449	0.4245746	0.000000	1.1259187	1.0134897
2.704770	1.7836148	2.9072267	3.141388	0.1504048	3.0310716
0.000000	0.4878225	0.5350919	0.000000	0.1054500	0.8478031
1.684237	0.5280842	1.5990481	3.550564	0.1247029	2.8454342
0.000000	0.2146278	0.3474024	0.000000	0.0435080	0.7950938

Table 6: correlation-0.6-null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
2.840187	3.4255557	3.6075327	13.183739	11.3110130	12.6503986
0.000000	0.6164349	0.5497321	0.000000	0.9272107	1.2512915
2.620650	1.5387039	2.5066288	3.032240	0.1204276	3.0714704
0.000000	0.3709169	0.3816089	0.000000	0.0789471	0.8263944
1.362578	0.5149362	1.2847950	3.172002	0.1199249	2.8407743
0.000000	0.2235774	0.3522378	0.000000	0.0850224	0.6474535

Table 7: correlation-0.7-null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
2.921671	2.3387362	2.8414534	14.876244	11.7346465	14.3432345
0.000000	0.4934600	0.4930917	0.000000	0.8654897	1.1592587
2.202138	1.1621946	1.9412529	2.563225	0.0337007	2.3039060
0.000000	0.3361885	0.3905409	0.000000	0.0318753	0.8395119
1.205999	0.5551601	1.1075252	3.059272	0.1667304	3.0455072
0.000000	0.2216231	0.3112669	0.000000	0.0908275	0.8467851

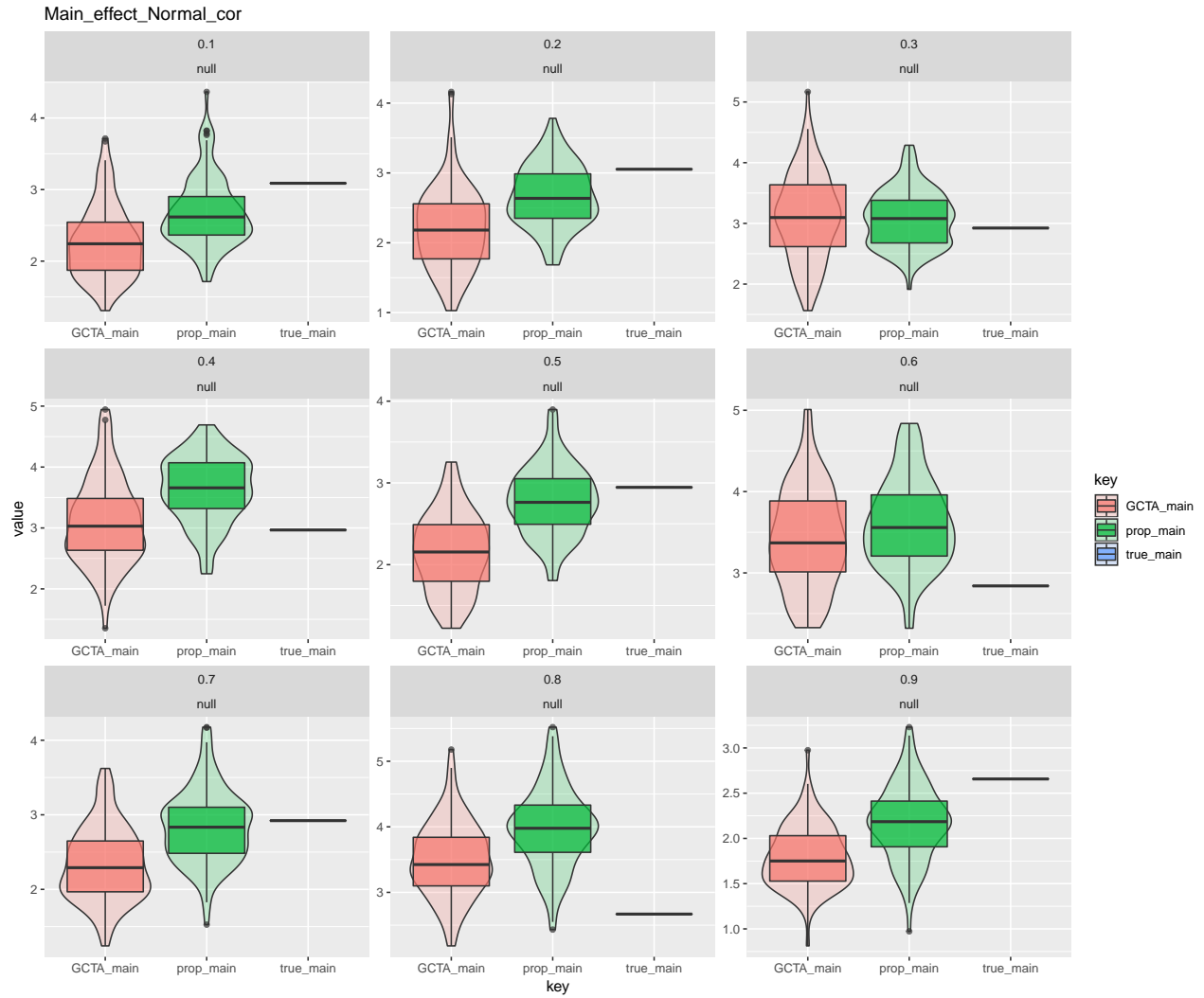
Table 8: correlation-0.8-null

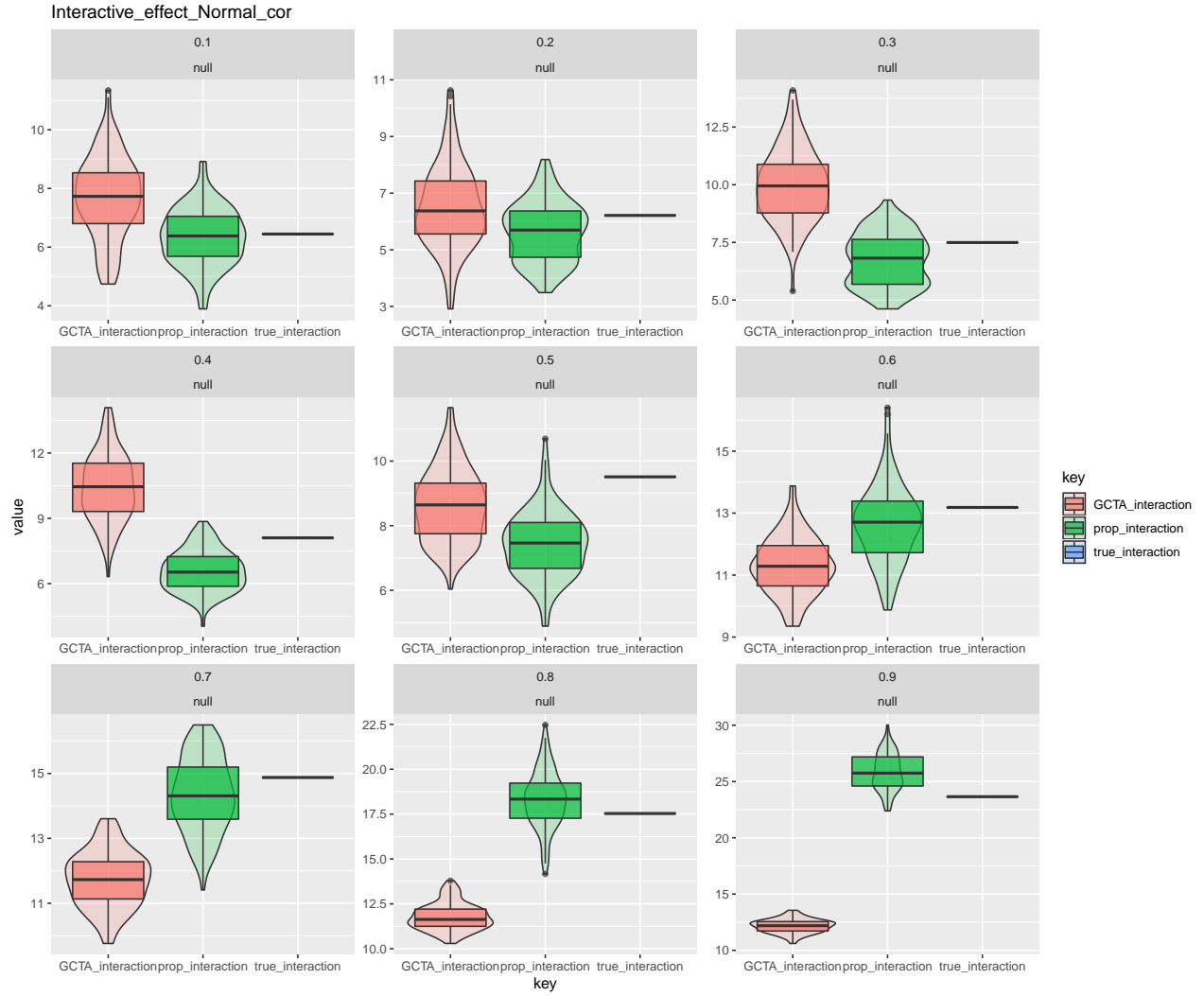
Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
2.6688253	3.5039081	3.9745800	17.532693	11.7821539	18.3254286
0.000000	0.5739670	0.6092979	0.000000	0.7556400	1.6198094
1.9782238	1.5076674	2.1516555	1.362698	0.0071326	1.3309489
0.000000	0.3669671	0.4215761	0.000000	0.0231179	0.7670574
0.8447751	0.3164986	0.7481253	1.934832	0.0885135	1.7759901
0.000000	0.1632832	0.2611656	0.000000	0.0668263	0.6656269

Table 9: correlation-0.9-null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
2.6570991	1.7946098	2.1760449	23.6527893	12.1641929	25.8535477
0.000000	0.3427883	0.4199620	0.000000	0.6071203	1.6459841
1.6713933	1.2925165	1.4944993	0.8595516	0.0311803	0.8747202
0.000000	0.2978465	0.3466506	0.000000	0.0332608	0.6366171
0.6484439	0.4155443	0.6954721	1.1294039	0.1208959	1.0610190
0.000000	0.1935329	0.2713971	0.000000	0.0702455	0.6781311

## 2.1.2 Histogram of 100 iterations



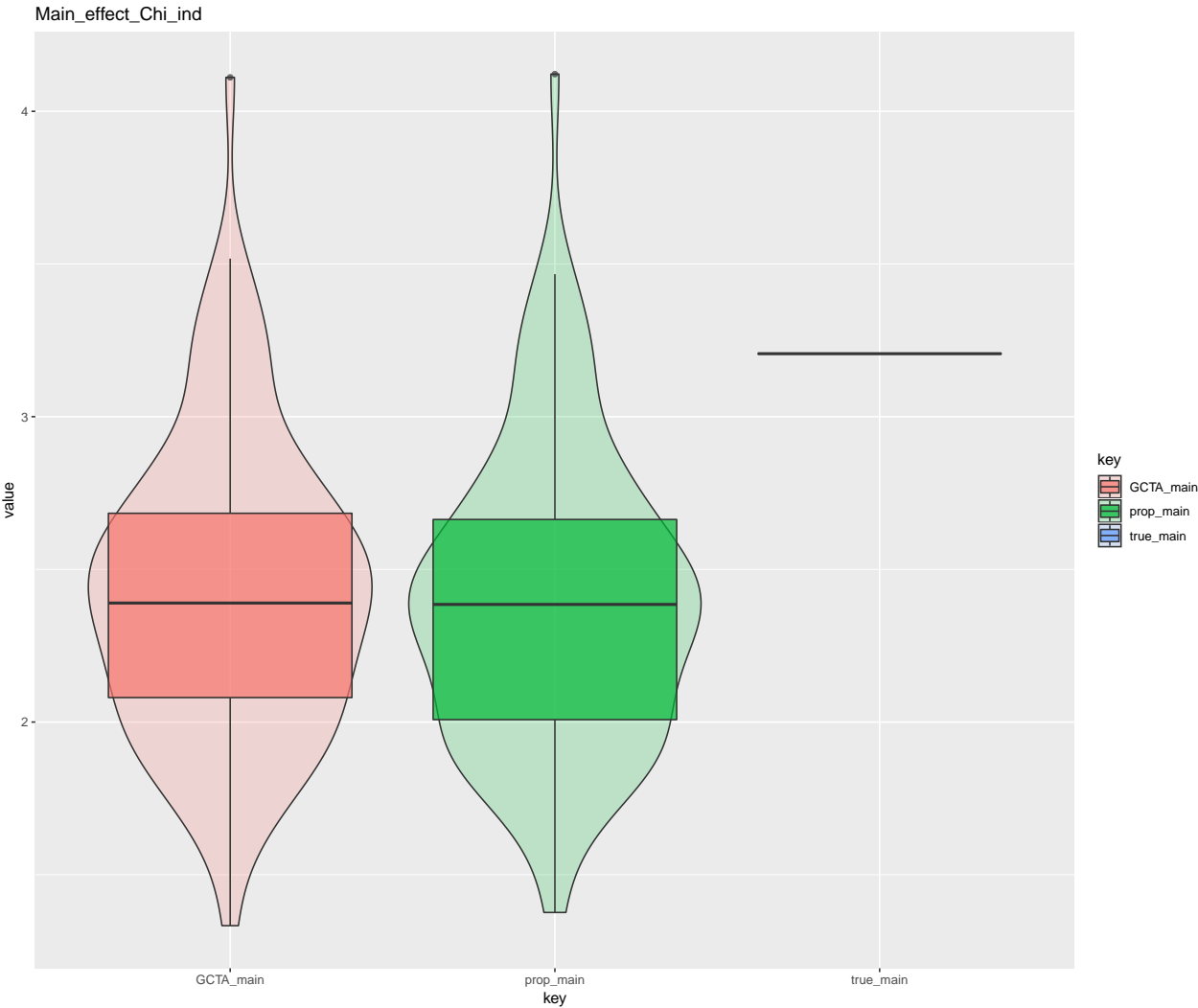


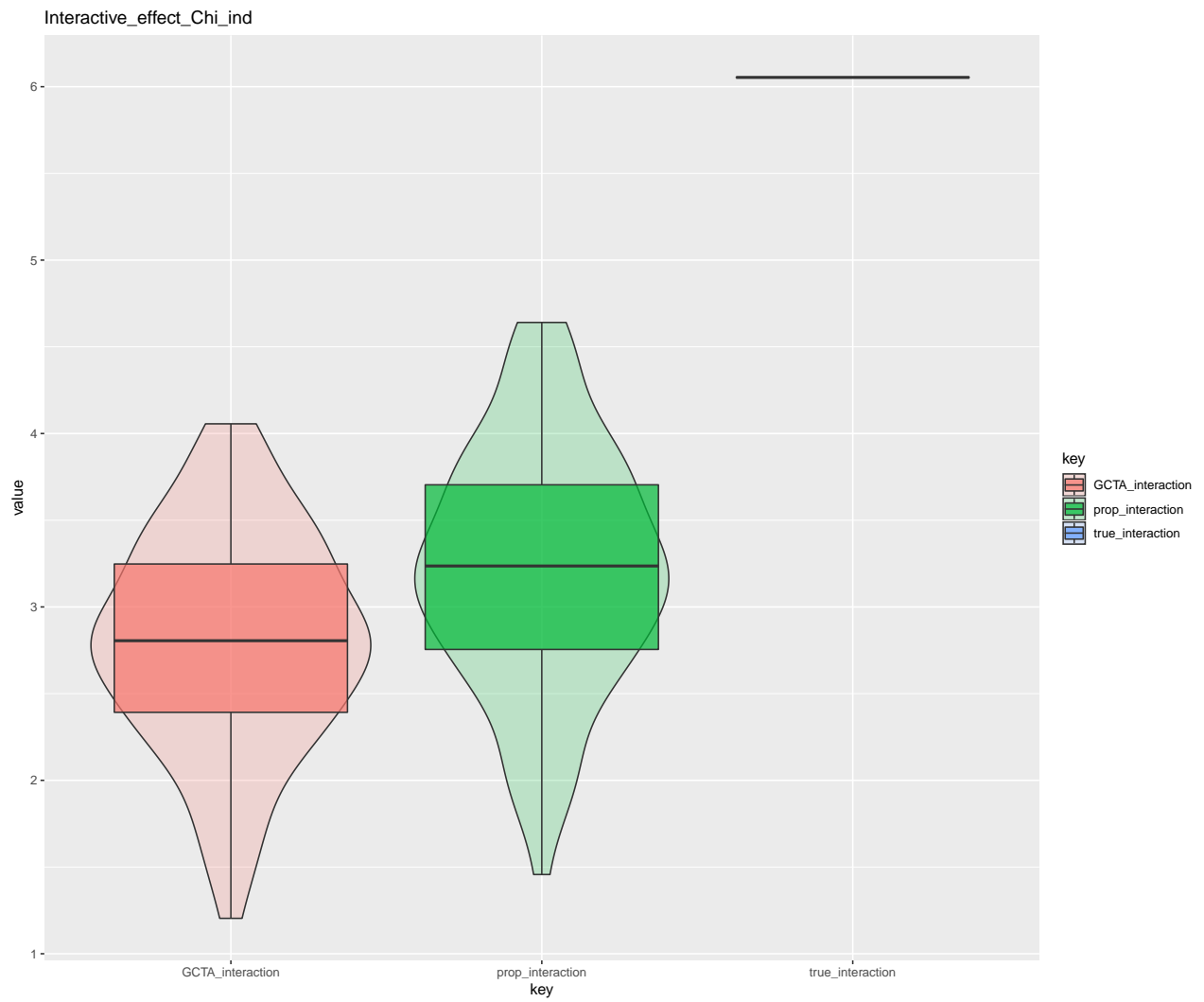
### 2.1.3 Averaged estimation

Table 10: -null

Main			Interaction		
true_main	GCTA_main	prop_main	true_interaction	GCTA_interaction	prop_interaction
3.206260	2.4278846	2.3987387	6.053616	2.7948026	3.2127886
0.000000	0.4877009	0.4836191	0.000000	0.6241777	0.6946283
4.184742	3.7079258	3.6457226	5.662183	5.0952825	5.4150564
0.000000	0.6460932	0.6383936	0.000000	1.0122512	1.0203281
2.751369	2.0729482	2.2093535	5.967688	3.0214403	2.9723835
0.000000	0.4635415	0.4757792	0.000000	0.6891246	0.7034145

2.1.4 Histogram of 100 iterations





### 3 Conclusion

### 4 Further work