

# HCP tasks trait complete results

2023-11-05

## Main dimension-specific ANOVAs

```
mod1<-lmerTest::lmer(corr_g1~ (1|sub)+ (1|Family_ID)+ cont + Age + Gender + motion +  
      Neuroticism + Openness + Conscientiousness +Extraversion + Agreeableness +  
      cont:Neuroticism+ cont:Openness+ cont:Conscientiousness + cont:Extraversion+  
      cont:Agreeableness, data = df)  
  
mod2<-lmerTest::lmer(corr_g2~ (1|sub)+ (1|Family_ID)+ cont + Age + Gender + motion +  
      Neuroticism + Openness + Conscientiousness +Extraversion + Agreeableness +  
      cont:Neuroticism+ cont:Openness+ cont:Conscientiousness + cont:Extraversion+  
      cont:Agreeableness, data = df)  
  
mod3<-lmerTest::lmer(corr_g3~ (1|sub)+ (1|Family_ID)+ cont + Age + Gender + motion +  
      Neuroticism + Openness + Conscientiousness +Extraversion + Agreeableness +  
      cont:Neuroticism+ cont:Openness+ cont:Conscientiousness + cont:Extraversion+  
      cont:Agreeableness, data = df)
```

### D1

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
cont	0.4784226	0.0398686	12	11963.650	5.9238170	0.0000000
Age	0.1484006	0.1484006	1	1034.214	22.0499054	0.0000030
Gender	0.3801054	0.3801054	1	1046.545	56.4774750	0.0000000
motion	0.3001021	0.3001021	1	4486.016	44.5902742	0.0000000
Neuroticism	0.0174571	0.0174571	1	1031.867	2.5938356	0.1075861
Openness	0.0092255	0.0092255	1	1043.516	1.3707592	0.2419488
Conscientiousness	0.0027644	0.0027644	1	1042.079	0.4107428	0.5217336
Extraversion	0.0021583	0.0021583	1	1035.666	0.3206831	0.5713201
Agreeableness	0.0008895	0.0008895	1	1012.507	0.1321621	0.7162767
cont:Neuroticism	0.2308043	0.0192337	12	11952.377	2.8578135	0.0006139
cont:Openness	0.2710497	0.0225875	12	11951.152	3.3561305	0.0000660
cont:Conscientiousness	0.1350002	0.0112500	12	11955.934	1.6715697	0.0661384
cont:Extraversion	0.1224871	0.0102073	12	11947.430	1.5166321	0.1099447
cont:Agreeableness	0.1806246	0.0150521	12	11949.536	2.2364896	0.0082043

**D2**

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
cont	2.2383480	0.1865290	12	11972.458	51.0490140	0.0000000
Age	0.0049473	0.0049473	1	1026.748	1.3539808	0.2448537
Gender	0.0024621	0.0024621	1	1051.288	0.6738373	0.4119030
motion	0.1209012	0.1209012	1	3964.271	33.0880961	0.0000000
Neuroticism	0.0165823	0.0165823	1	1042.046	4.5382215	0.0333797
Openness	0.0059395	0.0059395	1	1041.959	1.6255068	0.2026099
Conscientiousness	0.0042793	0.0042793	1	1052.456	1.1711635	0.2794102
Extraversion	0.0000285	0.0000285	1	1043.058	0.0078017	0.9296336
Agreeableness	0.0000119	0.0000119	1	1027.539	0.0032600	0.9544793
cont:Neuroticism	0.1215278	0.0101273	12	11960.584	2.7716311	0.0008920
cont:Openness	0.1085842	0.0090487	12	11959.693	2.4764325	0.0031056
cont:Conscientiousness	0.0526164	0.0043847	12	11964.773	1.1999992	0.2760573
cont:Extraversion	0.0946200	0.0078850	12	11955.565	2.1579573	0.0111675
cont:Agreeableness	0.1673281	0.0139440	12	11957.548	3.8161773	0.0000077

**D3**

	Sum Sq	Mean Sq	NumDF	DenDF	F value	Pr(>F)
cont	0.6129156	0.0510763	12	11991.889	10.8254974	0.0000000
Age	0.0016505	0.0016505	1	1048.415	0.3498286	0.5543377
Gender	0.0915179	0.0915179	1	1061.922	19.3969902	0.0000117
motion	0.6519887	0.6519887	1	3459.657	138.1874239	0.0000000
Neuroticism	0.0065026	0.0065026	1	1048.190	1.3782139	0.2406723
Openness	0.0005394	0.0005394	1	1058.041	0.1143299	0.7353346
Conscientiousness	0.0000001	0.0000001	1	1060.993	0.0000230	0.9961718
Extraversion	0.0008572	0.0008572	1	1051.579	0.1816840	0.6700172
Agreeableness	0.0014023	0.0014023	1	1029.671	0.2972039	0.5857587
cont:Neuroticism	0.1155300	0.0096275	12	11979.309	2.0405243	0.0175356
cont:Openness	0.2488547	0.0207379	12	11978.932	4.3953458	0.0000005
cont:Conscientiousness	0.2020553	0.0168379	12	11984.301	3.5687614	0.0000247
cont:Extraversion	0.0965104	0.0080425	12	11974.140	1.7045949	0.0591020
cont:Agreeableness	0.1007723	0.0083977	12	11976.012	1.7798700	0.0455066

## contrast-specific trait slopes

### D1 contrast locations, and contrast-specific slopes

```
emm_options(lmerTest.limit = 13081, lmer.df = "satterthwaite")
em1cont<-emmeans(mod1, ~ cont, type = "response")
```

## NOTE: Results may be misleading due to involvement in interactions

```
em1contpairs<-pairs(em1cont, infer = TRUE)

em1NEO_N<-emtrends(mod1, "cont", var="Neuroticism", adjust="none", infer = TRUE)
em1NEO_O<-emtrends(mod1, "cont", var="Openness", adjust = "none", infer = TRUE)
em1NEO_C<-emtrends(mod1, "cont", var="Conscientiousness", adjust = "none", infer = TRUE)
em1NEO_E<-emtrends(mod1, "cont", var="Extraversion", adjust = "none", infer = TRUE)
em1NEO_A<-emtrends(mod1, "cont", var="Agreeableness", adjust = "none", infer = TRUE)
```

cont	emmean	SE	df	lower.CL	upper.CL
0back	-0.0739	0.0032	2053.359	-0.0802	-0.0675
2back	0.0015	0.0032	2053.359	-0.0048	0.0078
faces	-0.1131	0.0033	2150.670	-0.1196	-0.1067
match	-0.1494	0.0033	2216.204	-0.1558	-0.1429
math	-0.0154	0.0034	2382.977	-0.0220	-0.0088
motor	-0.1284	0.0033	2134.894	-0.1348	-0.1219
punish	-0.0447	0.0032	2060.848	-0.0510	-0.0383
random	-0.1797	0.0033	2117.626	-0.1861	-0.1733
relational	-0.0815	0.0033	2216.204	-0.0880	-0.0750
reward	-0.0455	0.0032	2060.848	-0.0518	-0.0391
shapes	-0.1417	0.0033	2150.671	-0.1481	-0.1353
story	-0.0076	0.0034	2382.977	-0.0142	-0.0010
ToM	-0.0999	0.0033	2117.626	-0.1063	-0.0935

cont	Neuroticism.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	0.0008115	0.0004689	6739.251	-0.0001077	0.0017308	1.7305440	0.0835789
2back	-0.0001963	0.0004689	6739.241	-0.0011156	0.0007229	-0.4186606	0.6754776
faces	-0.0002173	0.0004756	6929.584	-0.0011496	0.0007150	-0.4569110	0.6477494
match	0.0005787	0.0004790	7041.745	-0.0003602	0.0015176	1.2083212	0.2269643
math	0.0006692	0.0004900	7415.503	-0.0002913	0.0016297	1.3658429	0.1720297
motor	0.0020392	0.0004719	6840.747	0.0011142	0.0029642	4.3215578	0.0000157
punish	-0.0004841	0.0004688	6740.194	-0.0014031	0.0004350	-1.0324862	0.3018815
random	0.0011732	0.0004733	6872.284	0.0002454	0.0021011	2.4786980	0.0132101
relational	0.0005871	0.0004790	7041.745	-0.0003518	0.0015260	1.2258001	0.2203149
reward	0.0001311	0.0004688	6740.194	-0.0007880	0.0010501	0.2795590	0.7798244
shapes	0.0002209	0.0004756	6929.584	-0.0007114	0.0011531	0.4644357	0.6423502
story	-0.0001499	0.0004900	7415.503	-0.0011104	0.0008106	-0.3059659	0.7596392
ToM	0.0005708	0.0004733	6872.284	-0.0003570	0.0014987	1.2059712	0.2278701

cont	Openness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0003005	0.0004994	6615.398	-0.0012795	0.0006786	-0.6016082	0.5474556
2back	-0.0007292	0.0004994	6615.391	-0.0017082	0.0002499	-1.4600040	0.1443364
faces	0.0004718	0.0005063	6820.611	-0.0005207	0.0014643	0.9318093	0.3514681
match	-0.0018502	0.0005107	6943.887	-0.0028513	-0.0008492	-3.6231099	0.0002932
math	0.0001276	0.0005236	7361.769	-0.0008988	0.0011540	0.2437925	0.8073983
motor	-0.0007115	0.0005036	6746.847	-0.0016988	0.0002757	-1.4128189	0.1577551
punish	-0.0003343	0.0004973	6549.135	-0.0013091	0.0006405	-0.6723634	0.5013761
random	0.0002108	0.0005039	6748.702	-0.0007770	0.0011986	0.4183257	0.6757223
relational	-0.0012383	0.0005107	6943.887	-0.0022394	-0.0002372	-2.4248148	0.0153415
reward	-0.0008793	0.0004973	6549.135	-0.0018541	0.0000955	-1.7683153	0.0770547
shapes	0.0001576	0.0005063	6820.611	-0.0008349	0.0011501	0.3113108	0.7555739
story	0.0012357	0.0005236	7361.769	0.0002093	0.0022621	2.3599667	0.0183025
ToM	-0.0006459	0.0005039	6748.702	-0.0016337	0.0003420	-1.2817011	0.1999915

cont	Conscientiousness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0005942	0.0005662	6917.679	-0.0017041	0.0005157	-1.0494429	0.2940110
2back	-0.0001740	0.0005662	6917.666	-0.0012840	0.0009359	-0.3073999	0.7585482
faces	-0.0008390	0.0005742	7103.855	-0.0019645	0.0002865	-1.4612515	0.1439906
match	0.0006861	0.0005791	7247.032	-0.0004491	0.0018212	1.1847549	0.2361532
math	0.0003254	0.0005927	7625.037	-0.0008364	0.0014872	0.5490767	0.5829689
motor	-0.0004552	0.0005710	7054.138	-0.0015745	0.0006641	-0.7971600	0.4253849
punish	-0.0011252	0.0005635	6840.296	-0.0022297	-0.0000206	-1.9968947	0.0458762
random	0.0003932	0.0005740	7112.787	-0.0007320	0.0015183	0.6850355	0.4933438
relational	0.0007493	0.0005791	7247.032	-0.0003858	0.0018845	1.2940365	0.1956940
reward	-0.0011871	0.0005635	6840.296	-0.0022917	-0.0000826	-2.1068941	0.0351631
shapes	-0.0002523	0.0005742	7103.855	-0.0013778	0.0008732	-0.4394808	0.6603265
story	-0.0002848	0.0005927	7625.037	-0.0014466	0.0008770	-0.4805380	0.6308587
ToM	0.0000244	0.0005740	7112.787	-0.0011008	0.0011495	0.0424868	0.9661118

cont	Extraversion.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0002967	0.0005511	6898.896	-0.0013770	0.0007836	-0.5384333	0.5902953
2back	0.0003092	0.0005511	6898.892	-0.0007710	0.0013895	0.5611407	0.5747199
faces	0.0007660	0.0005550	6993.656	-0.0003221	0.0018540	1.3800387	0.1676189
match	-0.0000261	0.0005614	7178.984	-0.0011267	0.0010745	-0.0464819	0.9629274
math	-0.0000003	0.0005711	7455.713	-0.0011198	0.0011193	-0.0004615	0.9996318
motor	0.0012256	0.0005569	7066.457	0.0001339	0.0023173	2.2007889	0.0277832
punish	0.0000996	0.0005503	6873.229	-0.0009791	0.0011782	0.1809417	0.8564187
random	-0.0007871	0.0005538	6959.689	-0.0018726	0.0002985	-1.4213296	0.1552658
relational	0.0004252	0.0005614	7178.984	-0.0006754	0.0015258	0.7572650	0.4489160
reward	0.0006074	0.0005503	6873.229	-0.0004712	0.0016861	1.1039121	0.2696699
shapes	0.0008374	0.0005550	6993.656	-0.0002507	0.0019255	1.5087142	0.1314170
story	-0.0005773	0.0005711	7455.713	-0.0016969	0.0005422	-1.0108545	0.3121189
ToM	-0.0002332	0.0005538	6959.689	-0.0013187	0.0008524	-0.4210790	0.6737104

cont	Agreeableness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	0.0001694	0.0005599	6534.576	-0.0009281	0.0012669	0.3026102	0.7621966

cont	Agreeableness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
2back	-0.0002064	0.0005599	6534.571	-0.0013039	0.0008911	-0.3686361	0.7124109
faces	-0.0007668	0.0005652	6658.903	-0.0018748	0.0003412	-1.3566369	0.1749426
match	-0.0010325	0.0005692	6774.668	-0.0021484	0.0000833	-1.8139505	0.0697296
math	0.0008507	0.0005893	7336.516	-0.0003044	0.0020058	1.4436451	0.1488815
motor	-0.0001242	0.0005648	6683.675	-0.0012314	0.0009829	-0.2199840	0.8258903
punish	-0.0004193	0.0005606	6544.373	-0.0015183	0.0006798	-0.7478364	0.4545857
random	0.0010171	0.0005624	6585.192	-0.0000853	0.0021195	1.8085821	0.0705615
relational	-0.0010593	0.0005692	6774.668	-0.0021752	0.0000565	-1.8610370	0.0627822
reward	-0.0000427	0.0005606	6544.373	-0.0011417	0.0010563	-0.0762245	0.9392428
shapes	-0.0009797	0.0005652	6658.903	-0.0020877	0.0001283	-1.7332965	0.0830893
story	0.0008907	0.0005893	7336.516	-0.0002645	0.0020458	1.5115013	0.1307038
ToM	0.0001480	0.0005624	6585.192	-0.0009544	0.0012504	0.2631153	0.7924699

## D2 contrast locations, and contrast-specific slopes

```
emm_options(lmerTest.limit = 13201, lmer.df = "satterthwaite")
em2cont<-emmeans(mod2, ~ cont, type = "response")
```

## NOTE: Results may be misleading due to involvement in interactions

```
em2contpairs<-pairs(em2cont, adjust = "bonferroni", infer = TRUE)

em2NEO_N<-emtrends(mod2, "cont", var="Neuroticism", adjust="none", infer = TRUE)
em2NEO_O<-emtrends(mod2, "cont", var="Openness", adjust = "none", infer = TRUE)
em2NEO_C<-emtrends(mod2, "cont", var="Conscientiousness", adjust = "none", infer = TRUE)
em2NEO_E<-emtrends(mod2, "cont", var="Extraversion", adjust = "none", infer = TRUE)
em2NEO_A<-emtrends(mod2, "cont", var="Agreeableness", adjust = "none", infer = TRUE)
```

cont	emmean	SE	df	lower.CL	upper.CL
0back	0.2265	0.0023	2533.411	0.2220	0.2309
2back	0.2841	0.0023	2533.411	0.2796	0.2886
faces	0.2113	0.0023	2655.564	0.2067	0.2158
match	0.2995	0.0023	2739.277	0.2949	0.3041
math	-0.0050	0.0024	2953.959	-0.0097	-0.0003
motor	-0.1392	0.0023	2635.628	-0.1438	-0.1347
punish	0.2513	0.0023	2542.294	0.2468	0.2558
random	0.2058	0.0023	2613.973	0.2013	0.2104
relational	0.3284	0.0023	2739.277	0.3239	0.3330
reward	0.2794	0.0023	2542.294	0.2749	0.2839
shapes	0.1565	0.0023	2655.564	0.1519	0.1610
story	-0.0802	0.0024	2953.959	-0.0849	-0.0755
ToM	0.2642	0.0023	2613.973	0.2597	0.2687

cont	Neuroticism.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0005297	0.0003375	7616.594	-0.0011914	0.0001319	-1.5695480	0.1165618
2back	-0.0014484	0.0003375	7616.577	-0.0021101	-0.0007868	-4.2914126	0.0000180
faces	-0.0008719	0.0003425	7807.568	-0.0015432	-0.0002005	-2.5457646	0.0109229
match	-0.0005187	0.0003450	7923.017	-0.0011950	0.0001577	-1.5032647	0.1328106
math	0.0000963	0.0003533	8300.293	-0.0005962	0.0007889	0.2727089	0.7850838
motor	0.0004435	0.0003397	7722.008	-0.0002225	0.0011095	1.3054501	0.1917785
punish	-0.0004670	0.0003374	7617.656	-0.0011284	0.0001945	-1.3838550	0.1664434
random	-0.0001255	0.0003408	7749.942	-0.0007935	0.0005426	-0.3681627	0.7127620
relational	-0.0006702	0.0003450	7923.017	-0.0013466	0.0000061	-1.9424778	0.0521147
reward	-0.0004606	0.0003374	7617.656	-0.0011221	0.0002008	-1.3651036	0.1722608
shapes	-0.0006079	0.0003425	7807.568	-0.0012792	0.0000635	-1.7748724	0.0759579
story	0.0002588	0.0003533	8300.293	-0.0004337	0.0009514	0.7325780	0.4638366
ToM	-0.0002985	0.0003408	7749.942	-0.0009666	0.0003695	-0.8759683	0.3810744

cont	Openness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	0.0001371	0.0003589	7459.865	-0.0005664	0.0008407	0.3821214	0.7023822
2back	0.0006627	0.0003589	7459.857	-0.0000409	0.0013662	1.8464446	0.0648673
faces	0.0006274	0.0003641	7672.468	-0.0000863	0.0013411	1.7232950	0.0848755
match	-0.0004171	0.0003674	7798.440	-0.0011372	0.0003030	-1.1354014	0.2562421
math	0.0011887	0.0003771	8225.090	0.0004495	0.0019279	3.1523248	0.0016256
motor	0.0001773	0.0003621	7599.323	-0.0005325	0.0008871	0.4897172	0.6243481
punish	-0.0004519	0.0003573	7388.056	-0.0011523	0.0002484	-1.2650018	0.2059106
random	0.0007031	0.0003623	7600.445	-0.0000071	0.0014132	1.9406123	0.0523423
relational	0.0001853	0.0003674	7798.440	-0.0005349	0.0009054	0.5043328	0.6140418
reward	-0.0002461	0.0003573	7388.056	-0.0009465	0.0004542	-0.6888992	0.4909084
shapes	-0.0001665	0.0003641	7672.468	-0.0008802	0.0005471	-0.4574535	0.6473581
story	0.0007477	0.0003771	8225.090	0.0000086	0.0014869	1.9829465	0.0474066
ToM	0.0001903	0.0003623	7600.445	-0.0005199	0.0009005	0.5253109	0.5993824

cont	Conscientiousness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0004801	0.0004077	7805.427	-0.0012792	0.0003191	-1.1775937	0.2389945
2back	-0.0010469	0.0004077	7805.404	-0.0018461	-0.0002478	-2.5681928	0.0102415
faces	-0.0007280	0.0004136	7988.237	-0.0015387	0.0000828	-1.7601771	0.0784160
match	0.0002102	0.0004173	8132.396	-0.0006078	0.0010282	0.5037045	0.6144827
math	-0.0003957	0.0004275	8510.745	-0.0012337	0.0004422	-0.9256968	0.3546298
motor	-0.0000846	0.0004113	7943.357	-0.0008908	0.0007215	-0.2057530	0.8369891
punish	-0.0002490	0.0004056	7727.188	-0.0010441	0.0005461	-0.6139619	0.5392586
random	0.0003261	0.0004135	7999.990	-0.0004844	0.0011366	0.7887345	0.4302906
relational	-0.0002165	0.0004173	8132.396	-0.0010345	0.0006015	-0.5188262	0.6038961
reward	-0.0002575	0.0004056	7727.188	-0.0010526	0.0005376	-0.6348642	0.5255358
shapes	-0.0004859	0.0004136	7988.237	-0.0012966	0.0003249	-1.1747342	0.2401361
story	0.0002677	0.0004275	8510.745	-0.0005703	0.0011056	0.6261452	0.5312365
ToM	-0.0000234	0.0004135	7999.990	-0.0008339	0.0007871	-0.0565496	0.9549054

cont	Extraversion.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0004608	0.0003967	7784.247	-0.0012383	0.0003168	-1.1616037	0.2454321
2back	-0.0004972	0.0003967	7784.239	-0.0012748	0.0002804	-1.2534595	0.2100762
faces	-0.0001317	0.0003996	7880.486	-0.0009151	0.0006518	-0.3294192	0.7418476
match	-0.0002575	0.0004044	8062.574	-0.0010502	0.0005353	-0.6366284	0.5243850
math	0.0004998	0.0004117	8341.397	-0.0003072	0.0013068	1.2140744	0.2247537
motor	0.0009713	0.0004010	7952.309	0.0001852	0.0017574	2.4221141	0.0154527
punish	0.0000796	0.0003960	7755.994	-0.0006968	0.0008559	0.2008740	0.8408023
random	-0.0007006	0.0003987	7843.337	-0.0014821	0.0000809	-1.7574006	0.0788886
relational	-0.0000675	0.0004044	8062.574	-0.0008602	0.0007253	-0.1668481	0.8674937
reward	0.0004788	0.0003960	7755.994	-0.0002975	0.0012551	1.2089488	0.2267194
shapes	0.0003461	0.0003996	7880.486	-0.0004373	0.0011295	0.8660491	0.3864896
story	0.0005401	0.0004117	8341.397	-0.0002669	0.0013471	1.3119846	0.1895614
ToM	-0.0005495	0.0003987	7843.337	-0.0013310	0.0002320	-1.3784231	0.1681120

cont	Agreeableness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	0.0008250	0.0004030	7410.169	0.0000350	0.0016150	2.0470092	0.0406924

cont	Agreeableness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
2back	0.0008758	0.0004030	7410.160	0.0000857	0.0016658	2.1730138	0.0298109
faces	0.0004930	0.0004070	7536.366	-0.0003049	0.0012909	1.2111737	0.2258668
match	0.0000676	0.0004100	7656.483	-0.0007361	0.0008714	0.1649825	0.8689621
math	-0.0005756	0.0004251	8227.561	-0.0014089	0.0002576	-1.3541709	0.1757191
motor	-0.0013606	0.0004067	7563.867	-0.0021578	-0.0005633	-3.3451988	0.0008262
punish	0.0001214	0.0004036	7417.639	-0.0006697	0.0009126	0.3008816	0.7635132
random	0.0005080	0.0004049	7459.810	-0.0002857	0.0013017	1.2546113	0.2096592
relational	0.0004590	0.0004100	7656.483	-0.0003448	0.0012628	1.1194255	0.2629938
reward	0.0002401	0.0004036	7417.639	-0.0005510	0.0010312	0.5949753	0.5518781
shapes	-0.0000107	0.0004070	7536.366	-0.0008086	0.0007872	-0.0262589	0.9790515
story	-0.0011531	0.0004251	8227.561	-0.0019864	-0.0003199	-2.7126989	0.0066877
ToM	-0.0003222	0.0004049	7459.810	-0.0011159	0.0004715	-0.7957884	0.4261803



### D3 contrast locations, and contrast-specific slopes

```
emm_options(lmerTest.limit = 13201, lmer.df = "satterthwaite")
em3cont<-emmeans(mod3, ~ cont, type = "response")
```

## NOTE: Results may be misleading due to involvement in interactions

```
em3contpairs<-pairs(em3cont, adjust = "bonferroni", infer = TRUE)

em3NEO_N<-emtrends(mod3, "cont", var="Neuroticism", adjust="none", infer = TRUE)
em3NEO_O<-emtrends(mod3, "cont", var="Openness", adjust = "none", infer = TRUE)
em3NEO_C<-emtrends(mod3, "cont", var="Conscientiousness", adjust = "none", infer = TRUE)
em3NEO_E<-emtrends(mod3, "cont", var="Extraversion", adjust = "none", infer = TRUE)
em3NEO_A<-emtrends(mod3, "cont", var="Agreeableness", adjust = "none", infer = TRUE)
```

cont	emmean	SE	df	lower.CL	upper.CL
0back	0.1173	0.0025	3108.271	0.1123	0.1222
2back	0.2182	0.0025	3108.271	0.2132	0.2231
faces	0.0317	0.0026	3254.827	0.0266	0.0367
match	0.1939	0.0026	3355.915	0.1889	0.1990
math	0.1474	0.0026	3616.678	0.1422	0.1526
motor	0.0530	0.0026	3229.925	0.0480	0.0580
punish	0.1989	0.0025	3118.625	0.1940	0.2039
random	0.0943	0.0026	3204.541	0.0893	0.0993
relational	0.2179	0.0026	3355.916	0.2129	0.2230
reward	0.2088	0.0025	3118.625	0.2039	0.2138
shapes	0.0850	0.0026	3254.827	0.0800	0.0901
story	-0.1036	0.0026	3616.678	-0.1088	-0.0984
ToM	0.0603	0.0026	3204.541	0.0553	0.0653

cont	Neuroticism.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	0.0003990	0.0003734	8724.244	-0.0003330	0.0011310	1.0685042	0.2853227
2back	-0.0008280	0.0003734	8724.231	-0.0015600	-0.0000960	-2.2173407	0.0266255
faces	-0.0002782	0.0003791	8897.117	-0.0010214	0.0004650	-0.7337544	0.4631178
match	-0.0001203	0.0003821	9007.304	-0.0008693	0.0006287	-0.3147551	0.7529549
math	-0.0007236	0.0003917	9367.327	-0.0014914	0.0000443	-1.8472245	0.0647461
motor	-0.0004043	0.0003760	8826.347	-0.0011414	0.0003327	-1.0753041	0.2822680
punish	0.0003379	0.0003733	8727.015	-0.0003939	0.0010697	0.9051030	0.3654358
random	-0.0010994	0.0003772	8846.862	-0.0018388	-0.0003599	-2.9144360	0.0035722
relational	-0.0004442	0.0003821	9007.304	-0.0011932	0.0003048	-1.1624867	0.2450686
reward	0.0003268	0.0003733	8727.015	-0.0004050	0.0010586	0.8753703	0.3813965
shapes	-0.0003201	0.0003791	8897.117	-0.0010633	0.0004231	-0.8441987	0.3985811
story	0.0003113	0.0003917	9367.327	-0.0004565	0.0010791	0.7946601	0.4268314
ToM	-0.0001268	0.0003772	8846.862	-0.0008662	0.0006126	-0.3361478	0.7367674

cont	Openness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0009377	0.0003971	8587.967	-0.0017162	-0.0001592	-2.3612020	0.0182380
2back	0.0005479	0.0003971	8587.964	-0.0002306	0.0013263	1.3795066	0.1677745
faces	-0.0004056	0.0004031	8788.000	-0.0011958	0.0003846	-1.0061504	0.3143709
match	-0.0007461	0.0004069	8904.517	-0.0015437	0.0000515	-1.8337350	0.0667267
math	0.0002587	0.0004182	9315.511	-0.0005610	0.0010785	0.6187020	0.5361278
motor	0.0005975	0.0004008	8720.511	-0.0001882	0.0013832	1.4907612	0.1360604
punish	0.0004197	0.0003953	8519.612	-0.0003551	0.0011946	1.0619375	0.2882942
random	0.0006520	0.0004010	8718.095	-0.0001341	0.0014381	1.6258385	0.1040202
relational	-0.0000523	0.0004069	8904.517	-0.0008499	0.0007453	-0.1284341	0.8978084
reward	0.0008388	0.0003953	8519.612	0.0000639	0.0016136	2.1220339	0.0338637
shapes	0.0003648	0.0004031	8788.000	-0.0004254	0.0011550	0.9048663	0.3655610
story	-0.0015048	0.0004182	9315.511	-0.0023246	-0.0006851	-3.5983717	0.0003219
ToM	-0.0009523	0.0004010	8718.095	-0.0017384	-0.0001662	-2.3746772	0.0175858

cont	Conscientiousness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	0.0012017	0.0004513	8911.738	0.0003170	0.0020864	2.6627254	0.0077650
2back	-0.0003977	0.0004513	8911.728	-0.0012824	0.0004869	-0.8813086	0.3781746
faces	-0.0008289	0.0004581	9074.246	-0.0017270	0.0000691	-1.8093494	0.0704298
match	0.0001167	0.0004624	9213.583	-0.0007898	0.0010232	0.2523795	0.8007534
math	-0.0001283	0.0004743	9568.550	-0.0010580	0.0008013	-0.2706121	0.7866952
motor	-0.0012641	0.0004555	9044.660	-0.0021570	-0.0003712	-2.7752729	0.0055269
punish	0.0005783	0.0004489	8836.469	-0.0003017	0.0014583	1.2882393	0.1976964
random	-0.0002838	0.0004580	9090.146	-0.0011816	0.0006140	-0.6195966	0.5355389
relational	-0.0002189	0.0004624	9213.583	-0.0011254	0.0006876	-0.4733598	0.6359677
reward	0.0009661	0.0004489	8836.469	0.0000861	0.0018461	2.1519992	0.0314244
shapes	-0.0009993	0.0004581	9074.246	-0.0018973	-0.0001012	-2.1812280	0.0291921
story	0.0007457	0.0004743	9568.550	-0.0001840	0.0016753	1.5722876	0.1159169
ToM	0.0004980	0.0004580	9090.146	-0.0003998	0.0013958	1.0873009	0.2769327

cont	Extraversion.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0003602	0.0004391	8895.533	-0.0012210	0.0005006	-0.8203345	0.4120474
2back	-0.0007787	0.0004391	8895.531	-0.0016395	0.0000821	-1.7733015	0.0762130
faces	-0.0001559	0.0004426	8979.951	-0.0010234	0.0007116	-0.3523376	0.7245934
match	0.0000710	0.0004481	9156.216	-0.0008074	0.0009494	0.1584948	0.8740704
math	-0.0004563	0.0004565	9418.431	-0.0013512	0.0004386	-0.9993852	0.3176338
motor	-0.0008043	0.0004442	9057.091	-0.0016750	0.0000664	-1.8106394	0.0702298
punish	0.0007176	0.0004384	8868.543	-0.0001418	0.0015770	1.6368970	0.1016875
random	-0.0005500	0.0004414	8946.153	-0.0014154	0.0003153	-1.2460475	0.2127796
relational	-0.0001115	0.0004481	9156.216	-0.0009899	0.0007669	-0.2487848	0.8035329
reward	0.0004870	0.0004384	8868.543	-0.0003724	0.0013463	1.1107581	0.2667026
shapes	0.0006879	0.0004426	8979.951	-0.0001796	0.0015554	1.5543551	0.1201350
story	-0.0002736	0.0004565	9418.431	-0.0011685	0.0006213	-0.5993288	0.5489681
ToM	0.0002712	0.0004414	8946.153	-0.0005941	0.0011365	0.6144598	0.5389271

cont	Agreeableness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back	-0.0007135	0.0004456	8507.888	-0.0015869	0.0001600	-1.6011519	0.1093804

cont	Agreeableness.trend	SE	df	lower.CL	upper.CL	t.ratio	p.value
2back	-0.0002983	0.0004456	8507.879	-0.0011718	0.0005751	-0.6695473	0.5031646
faces	0.0004334	0.0004502	8622.838	-0.0004492	0.0013159	0.9625491	0.3358008
match	0.0001391	0.0004537	8740.114	-0.0007503	0.0010285	0.3066304	0.7591321
math	-0.0000603	0.0004712	9288.071	-0.0009840	0.0008633	-0.1280592	0.8981049
motor	0.0008278	0.0004499	8660.366	-0.0000541	0.0017098	1.8400446	0.0657959
punish	-0.0001671	0.0004462	8511.833	-0.0010418	0.0007076	-0.3744966	0.7080442
random	-0.0005347	0.0004477	8548.723	-0.0014124	0.0003429	-1.1943440	0.2323766
relational	0.0003372	0.0004537	8740.114	-0.0005521	0.0012266	0.7432809	0.4573316
reward	-0.0001792	0.0004462	8511.833	-0.0010539	0.0006955	-0.4015702	0.6880105
shapes	0.0000471	0.0004502	8622.838	-0.0008354	0.0009297	0.1046522	0.9166542
story	-0.0002177	0.0004712	9288.071	-0.0011414	0.0007059	-0.4621047	0.6440171
ToM	-0.0012716	0.0004477	8548.723	-0.0021493	-0.0003940	-2.8402523	0.0045184

## pairwise interaction effects

D1

```
em1int_NEO_N<-emtrends(mod1, pairwise~cont, var="Neuroticism", adjust="none", infer = TRUE)
em1int_NEO_O<-emtrends(mod1, pairwise~cont, var="Openness", adjust = "none", infer = TRUE)
em1int_NEO_C<-emtrends(mod1, pairwise~cont, var="Conscientiousness", adjust="none", infer = TRUE)
em1int_NEO_E<-emtrends(mod1, pairwise~cont, var="Extraversion", adjust = "none", infer = TRUE)
em1int_NEO_A<-emtrends(mod1, pairwise~cont, var="Agreeableness", adjust="none", infer = TRUE)
```

# D1 contrast- pairwise trait effects : Neuroticism

```
kable(emlnt_NEO_N$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0010078	0.0005612	11916.92	-0.0000922	0.0021078	1.7959185	0.0725328
0back - faces	0.0010288	0.0005673	11962.92	-0.0000833	0.0021409	1.8133707	0.0697997
0back - match	0.0002328	0.0005702	11965.96	-0.0008849	0.0013505	0.4082331	0.6831098
0back - math	0.0001423	0.0005793	11973.37	-0.0009932	0.0012778	0.2456185	0.8059818
0back - motor	-0.0012277	0.0005641	11933.72	-0.0023334	-0.0001220	-2.1764783	0.0295391
0back - punish	0.0012956	0.0005617	11936.66	0.0001946	0.0023965	2.3066512	0.0210913
0back - random	-0.0003617	0.0005658	11969.37	-0.0014707	0.0007473	-0.6393474	0.5226092
0back - relational	0.0002244	0.0005702	11965.96	-0.0008933	0.0013421	0.3935519	0.6939189
0back - reward	0.0006804	0.0005617	11936.66	-0.0004205	0.0017814	1.2114790	0.2257359
0back - shapes	0.0005906	0.0005673	11962.92	-0.0005215	0.0017027	1.0410553	0.2978709
0back - story	0.0009614	0.0005793	11973.37	-0.0001741	0.0020970	1.6596221	0.0970167
0back - ToM	0.0002407	0.0005658	11969.37	-0.0008683	0.0013497	0.4254368	0.6705259
2back - faces	0.0000210	0.0005673	11962.92	-0.0010911	0.0011331	0.0369635	0.9705147
2back - match	-0.0007751	0.0005702	11965.96	-0.0018928	0.0003427	-1.3592188	0.1741029
2back - math	-0.0008655	0.0005793	11973.37	-0.0020011	0.0002700	-1.4941167	0.1351715
2back - motor	-0.0022355	0.0005641	11933.73	-0.0033412	-0.0011299	-3.9631831	0.0000744
2back - punish	0.0002877	0.0005617	11936.66	-0.0008132	0.0013887	0.5122835	0.6084621
2back - random	-0.0013696	0.0005658	11969.37	-0.0024785	-0.0002606	-2.4207289	0.0155042
2back - relational	-0.0007834	0.0005702	11965.96	-0.0019012	0.0003343	-1.3739000	0.1694985
2back - reward	-0.0003274	0.0005617	11936.66	-0.0014283	0.0007736	-0.5828887	0.5599792
2back - shapes	-0.0004172	0.0005673	11962.92	-0.0015293	0.0006949	-0.7353519	0.4621396
2back - story	-0.0000464	0.0005793	11973.37	-0.0011819	0.0010891	-0.0801131	0.9361487
2back - ToM	-0.0007671	0.0005658	11969.37	-0.0018761	0.0003418	-1.3559447	0.1751423
faces - match	-0.0007960	0.0005740	11928.41	-0.0019211	0.0003291	-1.3868479	0.1655141
faces - math	-0.0008865	0.0005834	11946.63	-0.0020300	0.0002569	-1.5197026	0.1286122
faces - motor	-0.0022565	0.0005699	11970.62	-0.0033737	-0.0011393	-3.9591419	0.0000757
faces - punish	0.0002668	0.0005672	11961.69	-0.0008451	0.0013786	0.4703062	0.6381449
faces - random	-0.0013905	0.0005696	11932.32	-0.0025070	-0.0002740	-2.4412162	0.0146523
faces - relational	-0.0008044	0.0005740	11928.41	-0.0019295	0.0003207	-1.4014329	0.1611107
faces - reward	-0.0003484	0.0005672	11961.69	-0.0014602	0.0007635	-0.6141666	0.5391169
faces - shapes	-0.0004382	0.0005708	11916.92	-0.0015571	0.0006808	-0.7675805	0.4427517
faces - story	-0.0000674	0.0005834	11946.63	-0.0012108	0.0010761	-0.1155068	0.9080454
faces - ToM	-0.0007881	0.0005696	11932.32	-0.0019046	0.0003284	-1.3836148	0.1665023
match - math	-0.0000905	0.0005859	11940.95	-0.0012389	0.0010579	-0.1544600	0.8772497
match - motor	-0.0014605	0.0005726	11967.67	-0.0025829	-0.0003381	-2.5505758	0.0107669
match - punish	0.0010628	0.0005702	11969.29	-0.0000550	0.0021805	1.8637825	0.0623767
match - random	-0.0005945	0.0005726	11938.84	-0.0017169	0.0005279	-1.0382358	0.2991813
match - relational	-0.0000084	0.0005763	11916.92	-0.0011380	0.0011213	-0.0145263	0.9884103
match - reward	0.0004477	0.0005702	11969.29	-0.0006701	0.0015654	0.7850586	0.4324348
match - shapes	0.0003579	0.0005740	11928.41	-0.0007672	0.0014830	0.6234614	0.5329933
match - story	0.0007286	0.0005859	11940.95	-0.0004198	0.0018771	1.2436773	0.2136428
match - ToM	0.0000079	0.0005726	11938.84	-0.0011145	0.0011303	0.0138191	0.9889745
math - motor	-0.0013700	0.0005818	11978.19	-0.0025104	-0.0002296	-2.3548598	0.0185457
math - punish	0.0011533	0.0005795	11979.96	0.0000174	0.0022891	1.9902671	0.0465842
math - random	-0.0005040	0.0005818	11952.01	-0.0016445	0.0006364	-0.8662641	0.3863627
math - relational	0.0000821	0.0005859	11940.95	-0.0010663	0.0012305	0.1401711	0.8885272

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	0.0005382	0.0005795	11979.96	-0.0005977	0.0016740	0.9287250	0.3530503
math - shapes	0.0004484	0.0005834	11946.63	-0.0006951	0.0015918	0.7685771	0.4421596
math - story	0.0008191	0.0005932	11916.92	-0.0003436	0.0019819	1.3808685	0.1673453
math - ToM	0.0000984	0.0005818	11952.01	-0.0010420	0.0012389	0.1691390	0.8656901
motor - punish	0.0025233	0.0005641	11936.29	0.0014175	0.0036290	4.4730198	0.0000078
motor - random	0.0008660	0.0005684	11978.50	-0.0002483	0.0019802	1.5234349	0.1276763
motor - relational	0.0014521	0.0005726	11967.67	0.0003297	0.0025745	2.5359557	0.0112267
motor - reward	0.0019081	0.0005641	11936.29	0.0008024	0.0030139	3.3825877	0.0007204
motor - shapes	0.0018183	0.0005699	11970.62	0.0007011	0.0029355	3.1903534	0.0014247
motor - story	0.0021891	0.0005818	11978.19	0.0010488	0.0033295	3.7628717	0.0001688
motor - ToM	0.0014684	0.0005684	11978.50	0.0003542	0.0025826	2.5832024	0.0098005
punish - random	-0.0016573	0.0005657	11968.10	-0.0027661	-0.0005485	-2.9297741	0.0033985
punish - relational	-0.0010712	0.0005702	11969.29	-0.0021889	0.0000466	-1.8784635	0.0603421
punish - reward	-0.0006151	0.0005611	11916.92	-0.0017149	0.0004847	-1.0963204	0.2729607
punish - shapes	-0.0007049	0.0005672	11961.69	-0.0018168	0.0004069	-1.2428086	0.2139627
punish - story	-0.0003341	0.0005795	11979.96	-0.0014700	0.0008017	-0.5766440	0.5641908
punish - ToM	-0.0010549	0.0005657	11968.10	-0.0021637	0.0000539	-1.8648194	0.0622312
random - relational	0.0005861	0.0005726	11938.84	-0.0005363	0.0017085	1.0236157	0.3060375
random - reward	0.0010422	0.0005657	11968.10	-0.0000666	0.0021510	1.8423537	0.0654481
random - shapes	0.0009524	0.0005696	11932.32	-0.0001642	0.0020689	1.6719626	0.0945579
random - story	0.0013231	0.0005818	11952.01	0.0001827	0.0024636	2.2741654	0.0229737
random - ToM	0.0006024	0.0005676	11916.92	-0.0005102	0.0017150	1.0613364	0.2885586
relational - reward	0.0004560	0.0005702	11969.29	-0.0006617	0.0015738	0.7997396	0.4238776
relational - shapes	0.0003662	0.0005740	11928.41	-0.0007589	0.0014913	0.6380465	0.5234557
relational - story	0.0007370	0.0005859	11940.95	-0.0004114	0.0018854	1.2579662	0.2084286
relational - ToM	0.0000163	0.0005726	11938.84	-0.0011061	0.0011387	0.0284392	0.9773123
reward - shapes	-0.0000898	0.0005672	11961.69	-0.0012016	0.0010220	-0.1583359	0.8741948
reward - story	0.0002810	0.0005795	11979.96	-0.0008549	0.0014168	0.4848981	0.6277575
reward - ToM	-0.0004398	0.0005657	11968.10	-0.0015486	0.0006691	-0.7773990	0.4369388
shapes - story	0.0003708	0.0005834	11946.63	-0.0007727	0.0015143	0.6356187	0.5250371
shapes - ToM	-0.0003499	0.0005696	11932.32	-0.0014665	0.0007666	-0.6143612	0.5389884
story - ToM	-0.0007207	0.0005818	11952.01	-0.0018612	0.0004197	-1.2387623	0.2154579

# D1 contrast- pairwise trait effects : Openness

```
kable(emlnt_NEO_0$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0004287	0.0005943	11916.92	-0.0007363	0.0015937	0.7213125	0.4707314
0back - faces	-0.0007722	0.0006010	11958.88	-0.0019502	0.0004057	-1.2849947	0.1988190
0back - match	0.0015498	0.0006044	11963.39	0.0003651	0.0027345	2.5643314	0.0103496
0back - math	-0.0004281	0.0006155	11975.61	-0.0016346	0.0007784	-0.6955147	0.4867463
0back - motor	0.0004111	0.0005983	11935.74	-0.0007617	0.0015839	0.6870593	0.4920587
0back - punish	0.0000339	0.0005931	11933.93	-0.0011287	0.0011965	0.0571402	0.9544344
0back - random	-0.0005112	0.0005991	11960.10	-0.0016856	0.0006631	-0.8533290	0.3934940
0back - relational	0.0009379	0.0006044	11963.39	-0.0002468	0.0021225	1.5517914	0.1207386
0back - reward	0.0005789	0.0005931	11933.93	-0.0005837	0.0017415	0.9759827	0.3290928
0back - shapes	-0.0004581	0.0006010	11958.88	-0.0016361	0.0007199	-0.7622310	0.4459372
0back - story	-0.0015361	0.0006155	11975.61	-0.0027426	-0.0003296	-2.4956591	0.0125857
0back - ToM	0.0003454	0.0005991	11960.10	-0.0008290	0.0015198	0.5765081	0.5642827
2back - faces	-0.0012009	0.0006010	11958.89	-0.0023789	-0.0000229	-1.9983478	0.0457016
2back - match	0.0011211	0.0006044	11963.40	-0.0000636	0.0023058	1.8549978	0.0636211
2back - math	-0.0008568	0.0006155	11975.62	-0.0020633	0.0003497	-1.3919961	0.1639494
2back - motor	-0.0000176	0.0005983	11935.74	-0.0011904	0.0011552	-0.0294434	0.9765114
2back - punish	-0.0003948	0.0005931	11933.93	-0.0015574	0.0007678	-0.6656474	0.5056494
2back - random	-0.0009399	0.0005991	11960.11	-0.0021143	0.0002344	-1.5688710	0.1167045
2back - relational	0.0005092	0.0006044	11963.40	-0.0006755	0.0016938	0.8424579	0.3995486
2back - reward	0.0001502	0.0005931	11933.93	-0.0010124	0.0013128	0.2531950	0.8001219
2back - shapes	-0.0008868	0.0006010	11958.89	-0.0020647	0.0002912	-1.4755841	0.1400819
2back - story	-0.0019648	0.0006155	11975.62	-0.0031713	-0.0007583	-3.1921405	0.0014159
2back - ToM	-0.0000833	0.0005991	11960.11	-0.0012577	0.0010911	-0.1390340	0.8894256
faces - match	0.0023220	0.0006087	11934.94	0.0011289	0.0035151	3.8149314	0.0001369
faces - math	0.0003441	0.0006199	11953.48	-0.0008710	0.0015593	0.5551227	0.5788211
faces - motor	0.0011833	0.0006045	11968.42	-0.0000017	0.0023683	1.9573776	0.0503263
faces - punish	0.0008061	0.0005992	11960.23	-0.0003683	0.0019806	1.3454040	0.1785203
faces - random	0.0002610	0.0006033	11926.83	-0.0009217	0.0014436	0.4325600	0.6653423
faces - relational	0.0017101	0.0006087	11934.94	0.0005170	0.0029032	2.8095476	0.0049692
faces - reward	0.0013511	0.0005992	11960.23	0.0001766	0.0025256	2.2549672	0.0241534
faces - shapes	0.0003142	0.0006048	11916.92	-0.0008714	0.0014997	0.5194382	0.6034648
faces - story	-0.0007639	0.0006199	11953.48	-0.0019790	0.0004512	-1.2322534	0.2178787
faces - ToM	0.0011176	0.0006033	11926.83	-0.0000650	0.0023003	1.8523899	0.0639945
match - math	-0.0019779	0.0006227	11943.47	-0.0031985	-0.0007573	-3.1762665	0.0014956
match - motor	-0.0011387	0.0006077	11965.65	-0.0023298	0.0000524	-1.8739134	0.0609667
match - punish	-0.0015159	0.0006028	11971.11	-0.0026975	-0.0003343	-2.5147352	0.0119252
match - random	-0.0020610	0.0006070	11939.24	-0.0032509	-0.0008712	-3.3953660	0.0006876
match - relational	-0.0006119	0.0006112	11916.92	-0.0018100	0.0005861	-1.0012143	0.3167435
match - reward	-0.0009709	0.0006028	11971.11	-0.0021525	0.0002107	-1.6106665	0.1072788
match - shapes	-0.0020079	0.0006087	11934.94	-0.0032010	-0.0008148	-3.2987872	0.0009739
match - story	-0.0030859	0.0006227	11943.47	-0.0043065	-0.0018653	-4.9556175	0.0000007
match - ToM	-0.0012044	0.0006070	11939.24	-0.0023942	-0.0000145	-1.9841241	0.0472649
math - motor	0.0008392	0.0006187	11975.05	-0.0003735	0.0020519	1.3564502	0.1749815
math - punish	0.0004620	0.0006140	11982.14	-0.0007415	0.0016655	0.7524561	0.4517916
math - random	-0.0000831	0.0006181	11952.04	-0.0012947	0.0011284	-0.1345224	0.8929918
math - relational	0.0013660	0.0006227	11943.47	0.0001453	0.0025866	2.1935562	0.0282865

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	0.0010070	0.0006140	11982.14	-0.0001965	0.0022105	1.6400755	0.1010157
math - shapes	-0.0000300	0.0006199	11953.48	-0.0012451	0.0011852	-0.0483432	0.9614435
math - story	-0.0011080	0.0006316	11916.92	-0.0023460	0.0001300	-1.7543800	0.0793911
math - ToM	0.0007735	0.0006181	11952.04	-0.0004380	0.0019850	1.2514477	0.2107957
motor - punish	-0.0003772	0.0005966	11936.28	-0.0015466	0.0007922	-0.6322399	0.5272422
motor - random	-0.0009223	0.0006027	11967.63	-0.0021037	0.0002590	-1.5304050	0.1259429
motor - relational	0.0005268	0.0006077	11965.65	-0.0006644	0.0017179	0.8668728	0.3860291
motor - reward	0.0001678	0.0005966	11936.28	-0.0010016	0.0013372	0.2812482	0.7785249
motor - shapes	-0.0008692	0.0006045	11968.42	-0.0020541	0.0003158	-1.4377085	0.1505429
motor - story	-0.0019472	0.0006187	11975.05	-0.0031599	-0.0007345	-3.1474509	0.0016510
motor - ToM	-0.0000657	0.0006027	11967.63	-0.0012470	0.0011156	-0.1089847	0.9132165
punish - random	-0.0005451	0.0005972	11955.72	-0.0017158	0.0006255	-0.9127970	0.3613677
punish - relational	0.0009040	0.0006028	11971.11	-0.0002776	0.0020856	1.4995792	0.1337498
punish - reward	0.0005450	0.0005909	11916.92	-0.0006132	0.0017032	0.9223558	0.3563617
punish - shapes	-0.0004920	0.0005992	11960.23	-0.0016664	0.0006825	-0.8210756	0.4116196
punish - story	-0.0015700	0.0006140	11982.14	-0.0027735	-0.0003665	-2.5571114	0.0105667
punish - ToM	0.0003115	0.0005972	11955.72	-0.0008591	0.0014822	0.5215981	0.6019598
random - relational	0.0014491	0.0006070	11939.24	0.0002592	0.0026390	2.3872471	0.0169905
random - reward	0.0010901	0.0005972	11955.72	-0.0000805	0.0022608	1.8253282	0.0679764
random - shapes	0.0000532	0.0006033	11926.83	-0.0011295	0.0012358	0.0881379	0.9297686
random - story	-0.0010249	0.0006181	11952.04	-0.0022364	0.0001867	-1.6581472	0.0973140
random - ToM	0.0008566	0.0006012	11916.92	-0.0003218	0.0020351	1.4248443	0.1542284
relational - reward	-0.0003590	0.0006028	11971.11	-0.0015406	0.0008226	-0.5955105	0.5515135
relational - shapes	-0.0013959	0.0006087	11934.94	-0.0025890	-0.0002028	-2.2934034	0.0218421
relational - story	-0.0024740	0.0006227	11943.47	-0.0036946	-0.0012534	-3.9729072	0.0000714
relational - ToM	-0.0005925	0.0006070	11939.24	-0.0017823	0.0005974	-0.9760052	0.3290816
reward - shapes	-0.0010369	0.0005992	11960.23	-0.0022114	0.0001375	-1.7306387	0.0835420
reward - story	-0.0021150	0.0006140	11982.14	-0.0033185	-0.0009115	-3.4447308	0.0005736
reward - ToM	-0.0002335	0.0005972	11955.72	-0.0014041	0.0009372	-0.3909331	0.6958537
shapes - story	-0.0010781	0.0006199	11953.48	-0.0022932	0.0001371	-1.7390328	0.0820547
shapes - ToM	0.0008035	0.0006033	11926.83	-0.0003792	0.0019861	1.3316921	0.1829868
story - ToM	0.0018815	0.0006181	11952.04	0.0006700	0.0030931	3.0441172	0.0023387



# D1 contrast- pairwise trait effects : Conscientiousness

```
kable(emlnt_NEO_C$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	-0.0004201	0.0006805	11916.91	-0.0017541	0.0009138	-0.6173657	0.5370054
0back - faces	0.0002448	0.0006881	11970.61	-0.0011039	0.0015935	0.3557680	0.7220206
0back - match	-0.0012803	0.0006920	11974.23	-0.0026368	0.0000763	-1.8499499	0.0643454
0back - math	-0.0009196	0.0007035	11988.65	-0.0022985	0.0004593	-1.3072301	0.1911596
0back - motor	-0.0001390	0.0006847	11929.53	-0.0014811	0.0012031	-0.2030392	0.8391078
0back - punish	0.0005310	0.0006792	11936.98	-0.0008003	0.0018622	0.7818143	0.4343392
0back - random	-0.0009874	0.0006883	11977.49	-0.0023366	0.0003618	-1.4344835	0.1514605
0back - relational	-0.0013435	0.0006920	11974.23	-0.0027001	0.0000130	-1.9413922	0.0522342
0back - reward	0.0005930	0.0006792	11936.98	-0.0007383	0.0019242	0.8730747	0.3826399
0back - shapes	-0.0003419	0.0006881	11970.61	-0.0016906	0.0010068	-0.4968487	0.6193049
0back - story	-0.0003094	0.0007035	11988.65	-0.0016883	0.0010695	-0.4398112	0.6600818
0back - ToM	-0.0006186	0.0006883	11977.49	-0.0019678	0.0007306	-0.8986824	0.3688399
2back - faces	0.0006649	0.0006881	11970.62	-0.0006838	0.0020136	0.9663859	0.3338706
2back - match	-0.0008601	0.0006920	11974.23	-0.0022166	0.0004964	-1.2428507	0.2139472
2back - math	-0.0004995	0.0007035	11988.66	-0.0018784	0.0008795	-0.7099928	0.4777224
2back - motor	0.0002811	0.0006847	11929.54	-0.0010610	0.0016232	0.4105814	0.6813869
2back - punish	0.0009511	0.0006792	11936.99	-0.0003801	0.0022824	1.4004383	0.1614081
2back - random	-0.0005672	0.0006883	11977.49	-0.0019164	0.0007820	-0.8240914	0.4099040
2back - relational	-0.0009234	0.0006920	11974.23	-0.0022799	0.0004331	-1.3342929	0.1821332
2back - reward	0.0010131	0.0006792	11936.99	-0.0003182	0.0023444	1.4916986	0.1358046
2back - shapes	0.0000783	0.0006881	11970.62	-0.0012704	0.0014270	0.1137693	0.9094226
2back - story	0.0001107	0.0007035	11988.66	-0.0012682	0.0014897	0.1574261	0.8749117
2back - ToM	-0.0001984	0.0006883	11977.49	-0.0015476	0.0011508	-0.2882904	0.7731294
faces - match	-0.0015250	0.0006960	11927.96	-0.0028893	-0.0001608	-2.1912187	0.0284552
faces - math	-0.0011644	0.0007075	11948.56	-0.0025512	0.0002225	-1.6457442	0.0998427
faces - motor	-0.0003838	0.0006918	11976.07	-0.0017399	0.0009723	-0.5547591	0.5790698
faces - punish	0.0002862	0.0006858	11966.23	-0.0010581	0.0016304	0.4173049	0.6764629
faces - random	-0.0012322	0.0006924	11932.89	-0.0025893	0.0001250	-1.7796598	0.0751571
faces - relational	-0.0015883	0.0006960	11927.96	-0.0029526	-0.0002241	-2.2821444	0.0224983
faces - reward	0.0003482	0.0006858	11966.23	-0.0009961	0.0016924	0.5076823	0.6116855
faces - shapes	-0.0005867	0.0006918	11916.92	-0.0019426	0.0007693	-0.8480414	0.3964319
faces - story	-0.0005542	0.0007075	11948.56	-0.0019410	0.0008327	-0.7832818	0.4334772
faces - ToM	-0.0008634	0.0006924	11932.89	-0.0022205	0.0004938	-1.2469896	0.2124258
match - math	0.0003607	0.0007111	11946.87	-0.0010333	0.0017546	0.5071426	0.6120641
match - motor	0.0011412	0.0006955	11972.99	-0.0002221	0.0025046	1.6407786	0.1008697
match - punish	0.0018112	0.0006899	11972.05	0.0004589	0.0031635	2.6253745	0.0086664
match - random	0.0002929	0.0006965	11940.67	-0.0010723	0.0016581	0.4205218	0.6741119
match - relational	-0.0000633	0.0006992	11916.92	-0.0014339	0.0013073	-0.0905024	0.9278895
match - reward	0.0018732	0.0006899	11972.05	0.0005209	0.0032255	2.7152145	0.0066328
match - shapes	0.0009384	0.0006960	11927.96	-0.0004258	0.0023026	1.3483042	0.1775862
match - story	0.0009709	0.0007111	11946.87	-0.0004231	0.0023648	1.3652116	0.1722122
match - ToM	0.0006617	0.0006965	11940.67	-0.0007035	0.0020269	0.9500537	0.3421042
math - motor	0.0007806	0.0007066	11981.54	-0.0006044	0.0021656	1.1047748	0.2692793
math - punish	0.0014506	0.0007013	11985.32	0.0000759	0.0028252	2.0684566	0.0386185
math - random	-0.0000678	0.0007079	11956.75	-0.0014553	0.0013198	-0.0957414	0.9237276
math - relational	-0.0004239	0.0007111	11946.87	-0.0018179	0.0009700	-0.5961298	0.5510998

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	0.0015126	0.0007013	11985.32	0.0001379	0.0028872	2.1568372	0.0310382
math - shapes	0.0005777	0.0007075	11948.56	-0.0008091	0.0019646	0.8165763	0.4141869
math - story	0.0006102	0.0007199	11916.92	-0.0008010	0.0020214	0.8475900	0.3966834
math - ToM	0.0003010	0.0007079	11956.75	-0.0010865	0.0016886	0.4252637	0.6706521
motor - punish	0.0006700	0.0006830	11941.61	-0.0006687	0.0020087	0.9810162	0.3266046
motor - random	-0.0008484	0.0006921	11982.76	-0.0022050	0.0005083	-1.2257748	0.2203075
motor - relational	-0.0012045	0.0006955	11972.99	-0.0025679	0.0001589	-1.7317612	0.0833419
motor - reward	0.0007320	0.0006830	11941.61	-0.0006067	0.0020707	1.0717684	0.2838457
motor - shapes	-0.0002028	0.0006918	11976.07	-0.0015590	0.0011533	-0.2931887	0.7693830
motor - story	-0.0001704	0.0007066	11981.54	-0.0015553	0.0012146	-0.2411373	0.8094529
motor - ToM	-0.0004796	0.0006921	11982.76	-0.0018362	0.0008771	-0.6929028	0.4883840
punish - random	-0.0015184	0.0006859	11966.70	-0.0028628	-0.0001739	-2.2136961	0.0268685
punish - relational	-0.0018745	0.0006899	11972.05	-0.0032268	-0.0005222	-2.7171024	0.0065951
punish - reward	0.0000620	0.0006764	11916.92	-0.0012638	0.0013878	0.0916340	0.9269904
punish - shapes	-0.0008728	0.0006858	11966.23	-0.0022171	0.0004714	-1.2727434	0.2031338
punish - story	-0.0008404	0.0007013	11985.32	-0.0022150	0.0005343	-1.1983284	0.2308129
punish - ToM	-0.0011496	0.0006859	11966.70	-0.0024940	0.0001949	-1.6760001	0.0937643
random - relational	-0.0003562	0.0006965	11940.67	-0.0017213	0.0010090	-0.5113843	0.6090915
random - reward	0.0015803	0.0006859	11966.70	0.0002359	0.0029248	2.3040605	0.0212363
random - shapes	0.0006455	0.0006924	11932.89	-0.0007116	0.0020027	0.9323387	0.3511804
random - story	0.0006780	0.0007079	11956.75	-0.0007095	0.0020655	0.9577850	0.3381906
random - ToM	0.0003688	0.0006918	11916.92	-0.0009872	0.0017248	0.5331128	0.5939654
relational - reward	0.0019365	0.0006899	11972.05	0.0005842	0.0032888	2.8069423	0.0050095
relational - shapes	0.0010017	0.0006960	11927.96	-0.0003626	0.0023659	1.4392298	0.1501117
relational - story	0.0010341	0.0007111	11946.87	-0.0003598	0.0024281	1.4541988	0.1459175
relational - ToM	0.0007250	0.0006965	11940.67	-0.0006402	0.0020901	1.0409162	0.2979355
reward - shapes	-0.0009348	0.0006858	11966.23	-0.0022791	0.0004094	-1.3631208	0.1728701
reward - story	-0.0009024	0.0007013	11985.32	-0.0022770	0.0004723	-1.2867090	0.1982206
reward - ToM	-0.0012115	0.0006859	11966.70	-0.0025560	0.0001329	-1.7663645	0.0773602
shapes - story	0.0000325	0.0007075	11948.56	-0.0013544	0.0014193	0.0458862	0.9634017
shapes - ToM	-0.0002767	0.0006924	11932.89	-0.0016339	0.0010804	-0.3996685	0.6894079
story - ToM	-0.0003092	0.0007079	11956.75	-0.0016967	0.0010783	-0.4367799	0.6622789

# D1 contrast- pairwise trait effects : Extraversion

```
kable(emlnt_NEO_E$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	-0.0006059	0.0006621	11916.92	-0.0019037	0.0006918	-0.9152246	0.3600922
0back - faces	-0.0010627	0.0006664	11953.73	-0.0023689	0.0002435	-1.5947503	0.1107945
0back - match	-0.0002706	0.0006714	11961.95	-0.0015867	0.0010454	-0.4030699	0.6869040
0back - math	-0.0002965	0.0006795	11974.25	-0.0016285	0.0010355	-0.4362583	0.6626572
0back - motor	-0.0015223	0.0006672	11935.74	-0.0028302	-0.0002144	-2.2815394	0.0225341
0back - punish	-0.0003963	0.0006618	11927.35	-0.0016934	0.0009009	-0.5988310	0.5492970
0back - random	0.0004904	0.0006652	11955.91	-0.0008135	0.0017942	0.7371757	0.4610300
0back - relational	-0.0007219	0.0006714	11961.95	-0.0020379	0.0005942	-1.0751935	0.2823098
0back - reward	-0.0009041	0.0006618	11927.35	-0.0022013	0.0003930	-1.3662827	0.1718760
0back - shapes	-0.0011341	0.0006664	11953.73	-0.0024403	0.0001721	-1.7019284	0.0887948
0back - story	0.0002806	0.0006795	11974.25	-0.0010514	0.0016126	0.4129253	0.6796688
0back - ToM	-0.0000635	0.0006652	11955.91	-0.0013674	0.0012403	-0.0955199	0.9239035
2back - faces	-0.0004568	0.0006664	11953.73	-0.0017630	0.0008494	-0.6854307	0.4930855
2back - match	0.0003353	0.0006714	11961.95	-0.0009807	0.0016514	0.4994477	0.6174732
2back - math	0.0003095	0.0006795	11974.25	-0.0010225	0.0016415	0.4554488	0.6487947
2back - motor	-0.0009164	0.0006672	11935.74	-0.0022242	0.0003915	-1.3733829	0.1696592
2back - punish	0.0002097	0.0006618	11927.35	-0.0010875	0.0015068	0.3168336	0.7513754
2back - random	0.0010963	0.0006652	11955.91	-0.0002076	0.0024002	1.6481129	0.0993558
2back - relational	-0.0001159	0.0006714	11961.95	-0.0014320	0.0012001	-0.1726758	0.8629092
2back - reward	-0.0002982	0.0006618	11927.35	-0.0015953	0.0009989	-0.4506181	0.6522730
2back - shapes	-0.0005282	0.0006664	11953.73	-0.0018344	0.0007780	-0.7926087	0.4280215
2back - story	0.0008865	0.0006795	11974.25	-0.0004455	0.0022185	1.3046323	0.1920432
2back - ToM	0.0005424	0.0006652	11955.91	-0.0007615	0.0018463	0.8154173	0.4148497
faces - match	0.0007921	0.0006732	11931.56	-0.0005274	0.0021116	1.1766406	0.2393625
faces - math	0.0007662	0.0006815	11950.03	-0.0005697	0.0021022	1.1243010	0.2609079
faces - motor	-0.0004596	0.0006709	11960.01	-0.0017748	0.0008556	-0.6850113	0.4933501
faces - punish	0.0006664	0.0006655	11951.19	-0.0006380	0.0019709	1.0013981	0.3166546
faces - random	0.0015531	0.0006673	11931.81	0.0002451	0.0028611	2.3274154	0.0199598
faces - relational	0.0003408	0.0006732	11931.56	-0.0009787	0.0016603	0.5062891	0.6126630
faces - reward	0.0001586	0.0006655	11951.19	-0.0011459	0.0014630	0.2382513	0.8116903
faces - shapes	-0.0000714	0.0006679	11916.92	-0.0013807	0.0012379	-0.1069265	0.9148491
faces - story	0.0013433	0.0006815	11950.03	0.0000074	0.0026792	1.9709977	0.0487472
faces - ToM	0.0009992	0.0006673	11931.81	-0.0003088	0.0023072	1.4973402	0.1343312
match - math	-0.0000258	0.0006857	11940.00	-0.0013699	0.0013182	-0.0376749	0.9699475
match - motor	-0.0012517	0.0006754	11954.75	-0.0025755	0.0000722	-1.8533195	0.0638612
match - punish	-0.0001257	0.0006705	11959.18	-0.0014400	0.0011887	-0.1874068	0.8513449
match - random	0.0007610	0.0006723	11939.45	-0.0005568	0.0020788	1.1319173	0.2576920
match - relational	-0.0004513	0.0006771	11916.92	-0.0017786	0.0008761	-0.6664171	0.5051574
match - reward	-0.0006335	0.0006705	11959.18	-0.0019479	0.0006808	-0.9448244	0.3447676
match - shapes	-0.0008635	0.0006732	11931.56	-0.0021830	0.0004560	-1.2827365	0.1996093
match - story	0.0005512	0.0006857	11940.00	-0.0007929	0.0018953	0.8038800	0.4214823
match - ToM	0.0002071	0.0006723	11939.45	-0.0011107	0.0015249	0.3080207	0.7580720
math - motor	-0.0012259	0.0006836	11969.74	-0.0025658	0.0001141	-1.7933101	0.0729486
math - punish	-0.0000998	0.0006787	11971.87	-0.0014301	0.0012305	-0.1470930	0.8830611
math - random	0.0007868	0.0006803	11947.55	-0.0005466	0.0021202	1.1566296	0.2474468
math - relational	-0.0004254	0.0006857	11940.00	-0.0017695	0.0009186	-0.6204320	0.5349852

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	-0.0006077	0.0006787	11971.87	-0.0019380	0.0007226	-0.8954224	0.3705793
math - shapes	-0.0008377	0.0006815	11950.03	-0.0021736	0.0004982	-1.2290954	0.2190603
math - story	0.0005771	0.0006920	11916.92	-0.0007794	0.0019335	0.8338708	0.4043705
math - ToM	0.0002329	0.0006803	11947.55	-0.0011005	0.0015663	0.3423871	0.7320656
motor - punish	0.0011260	0.0006663	11931.94	-0.0001801	0.0024321	1.6899076	0.0910718
motor - random	0.0020127	0.0006699	11965.26	0.0006996	0.0033258	3.0044220	0.0026664
motor - relational	0.0008004	0.0006754	11954.75	-0.0005234	0.0021243	1.1851558	0.2359794
motor - reward	0.0006182	0.0006663	11931.94	-0.0006879	0.0019243	0.9277162	0.3535736
motor - shapes	0.0003882	0.0006709	11960.01	-0.0009270	0.0017033	0.5785636	0.5628946
motor - story	0.0018029	0.0006836	11969.74	0.0004630	0.0031428	2.6374824	0.0083632
motor - ToM	0.0014588	0.0006699	11965.26	0.0001457	0.0027719	2.1775825	0.0294566
punish - random	0.0008866	0.0006644	11955.97	-0.0004157	0.0021890	1.3344732	0.1820743
punish - relational	-0.0003256	0.0006705	11959.18	-0.0016399	0.0009887	-0.4855918	0.6272655
punish - reward	-0.0005079	0.0006606	11916.92	-0.0018027	0.0007870	-0.7688200	0.4420154
punish - shapes	-0.0007378	0.0006655	11951.19	-0.0020423	0.0005666	-1.1087187	0.2675739
punish - story	0.0006769	0.0006787	11971.87	-0.0006534	0.0020072	0.9973643	0.3186079
punish - ToM	0.0003327	0.0006644	11955.97	-0.0009696	0.0016351	0.5008042	0.6165182
random - relational	-0.0012122	0.0006723	11939.45	-0.0025300	0.0001056	-1.8031425	0.0713910
random - reward	-0.0013945	0.0006644	11955.97	-0.0026969	-0.0000921	-2.0988552	0.0358506
random - shapes	-0.0016245	0.0006673	11931.81	-0.0029325	-0.0003165	-2.4344462	0.0149292
random - story	-0.0002098	0.0006803	11947.55	-0.0015432	0.0011237	-0.3083573	0.7578159
random - ToM	-0.0005539	0.0006657	11916.92	-0.0018588	0.0007510	-0.8320691	0.4053866
relational - reward	-0.0001823	0.0006705	11959.18	-0.0014966	0.0011321	-0.2718258	0.7857606
relational - shapes	-0.0004122	0.0006732	11931.56	-0.0017318	0.0009073	-0.6123850	0.5402947
relational - story	0.0010025	0.0006857	11940.00	-0.0003416	0.0023466	1.4619870	0.1437711
relational - ToM	0.0006583	0.0006723	11939.45	-0.0006595	0.0019761	0.9792459	0.3274783
reward - shapes	-0.0002300	0.0006655	11951.19	-0.0015344	0.0010745	-0.3455718	0.7296706
reward - story	0.0011847	0.0006787	11971.87	-0.0001456	0.0025150	1.7456938	0.0808898
reward - ToM	0.0008406	0.0006644	11955.97	-0.0004618	0.0021430	1.2651862	0.2058292
shapes - story	0.0014147	0.0006815	11950.03	0.0000788	0.0027506	2.0757920	0.0379345
shapes - ToM	0.0010706	0.0006673	11931.81	-0.0002374	0.0023786	1.6043711	0.1086587
story - ToM	-0.0003441	0.0006803	11947.55	-0.0016776	0.0009893	-0.5058853	0.6129465

# D1 contrast- pairwise trait effects :Agreeablness

```
kable(emlnt_NEO_A$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0003758	0.0006679	11916.92	-0.0009333	0.0016849	0.5626822	0.5736619
0back - faces	0.0009362	0.0006729	11948.10	-0.0003828	0.0022552	1.3913285	0.1641517
0back - match	0.0012019	0.0006764	11953.49	-0.0001238	0.0025277	1.7770636	0.0755832
0back - math	-0.0006813	0.0006932	11978.23	-0.0020401	0.0006776	-0.9827515	0.3257496
0back - motor	0.0002937	0.0006723	11930.91	-0.0010241	0.0016114	0.4368361	0.6622381
0back - punish	0.0005887	0.0006686	11929.93	-0.0007219	0.0018993	0.8804459	0.3786355
0back - random	-0.0008476	0.0006708	11960.92	-0.0021624	0.0004672	-1.2637040	0.2063609
0back - relational	0.0012287	0.0006764	11953.49	-0.0000970	0.0025545	1.8166906	0.0692895
0back - reward	0.0002122	0.0006686	11929.93	-0.0010984	0.0015227	0.3173021	0.7510199
0back - shapes	0.0011491	0.0006729	11948.10	-0.0001699	0.0024681	1.7077178	0.0877147
0back - story	-0.0007213	0.0006932	11978.23	-0.0020801	0.0006376	-1.0404313	0.2981606
0back - ToM	0.0000215	0.0006708	11960.92	-0.0012933	0.0013363	0.0319839	0.9744854
2back - faces	0.0005604	0.0006729	11948.10	-0.0007586	0.0018794	0.8328530	0.4049443
2back - match	0.0008261	0.0006764	11953.49	-0.0004996	0.0021519	1.2214463	0.2219412
2back - math	-0.0010571	0.0006932	11978.23	-0.0024159	0.0003018	-1.5248511	0.1273226
2back - motor	-0.0000821	0.0006723	11930.91	-0.0013999	0.0012356	-0.1221789	0.9027594
2back - punish	0.0002129	0.0006686	11929.93	-0.0010977	0.0015235	0.3183832	0.7501998
2back - random	-0.0012234	0.0006708	11960.92	-0.0025382	0.0000914	-1.8239616	0.0681828
2back - relational	0.0008529	0.0006764	11953.49	-0.0004728	0.0021787	1.2610733	0.2073071
2back - reward	-0.0001636	0.0006686	11929.93	-0.0014742	0.0011469	-0.2447606	0.8066460
2back - shapes	0.0007733	0.0006729	11948.10	-0.0005457	0.0020923	1.1492423	0.2504791
2back - story	-0.0010971	0.0006932	11978.23	-0.0024559	0.0002618	-1.5825309	0.1135548
2back - ToM	-0.0003543	0.0006708	11960.92	-0.0016691	0.0009605	-0.5282737	0.5973192
faces - match	0.0002657	0.0006794	11928.40	-0.0010661	0.0015975	0.3910880	0.6957392
faces - math	-0.0016175	0.0006964	11957.50	-0.0029825	-0.0002525	-2.3228019	0.0202065
faces - motor	-0.0006426	0.0006770	11954.54	-0.0019695	0.0006844	-0.9491764	0.3425501
faces - punish	-0.0003476	0.0006731	11945.55	-0.0016669	0.0009718	-0.5163740	0.6056028
faces - random	-0.0017839	0.0006741	11941.96	-0.0031052	-0.0004626	-2.6463571	0.0081471
faces - relational	0.0002925	0.0006794	11928.40	-0.0010393	0.0016243	0.4305366	0.6668131
faces - reward	-0.0007241	0.0006731	11945.55	-0.0020434	0.0005952	-1.0757853	0.2820450
faces - shapes	0.0002129	0.0006757	11916.92	-0.0011116	0.0015374	0.3150666	0.7527166
faces - story	-0.0016575	0.0006964	11957.50	-0.0030225	-0.0002925	-2.3802226	0.0173178
faces - ToM	-0.0009148	0.0006741	11941.96	-0.0022361	0.0004065	-1.3570589	0.1747882
match - math	-0.0018832	0.0006994	11953.39	-0.0032541	-0.0005123	-2.6926813	0.0070979
match - motor	-0.0009083	0.0006800	11949.67	-0.0022413	0.0004247	-1.3356289	0.1816960
match - punish	-0.0006133	0.0006766	11951.47	-0.0019396	0.0007130	-0.9063672	0.3647598
match - random	-0.0020496	0.0006777	11950.08	-0.0033780	-0.0007211	-3.0242444	0.0024978
match - relational	0.0000268	0.0006822	11916.92	-0.0013104	0.0013640	0.0392887	0.9686609
match - reward	-0.0009898	0.0006766	11951.47	-0.0023161	0.0003365	-1.4628403	0.1435374
match - shapes	-0.0000528	0.0006794	11928.40	-0.0013846	0.0012790	-0.0777343	0.9380407
match - story	-0.0019232	0.0006994	11953.39	-0.0032941	-0.0005523	-2.7498536	0.0059712
match - ToM	-0.0011805	0.0006777	11950.08	-0.0025089	0.0001480	-1.7418562	0.0815593
math - motor	0.0009749	0.0006968	11975.70	-0.0003910	0.0023409	1.3990712	0.1618175
math - punish	0.0012699	0.0006933	11973.24	-0.0000891	0.0026290	1.8316552	0.0670276
math - random	-0.0001664	0.0006942	11965.38	-0.0015271	0.0011943	-0.2396672	0.8105924
math - relational	0.0019100	0.0006994	11953.39	0.0005391	0.0032809	2.7310040	0.0063234

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	0.0008934	0.0006933	11973.24	-0.0004656	0.0022525	1.2885932	0.1975644
math - shapes	0.0018304	0.0006964	11957.50	0.0004654	0.0031954	2.6285343	0.0085863
math - story	-0.0000400	0.0007127	11916.92	-0.0014370	0.0013570	-0.0561043	0.9552597
math - ToM	0.0007027	0.0006942	11965.38	-0.0006580	0.0020634	1.0123113	0.3114097
motor - punish	0.0002950	0.0006726	11933.07	-0.0010234	0.0016134	0.4386150	0.6609485
motor - random	-0.0011413	0.0006750	11970.77	-0.0024644	0.0001818	-1.6907990	0.0909012
motor - relational	0.0009351	0.0006800	11949.67	-0.0003979	0.0022681	1.3750418	0.1691443
motor - reward	-0.0000815	0.0006726	11933.07	-0.0013999	0.0012369	-0.1211935	0.9035398
motor - shapes	0.0008555	0.0006770	11954.54	-0.0004715	0.0021824	1.2636647	0.2063750
motor - story	-0.0010149	0.0006968	11975.70	-0.0023809	0.0003510	-1.4564517	0.1452940
motor - ToM	-0.0002722	0.0006750	11970.77	-0.0015953	0.0010509	-0.4032683	0.6867581
punish - random	-0.0014363	0.0006710	11959.73	-0.0027516	-0.0001210	-2.1405438	0.0323310
punish - relational	0.0006401	0.0006766	11951.47	-0.0006862	0.0019664	0.9459790	0.3441784
punish - reward	-0.0003765	0.0006684	11916.92	-0.0016868	0.0009337	-0.5632854	0.5732511
punish - shapes	0.0005605	0.0006731	11945.55	-0.0007589	0.0018798	0.8326850	0.4050391
punish - story	-0.0013099	0.0006933	11973.24	-0.0026690	0.0000491	-1.8893265	0.0588722
punish - ToM	-0.0005672	0.0006710	11959.73	-0.0018825	0.0007481	-0.8453270	0.3979452
random - relational	0.0020764	0.0006777	11950.08	0.0007480	0.0034048	3.0637922	0.0021904
random - reward	0.0010598	0.0006710	11959.73	-0.0002555	0.0023751	1.5794126	0.1142679
random - shapes	0.0019968	0.0006741	11941.96	0.0006755	0.0033181	2.9621908	0.0030606
random - story	0.0001264	0.0006942	11965.38	-0.0012343	0.0014871	0.1820664	0.8555337
random - ToM	0.0008691	0.0006710	11916.92	-0.0004462	0.0021844	1.2952090	0.1952732
relational - reward	-0.0010166	0.0006766	11951.47	-0.0023429	0.0003097	-1.5024521	0.1330068
relational - shapes	-0.0000796	0.0006794	11928.40	-0.0014114	0.0012522	-0.1171829	0.9067171
relational - story	-0.0019500	0.0006994	11953.39	-0.0033209	-0.0005791	-2.7881763	0.0053089
relational - ToM	-0.0012073	0.0006777	11950.08	-0.0025357	0.0001211	-1.7814040	0.0748719
reward - shapes	0.0009370	0.0006731	11945.55	-0.0003823	0.0022563	1.3920963	0.1639192
reward - story	-0.0009334	0.0006933	11973.24	-0.0022925	0.0004256	-1.3462645	0.1782427
reward - ToM	-0.0001907	0.0006710	11959.73	-0.0015060	0.0011246	-0.2841958	0.7762652
shapes - story	-0.0018704	0.0006964	11957.50	-0.0032354	-0.0005054	-2.6859550	0.0072423
shapes - ToM	-0.0011277	0.0006741	11941.96	-0.0024490	0.0001936	-1.6728925	0.0943747
story - ToM	0.0007427	0.0006942	11965.38	-0.0006180	0.0021034	1.0699121	0.2846804

## D2

```
em2int_NEO_N<-emtrends(mod2, pairwise~cont, var="Neuroticism", adjust="none", infer = TRUE)
em2int_NEO_O<-emtrends(mod2, pairwise~cont, var="Openness", adjust = "none", infer = TRUE)
em2int_NEO_C<-emtrends(mod2, pairwise~cont, var="Conscientiousness", adjust="none", infer = TRUE)
em2int_NEO_E<-emtrends(mod2, pairwise~cont, var="Extraversion", adjust = "none", infer = TRUE)
em2int_NEO_A<-emtrends(mod2, pairwise~cont, var="Agreeableness", adjust="none", infer = TRUE)
```

## D2 contrast- pairwise trait effects : Neuroticism

```
kable(em2int_NEO_N$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0009187	0.0004135	11922.26	0.0001082	0.0017292	2.2217412	0.0263195
0back - faces	0.0003421	0.0004180	11971.88	-0.0004772	0.0011614	0.8185528	0.4130579
0back - match	-0.0000111	0.0004201	11975.31	-0.0008345	0.0008124	-0.0263642	0.9789673
0back - math	-0.0006261	0.0004268	11983.92	-0.0014626	0.0002105	-1.4670415	0.1423910
0back - motor	-0.0009732	0.0004156	11940.41	-0.0017879	-0.0001586	-2.3417572	0.0192095
0back - punish	-0.0000628	0.0004138	11943.31	-0.0008740	0.0007484	-0.1517377	0.8793964
0back - random	-0.0004043	0.0004168	11978.05	-0.0012213	0.0004127	-0.9699546	0.3320887
0back - relational	0.0001405	0.0004201	11975.31	-0.0006830	0.0009639	0.3343719	0.7381048
0back - reward	-0.0000691	0.0004138	11943.31	-0.0008803	0.0007420	-0.1670274	0.8673513
0back - shapes	0.0000781	0.0004180	11971.88	-0.0007412	0.0008974	0.1868952	0.8517460
0back - story	-0.0007886	0.0004268	11983.92	-0.0016251	0.0000480	-1.8477366	0.0646651
0back - ToM	-0.0002312	0.0004168	11978.05	-0.0010482	0.0005858	-0.5547487	0.5790769
2back - faces	-0.0005765	0.0004180	11971.89	-0.0013958	0.0002428	-1.3793508	0.1678124
2back - match	-0.0009298	0.0004201	11975.32	-0.0017532	-0.0001063	-2.2132079	0.0269021
2back - math	-0.0015448	0.0004268	11983.93	-0.0023813	-0.0007082	-3.6196399	0.0002962
2back - motor	-0.0018919	0.0004156	11940.42	-0.0027066	-0.0010773	-4.5522057	0.0000054
2back - punish	-0.0009815	0.0004138	11943.32	-0.0017926	-0.0001703	-2.3716832	0.0177230
2back - random	-0.0013230	0.0004168	11978.06	-0.0021400	-0.0005060	-3.1740543	0.0015071
2back - relational	-0.0007782	0.0004201	11975.32	-0.0016017	0.0000452	-1.8524718	0.0639827
2back - reward	-0.0009878	0.0004138	11943.32	-0.0017990	-0.0001766	-2.3869729	0.0170032
2back - shapes	-0.0008406	0.0004180	11971.89	-0.0016599	-0.0000213	-2.0110084	0.0443469
2back - story	-0.0017072	0.0004268	11983.93	-0.0025438	-0.0008707	-4.0003350	0.0000636
2back - ToM	-0.0011499	0.0004168	11978.06	-0.0019669	-0.0003329	-2.7588484	0.0058093
faces - match	-0.0003532	0.0004229	11934.81	-0.0011822	0.0004758	-0.8351946	0.4036249
faces - math	-0.0009682	0.0004298	11955.45	-0.0018107	-0.0001258	-2.2528054	0.0242895
faces - motor	-0.0013154	0.0004199	11979.99	-0.0021384	-0.0004923	-3.1327185	0.0017361
faces - punish	-0.0004049	0.0004179	11970.40	-0.0012240	0.0004142	-0.9690126	0.3325585
faces - random	-0.0007464	0.0004197	11938.33	-0.0015691	0.0000762	-1.7785375	0.0753411
faces - relational	-0.0002017	0.0004229	11934.81	-0.0010306	0.0006273	-0.4768626	0.6334687
faces - reward	-0.0004113	0.0004179	11970.40	-0.0012304	0.0004079	-0.9841541	0.3250597
faces - shapes	-0.0002640	0.0004206	11922.26	-0.0010885	0.0005605	-0.6276993	0.5302129
faces - story	-0.0011307	0.0004298	11955.45	-0.0019732	-0.0002882	-2.6308298	0.0085286
faces - ToM	-0.0005734	0.0004197	11938.33	-0.0013960	0.0002493	-1.3661782	0.1719088
match - math	-0.0006150	0.0004317	11949.32	-0.0014611	0.0002311	-1.4247841	0.1542457
match - motor	-0.0009622	0.0004218	11976.97	-0.0017891	-0.0001353	-2.2808424	0.0225753
match - punish	-0.0000517	0.0004201	11978.71	-0.0008752	0.0007717	-0.1231095	0.9020225
match - random	-0.0003932	0.0004219	11945.62	-0.0012202	0.0004338	-0.9320203	0.3513449
match - relational	0.0001515	0.0004246	11922.26	-0.0006808	0.0009839	0.3568772	0.7211901
match - reward	-0.0000580	0.0004201	11978.71	-0.0008815	0.0007654	-0.1381710	0.8901076
match - shapes	0.0000892	0.0004229	11934.81	-0.0007398	0.0009182	0.2109040	0.8329658
match - story	-0.0007775	0.0004317	11949.32	-0.0016236	0.0000686	-1.8011717	0.0717010
match - ToM	-0.0002201	0.0004219	11945.62	-0.0010471	0.0006068	-0.5218151	0.6018087
math - motor	-0.0003472	0.0004286	11988.96	-0.0011872	0.0004929	-0.8099945	0.4179594
math - punish	0.0005633	0.0004269	11991.05	-0.0002735	0.0014001	1.3195764	0.1870017
math - random	0.0002218	0.0004287	11960.60	-0.0006184	0.0010620	0.5174747	0.6048344
math - relational	0.0007666	0.0004317	11949.32	-0.0000796	0.0016127	1.7758534	0.0757825



contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	0.0005570	0.0004269	11991.05	-0.0002798	0.0013937	1.3047542	0.1920016
math - shapes	0.0007042	0.0004298	11955.45	-0.0001382	0.0015467	1.6385081	0.1013421
math - story	-0.0001625	0.0004371	11922.26	-0.0010192	0.0006943	-0.3717116	0.7101142
math - ToM	0.0003949	0.0004287	11960.60	-0.0004454	0.0012351	0.9212030	0.3569631
motor - punish	0.0009105	0.0004156	11943.13	0.0000958	0.0017252	2.1905584	0.0285030
motor - random	0.0005690	0.0004188	11987.87	-0.0002519	0.0013898	1.3586827	0.1742727
motor - relational	0.0011137	0.0004218	11976.97	0.0002868	0.0019406	2.6400753	0.0082995
motor - reward	0.0009041	0.0004156	11943.13	0.0000894	0.0017188	2.1753348	0.0296246
motor - shapes	0.0010514	0.0004199	11979.99	0.0002283	0.0018744	2.5039314	0.0122954
motor - story	0.0001847	0.0004286	11988.96	-0.0006554	0.0010248	0.4309068	0.6665439
motor - ToM	0.0007420	0.0004188	11987.87	-0.0000788	0.0015629	1.7719437	0.0764293
punish - random	-0.0003415	0.0004167	11976.70	-0.0011584	0.0004754	-0.8194278	0.4125587
punish - relational	0.0002033	0.0004201	11978.71	-0.0006202	0.0010267	0.4838413	0.6285073
punish - reward	-0.0000063	0.0004134	11922.26	-0.0008167	0.0008040	-0.0153049	0.9877892
punish - shapes	0.0001409	0.0004179	11970.40	-0.0006782	0.0009600	0.3372059	0.7359676
punish - story	-0.0007258	0.0004269	11991.05	-0.0015625	0.0001110	-1.7001761	0.0891237
punish - ToM	-0.0001684	0.0004167	11976.70	-0.0009853	0.0006484	-0.4041571	0.6861044
random - relational	0.0005447	0.0004219	11945.62	-0.0002822	0.0013717	1.2912240	0.1966510
random - reward	0.0003352	0.0004167	11976.70	-0.0004817	0.0011520	0.8042449	0.4212715
random - shapes	0.0004824	0.0004197	11938.33	-0.0003402	0.0013050	1.1494419	0.2503968
random - story	-0.0003843	0.0004287	11960.60	-0.0012245	0.0004559	-0.8965026	0.3700024
random - ToM	0.0001731	0.0004182	11922.26	-0.0006467	0.0009928	0.4137972	0.6790301
relational - reward	-0.0002096	0.0004201	11978.71	-0.0010330	0.0006139	-0.4989029	0.6178570
relational - shapes	-0.0000623	0.0004229	11934.81	-0.0008913	0.0007666	-0.1474281	0.8827967
relational - story	-0.0009290	0.0004317	11949.32	-0.0017752	-0.0000829	-2.1522409	0.0313983
relational - ToM	-0.0003717	0.0004219	11945.62	-0.0011986	0.0004553	-0.8810188	0.3783254
reward - shapes	0.0001472	0.0004179	11970.40	-0.0006719	0.0009664	0.3523473	0.7245840
reward - story	-0.0007194	0.0004269	11991.05	-0.0015562	0.0001173	-1.6853539	0.0919463
reward - ToM	-0.0001621	0.0004167	11976.70	-0.0009790	0.0006548	-0.3889742	0.6973022
shapes - story	-0.0008667	0.0004298	11955.45	-0.0017091	-0.0000242	-2.0165325	0.0437666
shapes - ToM	-0.0003093	0.0004197	11938.33	-0.0011320	0.0005133	-0.7370826	0.4610866
story - ToM	0.0005573	0.0004287	11960.60	-0.0002829	0.0013976	1.3002308	0.1935469

## D2 contrast- pairwise trait effects : Openness

```
kable(em2int_NEO_0$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	-0.0005255	0.0004379	11922.26	-0.0013839	0.0003328	-1.2000906	0.2301280
0back - faces	-0.0004903	0.0004427	11968.02	-0.0013581	0.0003776	-1.1073454	0.2681669
0back - match	0.0005542	0.0004453	11972.91	-0.0003185	0.0014270	1.2447972	0.2132307
0back - math	-0.0010516	0.0004534	11987.09	-0.0019404	-0.0001627	-2.3190366	0.0204098
0back - motor	-0.0000402	0.0004408	11942.86	-0.0009043	0.0008239	-0.0911290	0.9273916
0back - punish	0.0005891	0.0004370	11940.58	-0.0002675	0.0014457	1.3480242	0.1776762
0back - random	-0.0005659	0.0004414	11969.08	-0.0014311	0.0002993	-1.2821035	0.1998312
0back - relational	-0.0000481	0.0004453	11972.91	-0.0009209	0.0008246	-0.1080990	0.9139190
0back - reward	0.0003833	0.0004370	11940.58	-0.0004733	0.0012399	0.8770326	0.3804866
0back - shapes	0.0003037	0.0004427	11968.02	-0.0005642	0.0011715	0.6859251	0.4927736
0back - story	-0.0006106	0.0004534	11987.09	-0.0014994	0.0002782	-1.3465796	0.1781411
0back - ToM	-0.0000532	0.0004414	11969.08	-0.0009184	0.0008120	-0.1204587	0.9041218
2back - faces	0.0000353	0.0004427	11968.02	-0.0008326	0.0009031	0.0796541	0.9365137
2back - match	0.0010798	0.0004453	11972.92	0.0002070	0.0019525	2.4251235	0.0153179
2back - math	-0.0005260	0.0004534	11987.09	-0.0014149	0.0003628	-1.1600513	0.2460510
2back - motor	0.0004854	0.0004408	11942.87	-0.0003787	0.0013495	1.1010250	0.2709080
2back - punish	0.0011146	0.0004370	11940.59	0.0002580	0.0019712	2.5506276	0.0107653
2back - random	-0.0000404	0.0004414	11969.08	-0.0009056	0.0008248	-0.0914590	0.9271294
2back - relational	0.0004774	0.0004453	11972.92	-0.0003954	0.0013502	1.0722273	0.2836396
2back - reward	0.0009088	0.0004370	11940.59	0.0000522	0.0017654	2.0796360	0.0375802
2back - shapes	0.0008292	0.0004427	11968.02	-0.0000386	0.0016971	1.8729245	0.0611032
2back - story	-0.0000851	0.0004534	11987.09	-0.0009739	0.0008038	-0.1875943	0.8511978
2back - ToM	0.0004724	0.0004414	11969.08	-0.0003928	0.0013376	1.0701858	0.2845573
faces - match	0.0010445	0.0004485	11942.02	0.0001655	0.0019236	2.3291317	0.0198687
faces - math	-0.0005613	0.0004567	11963.12	-0.0014565	0.0003340	-1.2289571	0.2191121
faces - motor	0.0004501	0.0004454	11978.21	-0.0004229	0.0013231	1.0106189	0.3122193
faces - punish	0.0010794	0.0004414	11968.99	0.0002141	0.0019446	2.4451796	0.0144923
faces - random	-0.0000756	0.0004445	11933.03	-0.0009470	0.0007958	-0.1701411	0.8649021
faces - relational	0.0004421	0.0004485	11942.02	-0.0004369	0.0013212	0.9859158	0.3241944
faces - reward	0.0008735	0.0004414	11968.99	0.0000083	0.0017388	1.9789070	0.0478494
faces - shapes	0.0007940	0.0004456	11922.26	-0.0000796	0.0016675	1.7816357	0.0748341
faces - story	-0.0001203	0.0004567	11963.12	-0.0010156	0.0007749	-0.2634673	0.7921950
faces - ToM	0.0004371	0.0004445	11933.03	-0.0004343	0.0013085	0.9832563	0.3255013
match - math	-0.0016058	0.0004588	11952.08	-0.0025051	-0.0007065	-3.5000692	0.0004668
match - motor	-0.0005944	0.0004477	11975.19	-0.0014719	0.0002831	-1.3277774	0.1842770
match - punish	0.0000348	0.0004441	11980.90	-0.0008357	0.0009053	0.0784598	0.9374636
match - random	-0.0011202	0.0004472	11946.66	-0.0019968	-0.0002435	-2.5046141	0.0122717
match - relational	-0.0006024	0.0004504	11922.26	-0.0014851	0.0002804	-1.3375757	0.1810603
match - reward	-0.0001710	0.0004441	11980.90	-0.0010415	0.0006995	-0.3850109	0.7002362
match - shapes	-0.0002506	0.0004485	11942.02	-0.0011296	0.0006285	-0.5587019	0.5763757
match - story	-0.0011649	0.0004588	11952.08	-0.0020642	-0.0002655	-2.5389418	0.0111314
match - ToM	-0.0006074	0.0004472	11946.66	-0.0014841	0.0002692	-1.3581518	0.1744412
math - motor	0.0010114	0.0004558	11986.21	0.0001180	0.0019048	2.2191093	0.0264979
math - punish	0.0016407	0.0004523	11993.86	0.0007541	0.0025272	3.6273045	0.0002876
math - random	0.0004857	0.0004554	11961.42	-0.0004070	0.0013783	1.0664964	0.2862208
math - relational	0.0010034	0.0004588	11952.08	0.0001041	0.0019027	2.1871110	0.0287537

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	0.0014348	0.0004523	11993.86	0.0005482	0.0023214	3.1722495	0.0015164
math - shapes	0.0013553	0.0004567	11963.12	0.0004600	0.0022505	2.9673602	0.0030096
math - story	0.0004410	0.0004654	11922.26	-0.0004712	0.0013531	0.9475649	0.3433702
math - ToM	0.0009984	0.0004554	11961.42	0.0001058	0.0018910	2.1924727	0.0283646
motor - punish	0.0006293	0.0004396	11943.46	-0.0002323	0.0014909	1.4315709	0.1522928
motor - random	-0.0005257	0.0004440	11977.18	-0.0013960	0.0003446	-1.1841043	0.2363953
motor - relational	-0.0000080	0.0004477	11975.19	-0.0008855	0.0008696	-0.0177770	0.9858170
motor - reward	0.0004234	0.0004396	11943.46	-0.0004382	0.0012850	0.9633207	0.3354061
motor - shapes	0.0003439	0.0004454	11978.21	-0.0005291	0.0012169	0.7720828	0.4400806
motor - story	-0.0005704	0.0004558	11986.21	-0.0014638	0.0003229	-1.2515937	0.2107424
motor - ToM	-0.0000130	0.0004440	11977.18	-0.0008833	0.0008573	-0.0292723	0.9766479
punish - random	-0.0011550	0.0004400	11964.15	-0.0020175	-0.0002925	-2.6250318	0.0086751
punish - relational	-0.0006372	0.0004441	11980.90	-0.0015077	0.0002333	-1.4348793	0.1513476
punish - reward	-0.0002058	0.0004354	11922.26	-0.0010592	0.0006476	-0.4727695	0.6363863
punish - shapes	-0.0002854	0.0004414	11968.99	-0.0011507	0.0005799	-0.6465387	0.5179429
punish - story	-0.0011997	0.0004523	11993.86	-0.0020863	-0.0003131	-2.6523920	0.0080029
punish - ToM	-0.0006423	0.0004400	11964.15	-0.0015047	0.0002202	-1.4596983	0.1443993
random - relational	0.0005178	0.0004472	11946.66	-0.0003589	0.0013944	1.1577278	0.2469983
random - reward	0.0009492	0.0004400	11964.15	0.0000867	0.0018116	2.1572431	0.0310066
random - shapes	0.0008696	0.0004445	11933.03	-0.0000018	0.0017410	1.9561473	0.0504711
random - story	-0.0000447	0.0004554	11961.42	-0.0009373	0.0008479	-0.0981505	0.9218144
random - ToM	0.0005127	0.0004430	11922.26	-0.0003556	0.0013811	1.1574383	0.2471165
relational - reward	0.0004314	0.0004441	11980.90	-0.0004391	0.0013019	0.9714086	0.3313645
relational - shapes	0.0003518	0.0004485	11942.02	-0.0005272	0.0012309	0.7845141	0.4327541
relational - story	-0.0005625	0.0004588	11952.08	-0.0014618	0.0003368	-1.2259836	0.2202290
relational - ToM	-0.0000050	0.0004472	11946.66	-0.0008817	0.0008716	-0.0112655	0.9910118
reward - shapes	-0.0000796	0.0004414	11968.99	-0.0009448	0.0007857	-0.1802661	0.8569467
reward - story	-0.0009939	0.0004523	11993.86	-0.0018805	-0.0001073	-2.1973370	0.0280154
reward - ToM	-0.0004364	0.0004400	11964.15	-0.0012989	0.0004260	-0.9919096	0.3212617
shapes - story	-0.0009143	0.0004567	11963.12	-0.0018095	-0.0000190	-2.0018704	0.0453212
shapes - ToM	-0.0003569	0.0004445	11933.03	-0.0012282	0.0005145	-0.8027500	0.4221353
story - ToM	0.0005574	0.0004554	11961.42	-0.0003352	0.0014500	1.2241269	0.2209285

## D2 contrast- pairwise trait effects : Conscientiousness

```
kable(em2int_NEO_C$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0005669	0.0005014	11922.26	-0.0004160	0.0015498	1.1305205	0.2582797
0back - faces	0.0002479	0.0005069	11980.41	-0.0007457	0.0012415	0.4891335	0.6247562
0back - match	-0.0006902	0.0005098	11984.50	-0.0016896	0.0003091	-1.3538728	0.1758025
0back - math	-0.0000843	0.0005182	12000.76	-0.0011001	0.0009315	-0.1627485	0.8707192
0back - motor	-0.0003954	0.0005045	11936.32	-0.0013843	0.0005934	-0.7838520	0.4331425
0back - punish	-0.0002310	0.0005004	11943.83	-0.0012119	0.0007498	-0.4616940	0.6443092
0back - random	-0.0008062	0.0005071	11987.75	-0.0018001	0.0001878	-1.5898430	0.1118966
0back - relational	-0.0002636	0.0005098	11984.50	-0.0012629	0.0007358	-0.5169470	0.6052027
0back - reward	-0.0002225	0.0005004	11943.83	-0.0012034	0.0007583	-0.4447511	0.6565077
0back - shapes	0.0000058	0.0005069	11980.41	-0.0009878	0.0009994	0.0114545	0.9908610
0back - story	-0.0007477	0.0005182	12000.76	-0.0017635	0.0002681	-1.4428463	0.1490899
0back - ToM	-0.0004567	0.0005071	11987.75	-0.0014506	0.0005373	-0.9006022	0.3678179
2back - faces	-0.0003189	0.0005069	11980.42	-0.0013126	0.0006747	-0.6292129	0.5292217
2back - match	-0.0012571	0.0005098	11984.51	-0.0022565	-0.0002578	-2.4657892	0.0136851
2back - math	-0.0006512	0.0005182	12000.77	-0.0016670	0.0003646	-1.2566535	0.2089036
2back - motor	-0.0009623	0.0005045	11936.32	-0.0019512	0.0000265	-1.9075564	0.0564725
2back - punish	-0.0007979	0.0005004	11943.84	-0.0017788	0.0001829	-1.5945823	0.1108321
2back - random	-0.0013731	0.0005071	11987.76	-0.0023670	-0.0003791	-2.7077986	0.0067827
2back - relational	-0.0008304	0.0005098	11984.51	-0.0018298	0.0001689	-1.6288634	0.1033682
2back - reward	-0.0007894	0.0005004	11943.84	-0.0017703	0.0001914	-1.5776393	0.1146750
2back - shapes	-0.0005611	0.0005069	11980.42	-0.0015547	0.0004325	-1.1068918	0.2683629
2back - story	-0.0013146	0.0005182	12000.77	-0.0023304	-0.0002988	-2.5367512	0.0112012
2back - ToM	-0.0010236	0.0005071	11987.76	-0.0020175	-0.0000296	-2.0185579	0.0435554
faces - match	-0.0009382	0.0005128	11934.36	-0.0019434	0.0000670	-1.8295358	0.0673443
faces - math	-0.0003323	0.0005213	11957.43	-0.0013541	0.0006895	-0.6374472	0.5238458
faces - motor	-0.0006434	0.0005097	11986.40	-0.0016424	0.0003557	-1.2623179	0.2068590
faces - punish	-0.0004790	0.0005052	11975.53	-0.0014693	0.0005114	-0.9480146	0.3431411
faces - random	-0.0010541	0.0005101	11939.47	-0.0020540	-0.0000542	-2.0663724	0.0388148
faces - relational	-0.0005115	0.0005128	11934.36	-0.0015167	0.0004937	-0.9974574	0.3185628
faces - reward	-0.0004705	0.0005052	11975.53	-0.0014608	0.0005198	-0.9312340	0.3517513
faces - shapes	-0.0002421	0.0005097	11922.26	-0.0012413	0.0007570	-0.4750382	0.6347684
faces - story	-0.0009957	0.0005213	11957.43	-0.0020174	0.0000261	-1.9100687	0.0561483
faces - ToM	-0.0007046	0.0005101	11939.47	-0.0017045	0.0002953	-1.3812540	0.1672267
match - math	0.0006059	0.0005239	11955.54	-0.0004211	0.0016329	1.1564387	0.2475248
match - motor	0.0002948	0.0005124	11983.22	-0.0007096	0.0012992	0.5753348	0.5650757
match - punish	0.0004592	0.0005082	11982.11	-0.0005370	0.0014555	0.9035325	0.3662615
match - random	-0.0001159	0.0005131	11948.16	-0.0011218	0.0008899	-0.2259159	0.8212707
match - relational	0.0004267	0.0005152	11922.26	-0.0005832	0.0014366	0.8281779	0.4075863
match - reward	0.0004677	0.0005082	11982.11	-0.0005285	0.0014639	0.9202136	0.3574797
match - shapes	0.0006961	0.0005128	11934.36	-0.0003091	0.0017012	1.3573541	0.1746944
match - story	-0.0000575	0.0005239	11955.54	-0.0010845	0.0009695	-0.1096943	0.9126537
match - ToM	0.0002336	0.0005131	11948.16	-0.0007723	0.0012394	0.4551823	0.6489864
math - motor	-0.0003111	0.0005205	11992.67	-0.0013314	0.0007092	-0.5976860	0.5500608
math - punish	-0.0001467	0.0005166	11997.02	-0.0011593	0.0008660	-0.2839392	0.7764619
math - random	-0.0007218	0.0005215	11966.26	-0.0017441	0.0003004	-1.3841163	0.1663487
math - relational	-0.0001792	0.0005239	11955.54	-0.0012062	0.0008478	-0.3420521	0.7323177

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	-0.0001382	0.0005166	11997.02	-0.0011509	0.0008744	-0.2675283	0.7890670
math - shapes	0.0000901	0.0005213	11957.43	-0.0009316	0.0011119	0.1729367	0.8627041
math - story	-0.0006634	0.0005305	11922.26	-0.0017032	0.0003764	-1.2505566	0.2111208
math - ToM	-0.0003723	0.0005215	11966.26	-0.0013946	0.0006499	-0.7139523	0.4752706
motor - punish	0.0001644	0.0005032	11949.01	-0.0008219	0.0011507	0.3267393	0.7438708
motor - random	-0.0004107	0.0005099	11993.60	-0.0014101	0.0005887	-0.8055854	0.4204979
motor - relational	0.0001319	0.0005124	11983.22	-0.0008725	0.0011363	0.2573807	0.7968893
motor - reward	0.0001729	0.0005032	11949.01	-0.0008134	0.0011592	0.3435882	0.7311621
motor - shapes	0.0004012	0.0005097	11986.40	-0.0005978	0.0014003	0.7872470	0.4311529
motor - story	-0.0003523	0.0005205	11992.67	-0.0013726	0.0006680	-0.6768026	0.4985443
motor - ToM	-0.0000612	0.0005099	11993.60	-0.0010606	0.0009382	-0.1201021	0.9044042
punish - random	-0.0005751	0.0005053	11976.28	-0.0015656	0.0004153	-1.1382102	0.2550555
punish - relational	-0.0000325	0.0005082	11982.11	-0.0010288	0.0009637	-0.0639986	0.9489724
punish - reward	0.0000085	0.0004984	11922.26	-0.0009684	0.0009854	0.0170114	0.9864278
punish - shapes	0.0002368	0.0005052	11975.53	-0.0007535	0.0012272	0.4687617	0.6392485
punish - story	-0.0005167	0.0005166	11997.02	-0.0015293	0.0004960	-1.0001418	0.3172621
punish - ToM	-0.0002256	0.0005053	11976.28	-0.0012161	0.0007648	-0.4465536	0.6552055
random - relational	0.0005426	0.0005131	11948.16	-0.0004632	0.0015484	1.0574464	0.2903293
random - reward	0.0005836	0.0005053	11976.28	-0.0004069	0.0015741	1.1549884	0.2481182
random - shapes	0.0008120	0.0005101	11939.47	-0.0001880	0.0018119	1.5917163	0.1114749
random - story	0.0000585	0.0005215	11966.26	-0.0009638	0.0010807	0.1120836	0.9107590
random - ToM	0.0003495	0.0005097	11922.26	-0.0006496	0.0013486	0.6856568	0.4929429
relational - reward	0.0000410	0.0005082	11982.11	-0.0009552	0.0010373	0.0806797	0.9356980
relational - shapes	0.0002694	0.0005128	11934.36	-0.0007358	0.0012745	0.5252756	0.5994014
relational - story	-0.0004842	0.0005239	11955.54	-0.0015112	0.0005428	-0.9240810	0.3554628
relational - ToM	-0.0001931	0.0005131	11948.16	-0.0011990	0.0008127	-0.3763482	0.7066647
reward - shapes	0.0002284	0.0005052	11975.53	-0.0007620	0.0012187	0.4519811	0.6512908
reward - story	-0.0005252	0.0005166	11997.02	-0.0015378	0.0004875	-1.0165527	0.3093868
reward - ToM	-0.0002341	0.0005053	11976.28	-0.0012246	0.0007564	-0.4633318	0.6431350
shapes - story	-0.0007535	0.0005213	11957.43	-0.0017753	0.0002682	-1.4455583	0.1483273
shapes - ToM	-0.0004625	0.0005101	11939.47	-0.0014624	0.0005375	-0.9065979	0.3646378
story - ToM	0.0002910	0.0005215	11966.26	-0.0007312	0.0013133	0.5580803	0.5768000

## D2 contrast- pairwise trait effects : Extraversion

```
kable(em2int_NEO_E$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0000364	0.0004878	11922.26	-0.0009198	0.0009927	0.0746882	0.9404640
0back - faces	-0.0003291	0.0004909	11962.48	-0.0012914	0.0006332	-0.6703606	0.5026409
0back - match	-0.0002033	0.0004946	11971.66	-0.0011729	0.0007663	-0.4110074	0.6810744
0back - math	-0.0009606	0.0005006	11985.18	-0.0019418	0.0000207	-1.9187935	0.0550342
0back - motor	-0.0014321	0.0004916	11943.04	-0.0023957	-0.0004684	-2.9130204	0.0035861
0back - punish	-0.0005403	0.0004876	11933.78	-0.0014961	0.0004154	-1.1081429	0.2678224
0back - random	0.0002399	0.0004901	11964.27	-0.0007208	0.0012005	0.4894284	0.6245474
0back - relational	-0.0003933	0.0004946	11971.66	-0.0013628	0.0005763	-0.7951036	0.4265690
0back - reward	-0.0009395	0.0004876	11933.78	-0.0018953	0.0000162	-1.9269296	0.0540121
0back - shapes	-0.0008069	0.0004909	11962.48	-0.0017692	0.0001555	-1.6435047	0.1003048
0back - story	-0.0010009	0.0005006	11985.18	-0.0019822	-0.0000196	-1.9993102	0.0455973
0back - ToM	0.0000888	0.0004901	11964.27	-0.0008718	0.0010494	0.1811356	0.8562642
2back - faces	-0.0003655	0.0004909	11962.48	-0.0013279	0.0005968	-0.7445754	0.4565431
2back - match	-0.0002397	0.0004946	11971.66	-0.0012093	0.0007298	-0.4846689	0.6279201
2back - math	-0.0009970	0.0005006	11985.18	-0.0019783	-0.0000157	-1.9915754	0.0464403
2back - motor	-0.0014685	0.0004916	11943.05	-0.0024321	-0.0005049	-2.9871359	0.0028218
2back - punish	-0.0005767	0.0004876	11933.79	-0.0015325	0.0003790	-1.1828693	0.2368845
2back - random	0.0002034	0.0004901	11964.27	-0.0007572	0.0011640	0.4150811	0.6780900
2back - relational	-0.0004297	0.0004946	11971.66	-0.0013993	0.0005398	-0.8687652	0.3849930
2back - reward	-0.0009760	0.0004876	11933.79	-0.0019317	-0.0000202	-2.0016561	0.0453443
2back - shapes	-0.0008433	0.0004909	11962.48	-0.0018056	0.0001190	-1.7177195	0.0858737
2back - story	-0.0010373	0.0005006	11985.18	-0.0020186	-0.0000560	-2.0720921	0.0382782
2back - ToM	0.0000523	0.0004901	11964.27	-0.0009083	0.0010130	0.1067883	0.9149588
faces - match	0.0001258	0.0004960	11938.46	-0.0008464	0.0010980	0.2536605	0.7997622
faces - math	-0.0006315	0.0005021	11958.76	-0.0016157	0.0003528	-1.2575844	0.2085667
faces - motor	-0.0011029	0.0004943	11969.31	-0.0020719	-0.0001340	-2.2312900	0.0256804
faces - punish	-0.0002112	0.0004903	11959.56	-0.0011723	0.0007499	-0.4307629	0.6666485
faces - random	0.0005690	0.0004917	11938.04	-0.0003948	0.0015327	1.1572438	0.2471959
faces - relational	-0.0000642	0.0004960	11938.46	-0.0010364	0.0009080	-0.1293862	0.8970542
faces - reward	-0.0006104	0.0004903	11959.56	-0.0015715	0.0003506	-1.2450174	0.2131498
faces - shapes	-0.0004778	0.0004922	11922.26	-0.0014425	0.0004869	-0.9707495	0.3316927
faces - story	-0.0006718	0.0005021	11958.76	-0.0016560	0.0003125	-1.3378591	0.1809678
faces - ToM	0.0004179	0.0004917	11938.04	-0.0005458	0.0013816	0.8499446	0.3953729
match - math	-0.0007573	0.0005052	11947.83	-0.0017476	0.0002330	-1.4989443	0.1339145
match - motor	-0.0012288	0.0004976	11963.58	-0.0022041	-0.0002534	-2.4694769	0.0135449
match - punish	-0.0003370	0.0004940	11968.54	-0.0013053	0.0006313	-0.6822237	0.4951107
match - random	0.0004432	0.0004953	11946.69	-0.0005278	0.0014141	0.8946598	0.3709870
match - relational	-0.0001900	0.0004989	11922.26	-0.0011680	0.0007880	-0.3807822	0.7033716
match - reward	-0.0007362	0.0004940	11968.54	-0.0017046	0.0002321	-1.4903849	0.1361494
match - shapes	-0.0006036	0.0004960	11938.46	-0.0015758	0.0003686	-1.2169106	0.2236623
match - story	-0.0007976	0.0005052	11947.83	-0.0017879	0.0001927	-1.5787292	0.1144247
match - ToM	0.0002921	0.0004953	11946.69	-0.0006789	0.0012630	0.5896407	0.5554427
math - motor	-0.0004715	0.0005036	11979.98	-0.0014586	0.0005156	-0.9362396	0.3491687
math - punish	0.0004203	0.0005000	11982.45	-0.0005598	0.0014003	0.8405556	0.4006137
math - random	0.0012004	0.0005012	11955.72	0.0002180	0.0021828	2.3951391	0.0166294
math - relational	0.0005673	0.0005052	11947.83	-0.0004230	0.0015576	1.1228843	0.2615092

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	0.0000210	0.0005000	11982.45	-0.0009590	0.0010011	0.0420610	0.9664507
math - shapes	0.0001537	0.0005021	11958.76	-0.0008305	0.0011379	0.3060981	0.7595353
math - story	-0.0000403	0.0005099	11922.26	-0.0010398	0.0009592	-0.0790509	0.9369934
math - ToM	0.0010493	0.0005012	11955.72	0.0000669	0.0020318	2.0936871	0.0363089
motor - punish	0.0008917	0.0004909	11938.83	-0.0000706	0.0018541	1.8163775	0.0693375
motor - random	0.0016719	0.0004935	11974.44	0.0007045	0.0026393	3.3876549	0.0007072
motor - relational	0.0010388	0.0004976	11963.58	0.0000634	0.0020141	2.0876524	0.0368503
motor - reward	0.0004925	0.0004909	11938.83	-0.0004698	0.0014548	1.0031928	0.3157882
motor - shapes	0.0006252	0.0004943	11969.31	-0.0003437	0.0015941	1.2647615	0.2059815
motor - story	0.0004312	0.0005036	11979.98	-0.0005559	0.0014183	0.8561991	0.3919048
motor - ToM	0.0015208	0.0004935	11974.44	0.0005534	0.0024882	3.0815222	0.0020641
punish - random	0.0007802	0.0004895	11964.28	-0.0001793	0.0017397	1.5938084	0.1110054
punish - relational	0.0001470	0.0004940	11968.54	-0.0008213	0.0011153	0.2976310	0.7659900
punish - reward	-0.0003992	0.0004867	11922.26	-0.0013533	0.0005548	-0.8202211	0.4121065
punish - shapes	-0.0002666	0.0004903	11959.56	-0.0012276	0.0006945	-0.5436666	0.5866811
punish - story	-0.0004606	0.0005000	11982.45	-0.0014406	0.0005195	-0.9211748	0.3569777
punish - ToM	0.0006291	0.0004895	11964.28	-0.0003304	0.0015886	1.2851553	0.1987629
random - relational	-0.0006331	0.0004953	11946.69	-0.0016041	0.0003378	-1.2782152	0.2011984
random - reward	-0.0011794	0.0004895	11964.28	-0.0021389	-0.0002199	-2.4093922	0.0159941
random - shapes	-0.0010467	0.0004917	11938.04	-0.0020104	-0.0000830	-2.1289830	0.0332761
random - story	-0.0012407	0.0005012	11955.72	-0.0022231	-0.0002583	-2.4755626	0.0133164
random - ToM	-0.0001511	0.0004905	11922.26	-0.0011125	0.0008104	-0.3080239	0.7580695
relational - reward	-0.0005463	0.0004940	11968.54	-0.0015146	0.0004221	-1.1057922	0.2688387
relational - shapes	-0.0004136	0.0004960	11938.46	-0.0013858	0.0005586	-0.8338638	0.4043744
relational - story	-0.0006076	0.0005052	11947.83	-0.0015979	0.0003827	-1.2026692	0.2291282
relational - ToM	0.0004821	0.0004953	11946.69	-0.0004889	0.0014530	0.9731961	0.3304755
reward - shapes	0.0001327	0.0004903	11959.56	-0.0008284	0.0010937	0.2705879	0.7867127
reward - story	-0.0000613	0.0005000	11982.45	-0.0010414	0.0009187	-0.1226802	0.9023624
reward - ToM	0.0010283	0.0004895	11964.28	0.0000688	0.0019878	2.1007392	0.0356847
shapes - story	-0.0001940	0.0005021	11958.76	-0.0011782	0.0007902	-0.3863729	0.6992274
shapes - ToM	0.0008956	0.0004917	11938.04	-0.0000681	0.0018594	1.8216838	0.0685280
story - ToM	0.0010896	0.0005012	11955.72	0.0001072	0.0020721	2.1741106	0.0297164

## D2 contrast- pairwise trait effects :Agreeableness

```
kable(em2int_NEO_A$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	-0.0000508	0.0004921	11922.26	-0.0010154	0.0009138	-0.1031925	0.9178119
0back - faces	0.0003320	0.0004958	11956.14	-0.0006398	0.0013038	0.6696133	0.5031173
0back - match	0.0007573	0.0004983	11961.98	-0.0002194	0.0017341	1.5197882	0.1285906
0back - math	0.0014006	0.0005107	11989.53	0.0003996	0.0024017	2.7425523	0.0061054
0back - motor	0.0021855	0.0004953	11937.59	0.0012146	0.0031564	4.4124170	0.0000103
0back - punish	0.0007035	0.0004926	11936.29	-0.0002621	0.0016692	1.4281410	0.1532775
0back - random	0.0003170	0.0004942	11968.64	-0.0006517	0.0012857	0.6414828	0.5212213
0back - relational	0.0003660	0.0004983	11961.98	-0.0006108	0.0013427	0.7344107	0.4627129
0back - reward	0.0005849	0.0004926	11936.29	-0.0003808	0.0015505	1.1872096	0.2351686
0back - shapes	0.0008357	0.0004958	11956.14	-0.0001361	0.0018074	1.6855987	0.0918992
0back - story	0.0019781	0.0005107	11989.53	0.0009771	0.0029792	3.8733428	0.0001079
0back - ToM	0.0011472	0.0004942	11968.64	0.0001785	0.0021158	2.3214228	0.0202807
2back - faces	0.0003828	0.0004958	11956.14	-0.0005890	0.0013545	0.7720439	0.4401037
2back - match	0.0008081	0.0004983	11961.98	-0.0001687	0.0017849	1.6216961	0.1048948
2back - math	0.0014514	0.0005107	11989.53	0.0004503	0.0024524	2.8419883	0.0044909
2back - motor	0.0022363	0.0004953	11937.59	0.0012654	0.0032072	4.5149412	0.0000064
2back - punish	0.0007543	0.0004926	11936.30	-0.0002113	0.0017200	1.5312237	0.1257406
2back - random	0.0003678	0.0004942	11968.65	-0.0006009	0.0013364	0.7442444	0.4567432
2back - relational	0.0004167	0.0004983	11961.98	-0.0005600	0.0013935	0.8363186	0.4029924
2back - reward	0.0006356	0.0004926	11936.30	-0.0003300	0.0016013	1.2902924	0.1969741
2back - shapes	0.0008864	0.0004958	11956.14	-0.0000853	0.0018582	1.7880293	0.0737966
2back - story	0.0020289	0.0005107	11989.53	0.0010278	0.0030299	3.9727788	0.0000715
2back - ToM	0.0011980	0.0004942	11968.65	0.0002293	0.0021666	2.4241844	0.0153575
faces - match	0.0004254	0.0005006	11934.83	-0.0005559	0.0014066	0.8496876	0.3955158
faces - math	0.0010686	0.0005130	11967.26	0.0000630	0.0020743	2.0829859	0.0372737
faces - motor	0.0018536	0.0004988	11963.11	0.0008759	0.0028312	3.7163856	0.0002030
faces - punish	0.0003716	0.0004959	11953.27	-0.0006005	0.0013436	0.7493014	0.4536903
faces - random	-0.0000150	0.0004966	11948.29	-0.0009885	0.0009585	-0.0301426	0.9759538
faces - relational	0.0000340	0.0005006	11934.83	-0.0009473	0.0010152	0.0679028	0.9458642
faces - reward	0.0002529	0.0004959	11953.27	-0.0007191	0.0012249	0.5099554	0.6100921
faces - shapes	0.0005037	0.0004979	11922.26	-0.0004723	0.0014796	1.0116433	0.3117292
faces - story	0.0016461	0.0005130	11967.26	0.0006405	0.0026518	3.2086263	0.0013372
faces - ToM	0.0008152	0.0004966	11948.29	-0.0001583	0.0017887	1.6414142	0.1007378
match - math	0.0006433	0.0005153	11962.78	-0.0003667	0.0016533	1.2484558	0.2118886
match - motor	0.0014282	0.0005010	11957.91	0.0004461	0.0024103	2.8505955	0.0043712
match - punish	-0.0000538	0.0004985	11959.86	-0.0010309	0.0009234	-0.1078827	0.9140906
match - random	-0.0004403	0.0004993	11957.22	-0.0014191	0.0005384	-0.8818604	0.3778700
match - relational	-0.0003914	0.0005027	11922.26	-0.0013766	0.0005939	-0.7785887	0.4362375
match - reward	-0.0001725	0.0004985	11959.86	-0.0011496	0.0008047	-0.3459757	0.7293671
match - shapes	0.0000783	0.0005006	11934.83	-0.0009029	0.0010596	0.1564888	0.8756504
match - story	0.0012208	0.0005153	11962.78	0.0002108	0.0022308	2.3692159	0.0178416
match - ToM	0.0003899	0.0004993	11957.22	-0.0005889	0.0013686	0.7807791	0.4349479
math - motor	0.0007849	0.0005134	11986.69	-0.0002214	0.0017912	1.5289690	0.1262985
math - punish	-0.0006971	0.0005108	11984.16	-0.0016983	0.0003041	-1.3647147	0.1723684
math - random	-0.0010836	0.0005114	11974.75	-0.0020861	-0.0000812	-2.1188421	0.0341243
math - relational	-0.0010346	0.0005153	11962.78	-0.0020447	-0.0000246	-2.0079852	0.0446673



contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	-0.0008158	0.0005108	11984.16	-0.0018170	0.0001855	-1.5970848	0.1102732
math - shapes	-0.0005650	0.0005130	11967.26	-0.0015706	0.0004407	-1.1011961	0.2708335
math - story	0.0005775	0.0005251	11922.26	-0.0004519	0.0016068	1.0997027	0.2714839
math - ToM	-0.0002534	0.0005114	11974.75	-0.0012559	0.0007490	-0.4955577	0.6202156
motor - punish	-0.0014820	0.0004956	11939.70	-0.0024534	-0.0005106	-2.9905287	0.0027906
motor - random	-0.0018685	0.0004973	11979.36	-0.0028433	-0.0008938	-3.7574631	0.0001725
motor - relational	-0.0018196	0.0005010	11957.91	-0.0028016	-0.0008375	-3.6317232	0.0002827
motor - reward	-0.0016007	0.0004956	11939.70	-0.0025721	-0.0006293	-3.2300355	0.0012411
motor - shapes	-0.0013499	0.0004988	11963.11	-0.0023275	-0.0003722	-2.7064851	0.0068096
motor - story	-0.0002074	0.0005134	11986.69	-0.0012137	0.0007989	-0.4040530	0.6861810
motor - ToM	-0.0010384	0.0004973	11979.36	-0.0020131	-0.0000636	-2.0880471	0.0368147
punish - random	-0.0003865	0.0004944	11967.54	-0.0013556	0.0005825	-0.7819206	0.4342767
punish - relational	-0.0003376	0.0004985	11959.86	-0.0013147	0.0006396	-0.6771906	0.4982982
punish - reward	-0.0001187	0.0004925	11922.26	-0.0010841	0.0008467	-0.2409829	0.8095725
punish - shapes	0.0001321	0.0004959	11953.27	-0.0008399	0.0011041	0.2664244	0.7899170
punish - story	0.0012746	0.0005108	11984.16	0.0002733	0.0022758	2.4953222	0.0125976
punish - ToM	0.0004436	0.0004944	11967.54	-0.0005254	0.0014126	0.8974020	0.3695225
random - relational	0.0000490	0.0004993	11957.22	-0.0009298	0.0010277	0.0980597	0.9218866
random - reward	0.0002679	0.0004944	11967.54	-0.0007012	0.0012369	0.5418282	0.5879469
random - shapes	0.0005187	0.0004966	11948.29	-0.0004548	0.0014922	1.0443240	0.2963566
random - story	0.0016611	0.0005114	11974.75	0.0006586	0.0026636	3.2480405	0.0011652
random - ToM	0.0008302	0.0004944	11922.26	-0.0001390	0.0017993	1.6790952	0.0931597
relational - reward	0.0002189	0.0004985	11959.86	-0.0007583	0.0011960	0.4390975	0.6605988
relational - shapes	0.0004697	0.0005006	11934.83	-0.0005116	0.0014510	0.9382737	0.3481228
relational - story	0.0016121	0.0005153	11962.78	0.0006021	0.0026221	3.1287453	0.0017598
relational - ToM	0.0007812	0.0004993	11957.22	-0.0001975	0.0017599	1.5645798	0.1177079
reward - shapes	0.0002508	0.0004959	11953.27	-0.0007212	0.0012228	0.5057704	0.6130272
reward - story	0.0013932	0.0005108	11984.16	0.0003920	0.0023945	2.7276923	0.0063872
reward - ToM	0.0005623	0.0004944	11967.54	-0.0004067	0.0015313	1.1374944	0.2553544
shapes - story	0.0011424	0.0005130	11967.26	0.0001368	0.0021481	2.2268365	0.0259767
shapes - ToM	0.0003115	0.0004966	11948.29	-0.0006620	0.0012850	0.6272328	0.5305186
story - ToM	-0.0008309	0.0005114	11974.75	-0.0018334	0.0001715	-1.6247561	0.1042409

## D3

```
em3int_NEO_N<-emtrends(mod3, pairwise~cont, var="Neuroticism", adjust="none", infer = TRUE)
em3int_NEO_O<-emtrends(mod3, pairwise~cont, var="Openness", adjust = "none", infer = TRUE)
em3int_NEO_C<-emtrends(mod3, pairwise~cont, var="Conscientiousness", adjust="none", infer = TRUE)
em3int_NEO_E<-emtrends(mod3, pairwise~cont, var="Extraversion", adjust = "none", infer = TRUE)
em3int_NEO_A<-emtrends(mod3, pairwise~cont, var="Agreeableness", adjust="none", infer = TRUE)
```

### D3 contrast- pairwise trait effects : Neuroticism

```
kable(em3int_NEO_N$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0012270	0.0004699	11937.12	0.0003060	0.0021480	2.6114336	0.0090276
0back - faces	0.0006772	0.0004749	11991.40	-0.0002536	0.0016080	1.4261030	0.1538646
0back - match	0.0005193	0.0004773	11995.39	-0.0004162	0.0014548	1.0880363	0.2766009
0back - math	0.0011226	0.0004848	12006.01	0.0001722	0.0020729	2.3153649	0.0206097
0back - motor	0.0008033	0.0004722	11957.22	-0.0001223	0.0017290	1.7011212	0.0889462
0back - punish	0.0000611	0.0004702	11959.99	-0.0008606	0.0009828	0.1299456	0.8966117
0back - random	0.0014984	0.0004735	11997.00	0.0005702	0.0024265	3.1643280	0.0015583
0back - relational	0.0008432	0.0004773	11995.39	-0.0000923	0.0017787	1.7667330	0.0772984
0back - reward	0.0000722	0.0004702	11959.99	-0.0008495	0.0009939	0.1535529	0.8779648
0back - shapes	0.0007191	0.0004749	11991.40	-0.0002117	0.0016499	1.5142841	0.1299802
0back - story	0.0000877	0.0004848	12006.01	-0.0008626	0.0010381	0.1809723	0.8563924
0back - ToM	0.0005258	0.0004735	11997.00	-0.0004024	0.0014540	1.1104267	0.2668374
2back - faces	-0.0005498	0.0004749	11991.41	-0.0014806	0.0003810	-1.1578439	0.2469508
2back - match	-0.0007078	0.0004773	11995.39	-0.0016433	0.0002278	-1.4829462	0.1381150
2back - math	-0.0001045	0.0004848	12006.01	-0.0010548	0.0008459	-0.2154558	0.8294157
2back - motor	-0.0004237	0.0004722	11957.23	-0.0013494	0.0005019	-0.8972380	0.3696100
2back - punish	-0.0011659	0.0004702	11959.99	-0.0020876	-0.0002442	-2.4796079	0.0131664
2back - random	0.0002713	0.0004735	11997.01	-0.0006568	0.0011995	0.5730364	0.5666308
2back - relational	-0.0003838	0.0004773	11995.39	-0.0013193	0.0005517	-0.8042495	0.4212688
2back - reward	-0.0011548	0.0004702	11959.99	-0.0020765	-0.0002331	-2.4560005	0.0140634
2back - shapes	-0.0005079	0.0004749	11991.41	-0.0014388	0.0004229	-1.0696628	0.2847926
2back - story	-0.0011393	0.0004848	12006.01	-0.0020896	-0.0001889	-2.3498484	0.0187972
2back - ToM	-0.0007012	0.0004735	11997.01	-0.0016294	0.0002270	-1.4808649	0.1386688
faces - match	-0.0001579	0.0004805	11951.24	-0.0010999	0.0007840	-0.3286510	0.7424253
faces - math	0.0004454	0.0004883	11975.56	-0.0005118	0.0014025	0.9120311	0.3617707
faces - motor	0.0001261	0.0004770	12000.06	-0.0008089	0.0010611	0.2643846	0.7914881
faces - punish	-0.0006161	0.0004748	11989.64	-0.0015467	0.0003145	-1.2977325	0.1944042
faces - random	0.0008212	0.0004769	11954.03	-0.0001136	0.0017559	1.7219996	0.0850955
faces - relational	0.0001660	0.0004805	11951.24	-0.0007760	0.0011079	0.3454093	0.7297928
faces - reward	-0.0006050	0.0004748	11989.64	-0.0015356	0.0003256	-1.2743514	0.2025636
faces - shapes	0.0000419	0.0004780	11937.12	-0.0008950	0.0009788	0.0876104	0.9301878
faces - story	-0.0005895	0.0004883	11975.56	-0.0015466	0.0003677	-1.2071383	0.2274027
faces - ToM	-0.0001514	0.0004769	11954.03	-0.0010861	0.0007833	-0.3174858	0.7508806
match - math	0.0006033	0.0004905	11968.70	-0.0003581	0.0015647	1.2300676	0.2186960
match - motor	0.0002840	0.0004793	11996.99	-0.0006554	0.0012235	0.5926859	0.5534026
match - punish	-0.0004582	0.0004773	11999.00	-0.0013937	0.0004773	-0.9600155	0.3370668
match - random	0.0009791	0.0004794	11962.35	0.0000395	0.0019187	2.0425201	0.0411218
match - relational	0.0003239	0.0004825	11937.12	-0.0006219	0.0012697	0.6712882	0.5020499
match - reward	-0.0004471	0.0004773	11999.00	-0.0013826	0.0004884	-0.9367569	0.3489025
match - shapes	0.0001998	0.0004805	11951.24	-0.0007421	0.0011417	0.4157902	0.6775710
match - story	-0.0004315	0.0004905	11968.70	-0.0013929	0.0005298	-0.8798693	0.3789478
match - ToM	0.0000065	0.0004794	11962.35	-0.0009331	0.0009461	0.0136276	0.9891273
math - motor	-0.0003192	0.0004869	12011.20	-0.0012736	0.0006351	-0.6556934	0.5120340
math - punish	-0.0010615	0.0004849	12013.91	-0.0020120	-0.0001109	-2.1888597	0.0286262
math - random	0.0003758	0.0004870	11980.23	-0.0005788	0.0013304	0.7716490	0.4403376
math - relational	-0.0002794	0.0004905	11968.70	-0.0012407	0.0006820	-0.5696280	0.5689407

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	-0.0010504	0.0004849	12013.91	-0.0020009	-0.0000998	-2.1659696	0.0303331
math - shapes	-0.0004035	0.0004883	11975.56	-0.0013607	0.0005537	-0.8262790	0.4086623
math - story	-0.0010348	0.0004967	11937.12	-0.0020084	-0.0000613	-2.0834845	0.0372283
math - ToM	-0.0005968	0.0004870	11980.23	-0.0015514	0.0003579	-1.2253401	0.2204712
motor - punish	-0.0007422	0.0004722	11960.17	-0.0016679	0.0001835	-1.5716714	0.1160532
motor - random	0.0006950	0.0004757	12007.73	-0.0002375	0.0016276	1.4610187	0.1440365
motor - relational	0.0000399	0.0004793	11996.99	-0.0008995	0.0009793	0.0831876	0.9337038
motor - reward	-0.0007311	0.0004722	11960.17	-0.0016568	0.0001946	-1.5481662	0.1216087
motor - shapes	-0.0000842	0.0004770	12000.06	-0.0010193	0.0008508	-0.1766013	0.8598245
motor - story	-0.0007156	0.0004869	12011.20	-0.0016699	0.0002388	-1.4697294	0.1416612
motor - ToM	-0.0002775	0.0004757	12007.73	-0.0012100	0.0006550	-0.5833462	0.5596712
punish - random	0.0014373	0.0004734	11995.58	0.0005092	0.0023653	3.0357492	0.0024045
punish - relational	0.0007821	0.0004773	11999.00	-0.0001534	0.0017176	1.6387149	0.1012989
punish - reward	0.0000111	0.0004698	11937.12	-0.0009097	0.0009319	0.0236287	0.9811491
punish - shapes	0.0006580	0.0004748	11989.64	-0.0002726	0.0015886	1.3859339	0.1657929
punish - story	0.0000266	0.0004849	12013.91	-0.0009239	0.0009772	0.0549352	0.9561910
punish - ToM	0.0004647	0.0004734	11995.58	-0.0004633	0.0013927	0.9815384	0.3263471
random - relational	-0.0006552	0.0004794	11962.35	-0.0015948	0.0002844	-1.3667914	0.1717164
random - reward	-0.0014262	0.0004734	11995.58	-0.0023542	-0.0004981	-3.0123035	0.0025981
random - shapes	-0.0007793	0.0004769	11954.03	-0.0017140	0.0001554	-1.6341886	0.1022456
random - story	-0.0014106	0.0004870	11980.23	-0.0023653	-0.0004560	-2.8964847	0.0037805
random - ToM	-0.0009726	0.0004752	11937.12	-0.0019041	-0.0000410	-2.0464637	0.0407326
relational - reward	-0.0007710	0.0004773	11999.00	-0.0017065	0.0001645	-1.6154564	0.1062382
relational - shapes	-0.0001241	0.0004805	11951.24	-0.0010661	0.0008178	-0.2582700	0.7962029
relational - story	-0.0007554	0.0004905	11968.70	-0.0017168	0.0002059	-1.5403088	0.1235115
relational - ToM	-0.0003174	0.0004794	11962.35	-0.0012570	0.0006222	-0.6621010	0.5079192
reward - shapes	0.0006469	0.0004748	11989.64	-0.0002837	0.0015775	1.3625528	0.1730491
reward - story	0.0000155	0.0004849	12013.91	-0.0009350	0.0009661	0.0320451	0.9744366
reward - ToM	0.0004536	0.0004734	11995.58	-0.0004744	0.0013816	0.9580927	0.3380353
shapes - story	-0.0006313	0.0004883	11975.56	-0.0015885	0.0003258	-1.2928903	0.1960739
shapes - ToM	-0.0001933	0.0004769	11954.03	-0.0011280	0.0007415	-0.4052968	0.6852666
story - ToM	0.0004381	0.0004870	11980.23	-0.0005166	0.0013927	0.8994956	0.3684068

### D3 contrast- pairwise trait effects : Openness

```
kable(em3int_NEO_0$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	-0.0014856	0.0004976	11937.12	-0.0024610	-0.0005101	-2.9853373	0.0028384
0back - faces	-0.0005321	0.0005030	11987.74	-0.0015181	0.0004539	-1.0578754	0.2901336
0back - match	-0.0001916	0.0005058	11993.24	-0.0011831	0.0008000	-0.3787494	0.7048806
0back - math	-0.0011965	0.0005151	12010.45	-0.0022062	-0.0001867	-2.3226327	0.0202155
0back - motor	-0.0015352	0.0005009	11960.29	-0.0025170	-0.0005534	-3.0649895	0.0021816
0back - punish	-0.0013575	0.0004965	11957.25	-0.0023308	-0.0003842	-2.7338201	0.0062696
0back - random	-0.0015897	0.0005015	11988.51	-0.0025727	-0.0006068	-3.1701059	0.0015277
0back - relational	-0.0008855	0.0005058	11993.24	-0.0018770	0.0001061	-1.7504447	0.0800672
0back - reward	-0.0017765	0.0004965	11957.25	-0.0027498	-0.0008032	-3.5776859	0.0003480
0back - shapes	-0.0013025	0.0005030	11987.74	-0.0022885	-0.0003165	-2.5893454	0.0096275
0back - story	0.0005671	0.0005151	12010.45	-0.0004426	0.0015769	1.1009271	0.2709505
0back - ToM	0.0000146	0.0005015	11988.51	-0.0009684	0.0009976	0.0290958	0.9767887
2back - faces	0.0009534	0.0005030	11987.74	-0.0000325	0.0019394	1.8954544	0.0580563
2back - match	0.0012940	0.0005058	11993.24	0.0003024	0.0022855	2.5580393	0.0105386
2back - math	0.0002891	0.0005151	12010.45	-0.0007206	0.0012988	0.5612370	0.5746465
2back - motor	-0.0000497	0.0005009	11960.29	-0.0010315	0.0009322	-0.0991379	0.9210305
2back - punish	0.0001281	0.0004965	11957.25	-0.0008452	0.0011014	0.2579976	0.7964132
2back - random	-0.0001042	0.0005015	11988.51	-0.0010871	0.0008788	-0.2076941	0.8354714
2back - relational	0.0006001	0.0005058	11993.24	-0.0003914	0.0015917	1.1863440	0.2355100
2back - reward	-0.0002909	0.0004965	11957.25	-0.0012642	0.0006824	-0.5858682	0.5579751
2back - shapes	0.0001831	0.0005030	11987.74	-0.0008029	0.0011691	0.3639844	0.7158760
2back - story	0.0020527	0.0005151	12010.45	0.0010429	0.0030624	3.9847968	0.0000679
2back - ToM	0.0015002	0.0005015	11988.51	0.0005172	0.0024831	2.9915077	0.0027817
faces - match	0.0003405	0.0005096	11959.50	-0.0006583	0.0013394	0.6682998	0.5039551
faces - math	-0.0006643	0.0005189	11984.64	-0.0016815	0.0003528	-1.2802758	0.2004729
faces - motor	-0.0010031	0.0005060	11998.97	-0.0019949	-0.0000113	-1.9825089	0.0474451
faces - punish	-0.0008253	0.0005015	11988.13	-0.0018084	0.0001577	-1.6456961	0.0998526
faces - random	-0.0010576	0.0005051	11949.12	-0.0020477	-0.0000675	-2.0936947	0.0363082
faces - relational	-0.0003533	0.0005096	11959.50	-0.0013521	0.0006455	-0.6934090	0.4880664
faces - reward	-0.0012443	0.0005015	11988.13	-0.0022274	-0.0002613	-2.4812041	0.0131075
faces - shapes	-0.0007704	0.0005064	11937.12	-0.0017630	0.0002223	-1.5212462	0.1282245
faces - story	0.0010992	0.0005189	11984.64	0.0000821	0.0021164	2.1184312	0.0341591
faces - ToM	0.0005467	0.0005051	11949.12	-0.0004434	0.0015369	1.0823241	0.2791304
match - math	-0.0010049	0.0005213	11972.06	-0.0020267	0.0000169	-1.9277046	0.0539155
match - motor	-0.0013436	0.0005086	11995.66	-0.0023406	-0.0003467	-2.6418200	0.0082569
match - punish	-0.0011659	0.0005045	12001.58	-0.0021548	-0.0001769	-2.3108687	0.0208570
match - random	-0.0013981	0.0005082	11964.58	-0.0023942	-0.0004021	-2.7513661	0.0059437
match - relational	-0.0006939	0.0005117	11937.12	-0.0016970	0.0003092	-1.3558770	0.1751640
match - reward	-0.0015849	0.0005045	12001.58	-0.0025738	-0.0005960	-3.1413989	0.0016855
match - shapes	-0.0011109	0.0005096	11959.50	-0.0021097	-0.0001121	-2.1801050	0.0292691
match - story	0.0007587	0.0005213	11972.06	-0.0002631	0.0017805	1.4554832	0.1455617
match - ToM	0.0002062	0.0005082	11964.58	-0.0007899	0.0012023	0.4057398	0.6849411
math - motor	-0.0003388	0.0005178	12009.06	-0.0013537	0.0006761	-0.6542898	0.5129377
math - punish	-0.0001610	0.0005138	12017.39	-0.0011682	0.0008462	-0.3133461	0.7540232
math - random	-0.0003933	0.0005174	11982.40	-0.0014074	0.0006209	-0.7601178	0.4471991
math - relational	0.0003110	0.0005213	11972.06	-0.0007108	0.0013328	0.5966104	0.5507788

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	-0.0005800	0.0005138	12017.39	-0.0015872	0.0004271	-1.1288409	0.2589875
math - shapes	-0.0001060	0.0005189	11984.64	-0.0011231	0.0009111	-0.2043191	0.8381076
math - story	0.0017636	0.0005288	11937.12	0.0007270	0.0028001	3.3350176	0.0008555
math - ToM	0.0012110	0.0005174	11982.40	0.0001969	0.0022252	2.3407744	0.0192601
motor - punish	0.0001778	0.0004994	11961.01	-0.0008012	0.0011568	0.3559245	0.7219034
motor - random	-0.0000545	0.0005044	11997.48	-0.0010432	0.0009342	-0.1080376	0.9139677
motor - relational	0.0006498	0.0005086	11995.66	-0.0003472	0.0016467	1.2775536	0.2014316
motor - reward	-0.0002413	0.0004994	11961.01	-0.0012202	0.0007377	-0.4830410	0.6290755
motor - shapes	0.0002327	0.0005060	11998.97	-0.0007590	0.0012245	0.4599972	0.6455266
motor - story	0.0021023	0.0005178	12009.06	0.0010874	0.0031172	4.0604374	0.0000493
motor - ToM	0.0015498	0.0005044	11997.48	0.0005611	0.0025385	3.0725119	0.0021274
punish - random	-0.0002323	0.0004999	11982.77	-0.0012121	0.0007476	-0.4646164	0.6422146
punish - relational	0.0004720	0.0005045	12001.58	-0.0005169	0.0014609	0.9355539	0.3495217
punish - reward	-0.0004190	0.0004947	11937.12	-0.0013887	0.0005507	-0.8469863	0.3970197
punish - shapes	0.0000550	0.0005015	11988.13	-0.0009281	0.0010380	0.1096336	0.9127018
punish - story	0.0019246	0.0005138	12017.39	0.0009174	0.0029317	3.7456459	0.0001808
punish - ToM	0.0013721	0.0004999	11982.77	0.0003922	0.0023519	2.7446737	0.0060661
random - relational	0.0007043	0.0005082	11964.58	-0.0002918	0.0017003	1.3859095	0.1658004
random - reward	-0.0001868	0.0004999	11982.77	-0.0011666	0.0007931	-0.3735902	0.7087159
random - shapes	0.0002872	0.0005051	11949.12	-0.0007029	0.0012774	0.5686471	0.5696064
random - story	0.0021568	0.0005174	11982.40	0.0011427	0.0031710	4.1688491	0.0000308
random - ToM	0.0016043	0.0005034	11937.12	0.0006176	0.0025910	3.1870008	0.0014413
relational - reward	-0.0008910	0.0005045	12001.58	-0.0018800	0.0000979	-1.7660841	0.0774072
relational - shapes	-0.0004170	0.0005096	11959.50	-0.0014158	0.0005818	-0.8183962	0.4131473
relational - story	0.0014526	0.0005213	11972.06	0.0004308	0.0024744	2.7865774	0.0053352
relational - ToM	0.0009000	0.0005082	11964.58	-0.0000960	0.0018961	1.7711964	0.0765535
reward - shapes	0.0004740	0.0005015	11988.13	-0.0005090	0.0014570	0.9451416	0.3446056
reward - story	0.0023436	0.0005138	12017.39	0.0013364	0.0033508	4.5611407	0.0000051
reward - ToM	0.0017911	0.0004999	11982.77	0.0008112	0.0027709	3.5828802	0.0003412
shapes - story	0.0018696	0.0005189	11984.64	0.0008525	0.0028867	3.6030261	0.0003158
shapes - ToM	0.0013171	0.0005051	11949.12	0.0003269	0.0023072	2.6073717	0.0091354
story - ToM	-0.0005525	0.0005174	11982.40	-0.0015667	0.0004616	-1.0679569	0.2855615

### D3 contrast- pairwise trait effects : Conscientiousness

```
kable(em3int_NEO_C$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0015995	0.0005698	11937.12	0.0004826	0.0027164	2.8070558	0.0050078
0back - faces	0.0020306	0.0005759	12000.84	0.0009018	0.0031594	3.5262284	0.0004231
0back - match	0.0010850	0.0005792	12005.49	-0.0000503	0.0022203	1.8733360	0.0610463
0back - math	0.0013301	0.0005887	12024.37	0.0001761	0.0024840	2.2593804	0.0238776
0back - motor	0.0024658	0.0005732	11953.33	0.0013422	0.0035894	4.3016693	0.0000171
0back - punish	0.0006234	0.0005686	11960.85	-0.0004911	0.0017379	1.0964378	0.2729093
0back - random	0.0014855	0.0005761	12008.75	0.0003564	0.0026147	2.5787723	0.0099270
0back - relational	0.0014206	0.0005792	12005.49	0.0002853	0.0025559	2.4527734	0.0141901
0back - reward	0.0002356	0.0005686	11960.85	-0.0008789	0.0013501	0.4144176	0.6785757
0back - shapes	0.0022010	0.0005759	12000.84	0.0010722	0.0033298	3.8220758	0.0001330
0back - story	0.0004561	0.0005887	12024.37	-0.0006979	0.0016100	0.7747056	0.4385289
0back - ToM	0.0007037	0.0005761	12008.75	-0.0004254	0.0018329	1.2216370	0.2218689
2back - faces	0.0004312	0.0005759	12000.84	-0.0006976	0.0015600	0.7487354	0.4540314
2back - match	-0.0005145	0.0005792	12005.49	-0.0016498	0.0006209	-0.8882320	0.3744338
2back - math	-0.0002694	0.0005887	12024.37	-0.0014233	0.0008845	-0.4576422	0.6472178
2back - motor	0.0008664	0.0005732	11953.33	-0.0002573	0.0019900	1.5113706	0.1307205
2back - punish	-0.0009761	0.0005686	11960.85	-0.0020906	0.0001384	-1.7167540	0.0860500
2back - random	-0.0001140	0.0005761	12008.75	-0.0012431	0.0010152	-0.1978353	0.8431773
2back - relational	-0.0001789	0.0005792	12005.49	-0.0013142	0.0009565	-0.3087947	0.7574831
2back - reward	-0.0013638	0.0005686	11960.85	-0.0024783	-0.0002494	-2.3987742	0.0164653
2back - shapes	0.0006015	0.0005759	12000.84	-0.0005273	0.0017303	1.0445829	0.2962368
2back - story	-0.0011434	0.0005887	12024.37	-0.0022973	0.0000105	-1.9423170	0.0521220
2back - ToM	-0.0008957	0.0005761	12008.75	-0.0020249	0.0002334	-1.5549706	0.1199794
faces - match	-0.0009456	0.0005827	11950.73	-0.0020878	0.0001965	-1.6228855	0.1046403
faces - math	-0.0007006	0.0005922	11977.40	-0.0018615	0.0004603	-1.1829173	0.2368654
faces - motor	0.0004352	0.0005790	12007.61	-0.0006998	0.0015701	0.7515923	0.4523110
faces - punish	-0.0014073	0.0005740	11995.27	-0.0025324	-0.0002821	-2.4517069	0.0142322
faces - random	-0.0005451	0.0005796	11956.08	-0.0016813	0.0005910	-0.9404862	0.3469872
faces - relational	-0.0006100	0.0005827	11950.73	-0.0017522	0.0005321	-1.0469223	0.2951566
faces - reward	-0.0017950	0.0005740	11995.27	-0.0029201	-0.0006699	-3.1272776	0.0017686
faces - shapes	0.0001704	0.0005792	11937.12	-0.0009650	0.0013057	0.2941415	0.7686549
faces - story	-0.0015746	0.0005922	11977.40	-0.0027355	-0.0004137	-2.6586608	0.0078556
faces - ToM	-0.0013269	0.0005796	11956.08	-0.0024631	-0.0001907	-2.2892380	0.0220829
match - math	0.0002450	0.0005953	11975.22	-0.0009218	0.0014119	0.4116450	0.6806070
match - motor	0.0013808	0.0005821	12004.16	0.0002398	0.0025219	2.3720346	0.0177061
match - punish	-0.0004616	0.0005774	12002.80	-0.0015934	0.0006702	-0.7994945	0.4240196
match - random	0.0004005	0.0005830	11966.06	-0.0007423	0.0015433	0.6869101	0.4921527
match - relational	0.0003356	0.0005855	11937.12	-0.0008120	0.0014832	0.5732342	0.5664969
match - reward	-0.0008494	0.0005774	12002.80	-0.0019812	0.0002824	-1.4710790	0.1412960
match - shapes	0.0011160	0.0005827	11950.73	-0.0000262	0.0022582	1.9152731	0.0554815
match - story	-0.0006290	0.0005953	11975.22	-0.0017958	0.0005379	-1.0565619	0.2907329
match - ToM	-0.0003813	0.0005830	11966.06	-0.0015241	0.0007615	-0.6539764	0.5131396
math - motor	0.0011358	0.0005913	12014.87	-0.0000233	0.0022948	1.9208014	0.0547804
math - punish	-0.0007067	0.0005869	12020.13	-0.0018570	0.0004437	-1.2041416	0.2285586
math - random	0.0001554	0.0005925	11987.21	-0.0010060	0.0013168	0.2623525	0.7930542
math - relational	0.0000906	0.0005953	11975.22	-0.0010763	0.0012574	0.1521223	0.8790930

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	-0.0010944	0.0005869	12020.13	-0.0022448	0.0000559	-1.8648866	0.0622217
math - shapes	0.0008709	0.0005922	11977.40	-0.0002900	0.0020319	1.4705828	0.1414303
math - story	-0.0008740	0.0006028	11937.12	-0.0020556	0.0003076	-1.4499416	0.1471011
math - ToM	-0.0006263	0.0005925	11987.21	-0.0017877	0.0005351	-1.0571098	0.2904828
motor - punish	-0.0018424	0.0005717	11966.79	-0.0029631	-0.0007218	-3.2225973	0.0012737
motor - random	-0.0009803	0.0005792	12015.48	-0.0021156	0.0001550	-1.6925566	0.0905658
motor - relational	-0.0010452	0.0005821	12004.16	-0.0021863	0.0000958	-1.7955153	0.0725968
motor - reward	-0.0022302	0.0005717	11966.79	-0.0033509	-0.0011095	-3.9008444	0.0000964
motor - shapes	-0.0002648	0.0005790	12007.61	-0.0013998	0.0008701	-0.4573525	0.6474260
motor - story	-0.0020098	0.0005913	12014.87	-0.0031688	-0.0008507	-3.3989188	0.0006787
motor - ToM	-0.0017621	0.0005792	12015.48	-0.0028974	-0.0006268	-3.0423284	0.0023526
punish - random	0.0008621	0.0005741	11996.42	-0.0002632	0.0019874	1.5017665	0.1331838
punish - relational	0.0007972	0.0005774	12002.80	-0.0003346	0.0019290	1.3807318	0.1673871
punish - reward	-0.0003878	0.0005663	11937.12	-0.0014979	0.0007223	-0.6847119	0.4935390
punish - shapes	0.0015776	0.0005740	11995.27	0.0004525	0.0027027	2.7485233	0.0059954
punish - story	-0.0001673	0.0005869	12020.13	-0.0013177	0.0009830	-0.2851306	0.7755490
punish - ToM	0.0000803	0.0005741	11996.42	-0.0010449	0.0012056	0.1399399	0.8887098
random - relational	-0.0000649	0.0005830	11966.06	-0.0012077	0.0010780	-0.1112924	0.9113863
random - reward	-0.0012499	0.0005741	11996.42	-0.0023752	-0.0001246	-2.1772442	0.0294818
random - shapes	0.0007155	0.0005796	11956.08	-0.0004207	0.0018517	1.2344124	0.2170735
random - story	-0.0010294	0.0005925	11987.21	-0.0021908	0.0001319	-1.7374695	0.0823300
random - ToM	-0.0007818	0.0005792	11937.12	-0.0019171	0.0003536	-1.3497137	0.1771334
relational - reward	-0.0011850	0.0005774	12002.80	-0.0023168	-0.0000532	-2.0523163	0.0401606
relational - shapes	0.0007804	0.0005827	11950.73	-0.0003618	0.0019225	1.3393099	0.1804953
relational - story	-0.0009646	0.0005953	11975.22	-0.0021314	0.0002023	-1.6203291	0.1051879
relational - ToM	-0.0007169	0.0005830	11966.06	-0.0018597	0.0004259	-1.2295940	0.2188734
reward - shapes	0.0019654	0.0005740	11995.27	0.0008403	0.0030905	3.4240939	0.0006189
reward - story	0.0002204	0.0005869	12020.13	-0.0009299	0.0013708	0.3756144	0.7072102
reward - ToM	0.0004681	0.0005741	11996.42	-0.0006572	0.0015934	0.8154177	0.4148495
shapes - story	-0.0017450	0.0005922	11977.40	-0.0029059	-0.0005841	-2.9463262	0.0032219
shapes - ToM	-0.0014973	0.0005796	11956.08	-0.0026335	-0.0003611	-2.5831642	0.0098016
story - ToM	0.0002477	0.0005925	11987.21	-0.0009137	0.0014091	0.4180071	0.6759494



### D3 contrast- pairwise trait effects : Extraversion

```
kable(em3int_NEO_E$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	0.0004185	0.0005543	11937.12	-0.0006681	0.0015051	0.7549173	0.4503135
0back - faces	-0.0002043	0.0005578	11981.63	-0.0012977	0.0008890	-0.3662855	0.7141585
0back - match	-0.0004313	0.0005620	11992.15	-0.0015328	0.0006703	-0.7674310	0.4428404
0back - math	0.0000960	0.0005687	12007.53	-0.0010188	0.0012108	0.1688239	0.8659380
0back - motor	0.0004440	0.0005586	11960.83	-0.0006509	0.0015389	0.7949214	0.4266750
0back - punish	-0.0010779	0.0005540	11950.21	-0.0021639	0.0000081	-1.9454875	0.0517398
0back - random	0.0001898	0.0005568	11982.70	-0.0009016	0.0012812	0.3408937	0.7331896
0back - relational	-0.0002488	0.0005620	11992.15	-0.0013503	0.0008528	-0.4426636	0.6580171
0back - reward	-0.0008472	0.0005540	11950.21	-0.0019332	0.0002388	-1.5291545	0.1262526
0back - shapes	-0.0010481	0.0005578	11981.63	-0.0021415	0.0000452	-1.8790874	0.0602568
0back - story	-0.0000866	0.0005687	12007.53	-0.0012014	0.0010281	-0.1523195	0.8789375
0back - ToM	-0.0006315	0.0005568	11982.70	-0.0017229	0.0004599	-1.1341459	0.2567561
2back - faces	-0.0006228	0.0005578	11981.63	-0.0017161	0.0004706	-1.1165409	0.2642131
2back - match	-0.0008497	0.0005620	11992.15	-0.0019513	0.0002518	-1.5121221	0.1305292
2back - math	-0.0003225	0.0005687	12007.53	-0.0014372	0.0007923	-0.5670171	0.5707132
2back - motor	0.0000255	0.0005586	11960.83	-0.0010694	0.0011204	0.0457269	0.9635287
2back - punish	-0.0014963	0.0005540	11950.21	-0.0025823	-0.0004104	-2.7008276	0.0069265
2back - random	-0.0002287	0.0005568	11982.70	-0.0013201	0.0008627	-0.4107050	0.6812962
2back - relational	-0.0006672	0.0005620	11992.15	-0.0017688	0.0004343	-1.1873547	0.2351112
2back - reward	-0.0012657	0.0005540	11950.21	-0.0023517	-0.0001797	-2.2844946	0.0223599
2back - shapes	-0.0014666	0.0005578	11981.63	-0.0025600	-0.0003733	-2.6293428	0.0085659
2back - story	-0.0005051	0.0005687	12007.53	-0.0016199	0.0006097	-0.8881605	0.3744722
2back - ToM	-0.0010500	0.0005568	11982.70	-0.0021414	0.0000414	-1.8857446	0.0593536
faces - match	-0.0002270	0.0005636	11955.59	-0.0013316	0.0008777	-0.4027042	0.6871731
faces - math	0.0003003	0.0005705	11978.58	-0.0008179	0.0014186	0.5264282	0.5986005
faces - motor	0.0006483	0.0005616	11989.43	-0.0004525	0.0017491	1.1544666	0.2483319
faces - punish	-0.0008736	0.0005571	11978.19	-0.0019655	0.0002184	-1.5681548	0.1168714
faces - random	0.0003941	0.0005586	11954.02	-0.0007009	0.0014892	0.7054790	0.4805259
faces - relational	-0.0000444	0.0005636	11955.59	-0.0011491	0.0010602	-0.0788679	0.9371390
faces - reward	-0.0006429	0.0005571	11978.19	-0.0017348	0.0004490	-1.1540834	0.2484890
faces - shapes	-0.0008438	0.0005593	11937.12	-0.0019401	0.0002524	-1.5088310	0.1313685
faces - story	0.0001177	0.0005705	11978.58	-0.0010006	0.0012359	0.2062845	0.8365722
faces - ToM	-0.0004272	0.0005586	11954.02	-0.0015222	0.0006679	-0.7646509	0.4444945
match - math	0.0005273	0.0005740	11966.42	-0.0005979	0.0016524	0.9185662	0.3583410
match - motor	0.0008753	0.0005653	11982.91	-0.0002328	0.0019834	1.5483097	0.1215742
match - punish	-0.0006466	0.0005612	11988.62	-0.0017467	0.0004535	-1.1521011	0.2493025
match - random	0.0006211	0.0005628	11964.16	-0.0004821	0.0017243	1.1035221	0.2698227
match - relational	0.0001825	0.0005670	11937.12	-0.0009288	0.0012938	0.3218997	0.7475343
match - reward	-0.0004159	0.0005612	11988.62	-0.0015161	0.0006842	-0.7411124	0.4586398
match - shapes	-0.0006169	0.0005636	11955.59	-0.0017216	0.0004878	-1.0945731	0.2737258
match - story	0.0003446	0.0005740	11966.42	-0.0007805	0.0014698	0.6003907	0.5482573
match - ToM	-0.0002002	0.0005628	11964.16	-0.0013034	0.0009030	-0.3557532	0.7220316
math - motor	0.0003480	0.0005721	12001.32	-0.0007734	0.0014694	0.6082953	0.5430031
math - punish	-0.0011739	0.0005680	12004.38	-0.0022872	-0.0000605	-2.0666925	0.0387845
math - random	0.0000938	0.0005694	11974.73	-0.0010224	0.0012100	0.1647118	0.8691736
math - relational	-0.0003448	0.0005740	11966.42	-0.0014699	0.0007804	-0.6006242	0.5481017

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	-0.0009432	0.0005680	12004.38	-0.0020566	0.0001702	-1.6605955	0.0968208
math - shapes	-0.0011441	0.0005705	11978.58	-0.0022624	-0.0000259	-2.0055464	0.0449271
math - story	-0.0001826	0.0005794	11937.12	-0.0013184	0.0009531	-0.3152144	0.7526043
math - ToM	-0.0007275	0.0005694	11974.73	-0.0018437	0.0003887	-1.2775553	0.2014310
motor - punish	-0.0015219	0.0005578	11956.03	-0.0026153	-0.0004284	-2.7281962	0.0063775
motor - random	-0.0002542	0.0005607	11994.21	-0.0013533	0.0008448	-0.4533997	0.6502691
motor - relational	-0.0006928	0.0005653	11982.91	-0.0018009	0.0004153	-1.2254740	0.2204208
motor - reward	-0.0012912	0.0005578	11956.03	-0.0023847	-0.0001978	-2.3147025	0.0206461
motor - shapes	-0.0014922	0.0005616	11989.43	-0.0025930	-0.0003914	-2.6570309	0.0078937
motor - story	-0.0005307	0.0005721	12001.32	-0.0016521	0.0005908	-0.9275319	0.3536691
motor - ToM	-0.0010755	0.0005607	11994.21	-0.0021746	0.0000235	-1.9181695	0.0551132
punish - random	0.0012677	0.0005561	11982.70	0.0001775	0.0023578	2.2794059	0.0226604
punish - relational	0.0008291	0.0005612	11988.62	-0.0002710	0.0019292	1.4772842	0.1396258
punish - reward	0.0002307	0.0005531	11937.12	-0.0008535	0.0013148	0.4170421	0.6766551
punish - shapes	0.0000297	0.0005571	11978.19	-0.0010622	0.0011217	0.0533733	0.9574354
punish - story	0.0009912	0.0005680	12004.38	-0.0001221	0.0021046	1.7451439	0.0809854
punish - ToM	0.0004464	0.0005561	11982.70	-0.0006437	0.0015365	0.8026422	0.4221975
random - relational	-0.0004386	0.0005628	11964.16	-0.0015418	0.0006646	-0.7792454	0.4358506
random - reward	-0.0010370	0.0005561	11982.70	-0.0021271	0.0000531	-1.8646510	0.0622548
random - shapes	-0.0012379	0.0005586	11954.02	-0.0023330	-0.0001429	-2.2159453	0.0267140
random - story	-0.0002764	0.0005694	11974.73	-0.0013926	0.0008398	-0.4854443	0.6273701
random - ToM	-0.0008213	0.0005574	11937.12	-0.0019138	0.0002713	-1.4735024	0.1406420
relational - reward	-0.0005984	0.0005612	11988.62	-0.0016986	0.0005017	-1.0662954	0.2863116
relational - shapes	-0.0007994	0.0005636	11955.59	-0.0019041	0.0003053	-1.4184094	0.1560973
relational - story	0.0001621	0.0005740	11966.42	-0.0009630	0.0012873	0.2824487	0.7776044
relational - ToM	-0.0003827	0.0005628	11964.16	-0.0014859	0.0007205	-0.6800300	0.4964986
reward - shapes	-0.0002009	0.0005571	11978.19	-0.0012929	0.0008910	-0.3606982	0.7183315
reward - story	0.0007606	0.0005680	12004.38	-0.0003528	0.0018739	1.3390469	0.1805807
reward - ToM	0.0002157	0.0005561	11982.70	-0.0008744	0.0013058	0.3878872	0.6981064
shapes - story	0.0009615	0.0005705	11978.58	-0.0001567	0.0020798	1.6854027	0.0919370
shapes - ToM	0.0004166	0.0005586	11954.02	-0.0006784	0.0015117	0.7458153	0.4557936
story - ToM	-0.0005449	0.0005694	11974.73	-0.0016611	0.0005713	-0.9568227	0.3386761

### D3 contrast- pairwise trait effects :Agreeableness

```
kable(em3int_NEO_A$contrasts, "simple", align= "lrrrrrrr", digits = 7 )
```

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
0back - 2back	-0.0004151	0.0005592	11937.12	-0.0015112	0.0006810	-0.7423338	0.4578997
0back - faces	-0.0011468	0.0005633	11974.44	-0.0022509	-0.0000427	-2.0359661	0.0417757
0back - match	-0.0008526	0.0005662	11981.03	-0.0019623	0.0002572	-1.5059083	0.1321171
0back - math	-0.0006531	0.0005802	12012.93	-0.0017903	0.0004841	-1.1257522	0.2602929
0back - motor	-0.0015413	0.0005628	11954.40	-0.0026445	-0.0004381	-2.7385932	0.0061794
0back - punish	-0.0005463	0.0005598	11952.55	-0.0016436	0.0005509	-0.9760348	0.3290670
0back - random	-0.0001787	0.0005614	11986.08	-0.0012792	0.0009218	-0.3183208	0.7502472
0back - relational	-0.0010507	0.0005662	11981.03	-0.0021604	0.0000591	-1.8558364	0.0635014
0back - reward	-0.0005343	0.0005598	11952.55	-0.0016315	0.0005630	-0.9544528	0.3398738
0back - shapes	-0.0007606	0.0005633	11974.44	-0.0018647	0.0003435	-1.3502564	0.1769593
0back - story	-0.0004957	0.0005802	12012.93	-0.0016329	0.0006415	-0.8544532	0.3928710
0back - ToM	0.0005582	0.0005614	11986.08	-0.0005423	0.0016587	0.9942212	0.3201352
2back - faces	-0.0007317	0.0005633	11974.44	-0.0018358	0.0003724	-1.2990101	0.1939655
2back - match	-0.0004375	0.0005662	11981.03	-0.0015472	0.0006723	-0.7726943	0.4397185
2back - math	-0.0002380	0.0005802	12012.93	-0.0013752	0.0008992	-0.4102378	0.6816388
2back - motor	-0.0011262	0.0005628	11954.40	-0.0022294	-0.0000230	-2.0010195	0.0454129
2back - punish	-0.0001312	0.0005598	11952.56	-0.0012285	0.0009660	-0.2344471	0.8146419
2back - random	0.0002364	0.0005614	11986.09	-0.0008641	0.0013369	0.4210502	0.6737260
2back - relational	-0.0006356	0.0005662	11981.03	-0.0017453	0.0004742	-1.1226224	0.2616204
2back - reward	-0.0001192	0.0005598	11952.56	-0.0012164	0.0009781	-0.2128651	0.8314358
2back - shapes	-0.0003455	0.0005633	11974.44	-0.0014496	0.0007587	-0.6133004	0.5396894
2back - story	-0.0000806	0.0005802	12012.93	-0.0012178	0.0010566	-0.1389387	0.8895009
2back - ToM	0.0009733	0.0005614	11986.09	-0.0001272	0.0020738	1.7335922	0.0830162
faces - match	0.0002942	0.0005688	11951.28	-0.0008207	0.0014092	0.5172842	0.6049674
faces - math	0.0004937	0.0005829	11988.84	-0.0006488	0.0016362	0.8470237	0.3969988
faces - motor	-0.0003945	0.0005667	11982.16	-0.0015052	0.0007163	-0.6961597	0.4863423
faces - punish	0.0006005	0.0005634	11971.14	-0.0005039	0.0017049	1.0657421	0.2865617
faces - random	0.0009681	0.0005643	11964.19	-0.0001380	0.0020742	1.7155713	0.0862664
faces - relational	0.0000961	0.0005688	11951.28	-0.0010188	0.0012111	0.1689960	0.8658026
faces - reward	0.0006125	0.0005634	11971.14	-0.0004919	0.0017170	1.0871836	0.2769776
faces - shapes	0.0003862	0.0005658	11937.12	-0.0007228	0.0014953	0.6826837	0.4948200
faces - story	0.0006511	0.0005829	11988.84	-0.0004914	0.0017936	1.1170621	0.2639901
faces - ToM	0.0017050	0.0005643	11964.19	0.0005989	0.0028111	3.0214562	0.0025209
match - math	0.0001995	0.0005854	11983.72	-0.0009480	0.0013470	0.3407158	0.7333235
match - motor	-0.0006887	0.0005692	11976.57	-0.0018045	0.0004271	-1.2098929	0.2263439
match - punish	0.0003062	0.0005664	11978.78	-0.0008040	0.0014164	0.5406799	0.5887383
match - random	0.0006739	0.0005673	11974.26	-0.0004382	0.0017859	1.1878193	0.2349282
match - relational	-0.0001981	0.0005712	11937.12	-0.0013177	0.0009215	-0.3468458	0.7287133
match - reward	0.0003183	0.0005664	11978.78	-0.0007919	0.0014285	0.5620097	0.5741199
match - shapes	0.0000920	0.0005688	11951.28	-0.0010230	0.0012070	0.1617465	0.8715082
match - story	0.0003569	0.0005854	11983.72	-0.0007907	0.0015044	0.6095779	0.5421530
match - ToM	0.0014108	0.0005673	11974.26	0.0002988	0.0025228	2.4867861	0.0129038
math - motor	-0.0008882	0.0005832	12009.56	-0.0020313	0.0002550	-1.5229611	0.1277948
math - punish	0.0001068	0.0005803	12007.02	-0.0010306	0.0012442	0.1839995	0.8540170
math - random	0.0004744	0.0005810	11995.59	-0.0006645	0.0016133	0.8164981	0.4142315
math - relational	-0.0003976	0.0005854	11983.72	-0.0015451	0.0007499	-0.6791294	0.4970690

contrast	estimate	SE	df	lower.CL	upper.CL	t.ratio	p.value
math - reward	0.0001188	0.0005803	12007.02	-0.0010186	0.0012563	0.2048188	0.8377171
math - shapes	-0.0001075	0.0005829	11988.84	-0.0012500	0.0010351	-0.1843581	0.8537356
math - story	0.0001574	0.0005967	11937.12	-0.0010123	0.0013271	0.2637652	0.7919654
math - ToM	0.0012113	0.0005810	11995.59	0.0000724	0.0023502	2.0848190	0.0371068
motor - punish	0.0009950	0.0005631	11956.36	-0.0001088	0.0020987	1.7669772	0.0772576
motor - random	0.0013626	0.0005650	11998.01	0.0002552	0.0024700	2.4118484	0.0158868
motor - relational	0.0004906	0.0005692	11976.57	-0.0006252	0.0016064	0.8618647	0.3887792
motor - reward	0.0010070	0.0005631	11956.36	-0.0000967	0.0021108	1.7884319	0.0737317
motor - shapes	0.0007807	0.0005667	11982.16	-0.0003300	0.0018915	1.3777824	0.1682962
motor - story	0.0010456	0.0005832	12009.56	-0.0000976	0.0021887	1.7928469	0.0730226
motor - ToM	0.0020995	0.0005650	11998.01	0.0009921	0.0032069	3.7162255	0.0002031
punish - random	0.0003676	0.0005616	11985.17	-0.0007333	0.0014685	0.6545534	0.5127679
punish - relational	-0.0005043	0.0005664	11978.78	-0.0016145	0.0006058	-0.8904690	0.3732320
punish - reward	0.0000121	0.0005597	11937.12	-0.0010850	0.0011091	0.0215854	0.9827791
punish - shapes	-0.0002142	0.0005634	11971.14	-0.0013186	0.0008902	-0.3802159	0.7037919
punish - story	0.0000506	0.0005803	12007.02	-0.0010868	0.0011880	0.0872493	0.9304748
punish - ToM	0.0011045	0.0005616	11985.17	0.0000036	0.0022055	1.9666083	0.0492514
random - relational	-0.0008720	0.0005673	11974.26	-0.0019840	0.0002400	-1.5370362	0.1243109
random - reward	-0.0003555	0.0005616	11985.17	-0.0014565	0.0007454	-0.6330439	0.5267170
random - shapes	-0.0005819	0.0005643	11964.19	-0.0016880	0.0005243	-1.0311040	0.3025129
random - story	-0.0003170	0.0005810	11995.59	-0.0014559	0.0008219	-0.5455986	0.5853521
random - ToM	0.0007369	0.0005618	11937.12	-0.0003644	0.0018382	1.3116383	0.1896674
relational - reward	0.0005164	0.0005664	11978.78	-0.0005938	0.0016266	0.9117989	0.3618929
relational - shapes	0.0002901	0.0005688	11951.28	-0.0008249	0.0014051	0.5100347	0.6100366
relational - story	0.0005550	0.0005854	11983.72	-0.0005925	0.0017025	0.9479915	0.3431529
relational - ToM	0.0016089	0.0005673	11974.26	0.0004969	0.0027209	2.8360030	0.0045759
reward - shapes	-0.0002263	0.0005634	11971.14	-0.0013307	0.0008781	-0.4016574	0.6879434
reward - story	0.0000385	0.0005803	12007.02	-0.0010989	0.0011760	0.0664300	0.9470366
reward - ToM	0.0010925	0.0005616	11985.17	-0.0000085	0.0021934	1.9450988	0.0517864
shapes - story	0.0002649	0.0005829	11988.84	-0.0008777	0.0014074	0.4543966	0.6495516
shapes - ToM	0.0013188	0.0005643	11964.19	0.0002126	0.0024249	2.3369889	0.0194562
story - ToM	0.0010539	0.0005810	11995.59	-0.0000850	0.0021928	1.8139194	0.0697151