Electronic Supplementary Material for

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Table S1. Intra-Class Correlations (ICC) and 95% Confidence Intervals (CI) for Specific Twin Family Dyads

Genetic		HEXACO personality traits																				
relation		Honesty-Humility Emotionality					Extraversion			Agreeableness			Conscientiousness			Openness		Average				
in %	n dyads	ICC	95% CI	р	ICC	95% CI	р	ICC	95% CI	р	ICC	95% CI	р	ICC	95% CI	р	ICC	95% CI	р	ICC		
100	221	.455	.343, .554	<.001	.599	.507, .677	<.001	.559	.461, .643	<.001	.462	.351, .560	<.001	.521	.418, .611	<.001	.658	.576, .727	<.001	.542		
50	352	.218	.116, .316	<.001	.161	.056, .261	.001	.263	.162, .358	<.001	.155	.051, .256	.002	.162	.058, .263	.001	.278	.178, .372	<.001	.206		
50	208	.142	.007, .273	.020	.141	.005, .272	.021	.253	.121, .376	<.001	.055	082, .189	.216	.244	.112, .368	<.001	.283	.153, .403	<.001	.186		
50	208	.157	.018, .290	.013	.094	046, .230	.093	.322	.192, .442	<.001	051	188, .089	.762	.127	013, .261	.037	.255	.120, .380	<.001	.151		
50	119	.174	005, .343	.028	.169	010, .338	.032	.219	.042, .383	.008	.089	092, .264	.168	.016	164, .194	.433	.160	019, .330	.040	.138		
50	119	.135	049, .310	.075	.190	.008, .361	.021	.248	.068, .412	.004	.138	046, .313	.070	.071	114, .250	.226	.263	.085, .426	.002	.174		
50	143	.098	067, .258	.121	.160	004, .315	.028	.185	.022, .388	.013	.190	.028, .342	.011	.137	027, .294	.050	.264	.105, .409	.001	.172		
50	60	.307	.061, .518	.008	046	293, .208	.637	.174	080, .408	.089	.023	229, .273	.429	.280	.032, .497	.014	.053	200, .301	.340	.132		
50	68	.158	081, .380	.096	.329	.101, .524	.003	.228	008, .441	.029	003	238, .234	.508	.195	043, .412	.053	.207	030, .423	.043	.186		
25	72	.002	228, .231	.494	.116	116, .337	.162	138	356, .095	.878	.086	145, .308	.233	039	266, .192	.630	.212	018, .421	.035	.040		
25	10	.244	393, .734	.224	.405	231, .807	.098	114	652, .519	.629	128	640, .478	.654	.442	188, .822	.078	220	711, .434	.744	.105		
25	11	.074	505, .619	.403	237	702, .386	.773	.233	374, .710	.224	.179	421, .681	.280	245	706, .379	.780	195	679, .424	.729	032		
25	10	152	674, .489	.672	.306	335, .763	.170	109	649, .522	.624	076	630, .546	.586	128	660, .508	.645	142	668, .498	.661	050		
25	8	.056	604, .691	.434	005	641, .658	.499	032	657, .643	.527	486	858, .257	.910	.149	540, .737	.339	302	788, .449	.787	103		
25	10	.586	.007, .877	.024	418	804, .239	.902	.383	255, .798	.112	.109	505, .663	.367	111	650, .521	.626	322	761, .340	.836	.038		
12.5	18	099	523, .370	.657	.082	379, .515	.366	.138	329, .556	.282	.161	308, .572	.251	.134	333, .553	.288	432	737, .025	.969	003		
0	100	.164	032, .348	.050	.139	058, .325	.083	.047	149, .240	.319	.149	048, .334	.068	.044	152, .238	.329	.355	.172, .515	<.001	.150		
0	228	.232	.107, .351	<.001	.014	115, .143	.415	.004	125, .132	.477	062	189, .068	.825	100	176, .081	.769	.287	.164, .401	<.001	.063		
0	109	.130	059, .309	.088	144	322, .044	.933	033	219, .154	.636	129	308, .060	.910	.118	070, .299	.108	.262	.079, .428	.003	.034		
0	114	.192	.009, .363	.020	.101	083, .279	.141	.237	.057, .403	.005	023	205, .160	.597	006	188, .178	.523	.120	064, .296	.101	.104		
0	52	.156	118, .408	.131	.180	094, .429	.097	234	473, .039	.954	.296	.029, .524	.015	133	388, .141	.830	002	271, .268	.506	.044		
0	40	.229	083, .500	.073	012	317, .296	.530	.099	214, .394	.268	.047	262, .349	.383	224	496, .163	.921	256	521, .104	.948	020		
0	34	097	414, .243	.711	141	451, .201	.791	.122	217, .437	.240	012	341, .322	.526	.040	294, .368	.408	.270	066, .553	.056	.030		
0	24	141	504, .268	.750	065	444, .338	.620	.082	319, .461	.346	021	408, .376	.539	.516	.157, .756	.004	.439	.058, .710	.013	.135		
0	54	.130	138, .382	.170	.139	130, .389	.154	.241	024, .476	.037	015	276, .248	.544	159	406, .110	.878	.247	018, .480	.034	.097		
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.382</math></td> <td>Geneticrelation<math>ICC95% CIpin %n dyads<math>ICC95% CIp100221.455.343,.554<.00150352.218.116,.316<.00150208.142.007,.273.02050208.157.018,.290.01350119.174.005,.343.02850119.135.049,.310.07550119.135.049,.310.07550143.098.067,.258.1215060.307.061,.518.00850638.158.081,.380.0965063.158.081,.380.0965063.158.081,.381.2245010.244.393,.734.2242510.254.677.0242510.586.007,.877.0242510.586.007,.877.02461.164.032,.348.05060.28.232.107,.351<.00161.164.130.158,.408.13160.144.192.009,.363.02061.144.192.009,.363.02163.156.118,.408.13164.130.244.138,.382.75065.158.033,.500.07365.158<</math></math></td> <td>GeneticHoresty-Humilityin %n dyadslCC95% Cl$p$$lCC$100221.455.343,.554<.001</td> .59950352.218.116,.316<.001	Genetic $Horresty-Humilin %n dyadsICC95% Cl100221.455.343, .55450352.218.116, .31650208.142.007, .27350208.157.018, .29050119.174.005, .34350119.135.049, .31050143.098.067, .2585060.307.061, .5185068.158.081, .3805068.158.081, .3802572.002.228, .2312510.244.393, 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Note. Dyads in boldface are part of the NTFM; dyads in italics are part of the SoTM; Bonferroni-corrected significant estimates ($p \le .002$) are shown in bold.

Table S2. Nuclear Twin Family Model Analyses: Fit Statistics

	Fit statistics										
Variables	-2logL	df	BIC*	Δ-2logL	Δdf	Δρ					
Honesty-Humility											
Starting model ($\delta = 0$; $s = 0$; $m = f$)	7149.905	2575	-1399.120								
<i>d</i> = 0	7153.359	2576	-1399.325	3.453	1	.063					
m = f = 0	7149.905	2576	-1401.052	0.000	1	>.999					
μ = 0	7152.425	2576	-1399.792	2.520	1	.112					
$d=m=f=\mu=0$	7154.781	2576	-1402.478	4.876	3	.181					
Emotionality											
Starting model ($\delta = 0$; $s = 0$; $m = f$)	7126.483	2581	-1422.422								
<i>d</i> = 0	7149.648	2582	-1412.771	23.165	1	<.001					
m = f = 0	7126.483	2582	-1424.353	0.000	1	>.999					
μ = 0	7127.945	2582	-1423.622	1.462	1	.227					
$m=f=\mu=0$	7127.945	2583	-1425.554	1.462	2	.482					
Extraversion											
Starting model ($\delta = 0$; $s = 0$; $m = f$)	7089.211	2581	-1441.058								
<i>d</i> = 0	7093.040	2582	-1441.075	3.829	1	.051					
m = f = 0	7089.220	2582	-1442.985	0.009	1	.925					
μ = 0	7090.940	2582	-1442.125	1.729	1	.189					
$d=m=f=\mu=0$	7093.221	2584	-1444.848	4.009	3	.260					
Agreeableness											
Starting model ($\delta = 0$; $s = 0$; $m = f$)	7222.448	2580	-1372.508								
<i>d</i> = 0	7243.300	2581	-1364.013	20.853	1	<.001					
m = f = 0	7222.448	2581	-1374.439	0.000	1	>.999					
μ = 0	7224.275	2581	-1373.526	1.828	1	.176					
$m = f = \mu = 0$	7224.275	2582	-1375.457	1.828	2	.401					
Conscientiousness											
Starting model ($\delta = 0$; $s = 0$; $m = f$)	7160.013	2581	-1405.657								
<i>d</i> = 0	7173.373	2582	-1400.909	13.359	1	<.001					
m = f = 0	7160.013	2582	-1407.588	0.000	1	>.999					
μ = 0	7160.239	2582	-1407.475	0.226	1	.634					
$m=f=\mu=0$	7160.239	2583	-1409.407	0.226	2	.893					
Openness											
Starting model ($\delta = 0$; $s = 0$; $m = f$)	6990.796	2581	-1490.265								
<i>d</i> = 0	7013.261	2582	-1480.965	22.465	1	<.001					
m = f = 0	6990.817	2582	-1492.187	0.020	1	.887					
μ = 0	7002.026	2582	-1486.582	11.229	1	.001					

Note. a: additive genetic parameter; *e*: nonshared environmental effects; *d*: nonadditive genetic effects due to emergenesis (perfectly correlated between MZ twins and $\delta = 0$ for DZ twins); *s*: sibling-specific shared environmental effects; *m* = *f*: maternal and paternal shared environmental effects assumed to be equal; μ : assortative mating. The best fitting model is shown in boldface.

*Sample-size adjusted

Fit statistics										
Variables	-2logL	df	BIC*	Δ-2logL	∆df	Δρ				
Honesty-Humility										
Starting full ADE model (a, d, e, μ , u, & $\nu \neq 0$)	7502.476	2707	-1480.183							
μ = 0	7502.476	2708	-1482.116	0.000	1	>.999				
<i>u</i> = 0	7508.646	2708	-1479.030	6.170	1	.013				
ν = 0	7503.830	2708	-1481.439	1.354	1	.245				
$\mu = v = 0$	7505.165	2709	-1482.704	2.688	2	.261				
Openness										
Starting full ADE model (a, d, e, μ , u, & v ≠ 0)	7370.553	2713	-1557.740							
μ = 0	7373.915	2714	-1557.992	3.362	1	.067				
<i>u</i> = 0	7370.565	2714	-1559.667	0.012	1	.914				
ν = 0	7370.570	2714	-1559.664	0.017	1	.898				
u = v = 0	7370.571	2715	-1561.596	0.018	2	.991				
$\mu = u = v = 0$	7406.474	2716	-1545.577	35.921	3	<.001				

Note. a: additive genetic parameter; *d*: nonadditive genetic effects due to emergenesis (perfectly correlated between MZ twins and $\delta = 0$ for DZ twins); *e*: nonshared environmental effects; μ : phenotypic assortment; *u*: social homogamy; v: spouse-specific interaction effects.

*Sample-size adjusted



Figure S1: Robust correlation estimates for HEXACO personality traits. HH: Honesty-Humility; Em: Emotionality; eX: Extraversion; Ag: Agreeableness; Co: Conscientiousness; Op: Openness. The correlations are based on an 8-group structural equation model (twin a, twin b, mothers, fathers, twin a's spouse, twin b's spouse, twin a's child, and twin b's child). The correlations could be constrained to be equal across groups without significant reduction of model fit (Δ -2logL = 89.12; Δdf = 105; Δp = .866). Exact *p*-values are shown in parentheses. Statistically significant correlations (*p* < .01) are shown in bold and with solid double-headed arrows.