**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 |
| Family dyad | in % | *n* dyads | *ICC* | 95% CI | *p* | *ICC* | 95% CI | *p* | *ICC* | 95% CI | *p* | *ICC* | 95% CI | *p* | *ICC* | 95% CI | *p* | *ICC* | 95% CI | *p* | *ICC* |
| ***MZ twin pair*** | 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 |
| ***DZ twin pair*** | 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 |
| **Twins' mother & twin a** | 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 |
| **Twins' mother & twin b** | 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 |
| **Twins' father & twin a** | 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 |
| **Twins' father & twin b** | 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 |
| Twin & offspring | 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 |
| Twin's spouse & offspring | 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 |
| MZ twin and cotwin's child | 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 |
| DZ twin and cotwin's child | 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 |
| Twins' mother & twin a's child | 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 |
| Twins' mother & twin b's child | 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 |
| Twins' father & twin a's child | 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 |
| Twins' father & twin b's child | 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 |
| MZ twins' offspring (cousins) | 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 |
| DZ twins' offspring (cousins) | 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 |
| **Twins' parents** | 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 |
| *Twin & spouse* | 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 |
| *MZ twin & cotwin's spouse* | 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 |
| *DZ twin & cotwin's spouse* | 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 |
| *MZ twins' spouses* | 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 |
| *DZ twins' spouses* | 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 |
| Mother & twins' spouse | 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 |
| Father & twins' spouse | 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 |
| Twin's spouse & cotwin's child | 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 |

*Note*. Dyads in boldface are part of the NTFM; dyads in italics are part of the SoTM; Bonferroni-corrected significant estimates ($p \leq .002$) are shown in bold.

**Table S2.** Nuclear Twin Family Model Analyses: Fit Statistics

| Variables | Fit statistics | | | | | |
|---|---|---|---|---|---|---|
| | -2logL | *df* | BIC* | Δ-2logL | Δ*df* | Δ*p* |
| Honesty-Humility | | | | | | |
| *Starting model* (δ = 0; *s* = 0; *m* = *f*) | 7149.905 | 2575 | -1399.120 | | | |
| *d* = 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* = μ = 0** | **7154.781** | **2576** | **-1402.478** | **4.876** | **3** | **.181** |
| Emotionality | | | | | | |
| *Starting model* (δ = 0; *s* = 0; *m* = *f*) | 7126.483 | 2581 | -1422.422 | | | |
| *d* = 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* = μ = 0** | **7127.945** | **2583** | **-1425.554** | **1.462** | **2** | **.482** |
| Extraversion | | | | | | |
| *Starting model* (δ = 0; *s* = 0; *m* = *f*) | 7089.211 | 2581 | -1441.058 | | | |
| *d* = 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* = μ = 0** | **7093.221** | **2584** | **-1444.848** | **4.009** | **3** | **.260** |
| Agreeableness | | | | | | |
| *Starting model* (δ = 0; *s* = 0; *m* = *f*) | 7222.448 | 2580 | -1372.508 | | | |
| *d* = 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* = μ = 0** | **7224.275** | **2582** | **-1375.457** | **1.828** | **2** | **.401** |
| Conscientiousness | | | | | | |
| *Starting model* (δ = 0; *s* = 0; *m* = *f*) | 7160.013 | 2581 | -1405.657 | | | |
| *d* = 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* = μ = 0** | **7160.239** | **2583** | **-1409.407** | **0.226** | **2** | **.893** |
| Openness | | | | | | |
| *Starting model* (δ = 0; *s* = 0; *m* = *f*) | 6990.796 | 2581 | -1490.265 | | | |
| *d* = 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 δ = 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

**Table S3.** Spouses-of-Twins Model Analyses: Fit Statistics

| Variables | Fit statistics | | | | | |
|---|---|---|---|---|---|---|
| | -2logL | *df* | BIC* | Δ-2logL | Δ*df* | Δ*p* |
| Honesty-Humility | | | | | | |
| *Starting full ADE model* (*a*, *d*, *e*, μ, *u*, & ν ≠ 0) | 7502.476 | 2707 | -1480.183 | | | |
| μ = 0 | 7502.476 | 2708 | -1482.116 | 0.000 | 1 | >.999 |
| *u* = 0 | 7508.646 | 2708 | -1479.030 | 6.170 | 1 | .013 |
| ν = 0 | 7503.830 | 2708 | -1481.439 | 1.354 | 1 | .245 |
| **μ = ν = 0** | **7505.165** | **2709** | **-1482.704** | **2.688** | **2** | **.261** |
| Openness | | | | | | |
| *Starting full ADE model* (*a*, *d*, *e*, μ, *u*, & ν ≠ 0) | 7370.553 | 2713 | -1557.740 | | | |
| μ = 0 | 7373.915 | 2714 | -1557.992 | 3.362 | 1 | .067 |
| *u* = 0 | 7370.565 | 2714 | -1559.667 | 0.012 | 1 | .914 |
| ν = 0 | 7370.570 | 2714 | -1559.664 | 0.017 | 1 | .898 |
| ***u* = ν = 0** | **7370.571** | **2715** | **-1561.596** | **0.018** | **2** | **.991** |
| μ = *u* = ν = 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 δ = 0 for DZ twins); *e*: nonshared environmental effects; μ: phenotypic assortment; *u*: social homogamy; ν: spouse-specific interaction effects.

*Sample-size adjusted

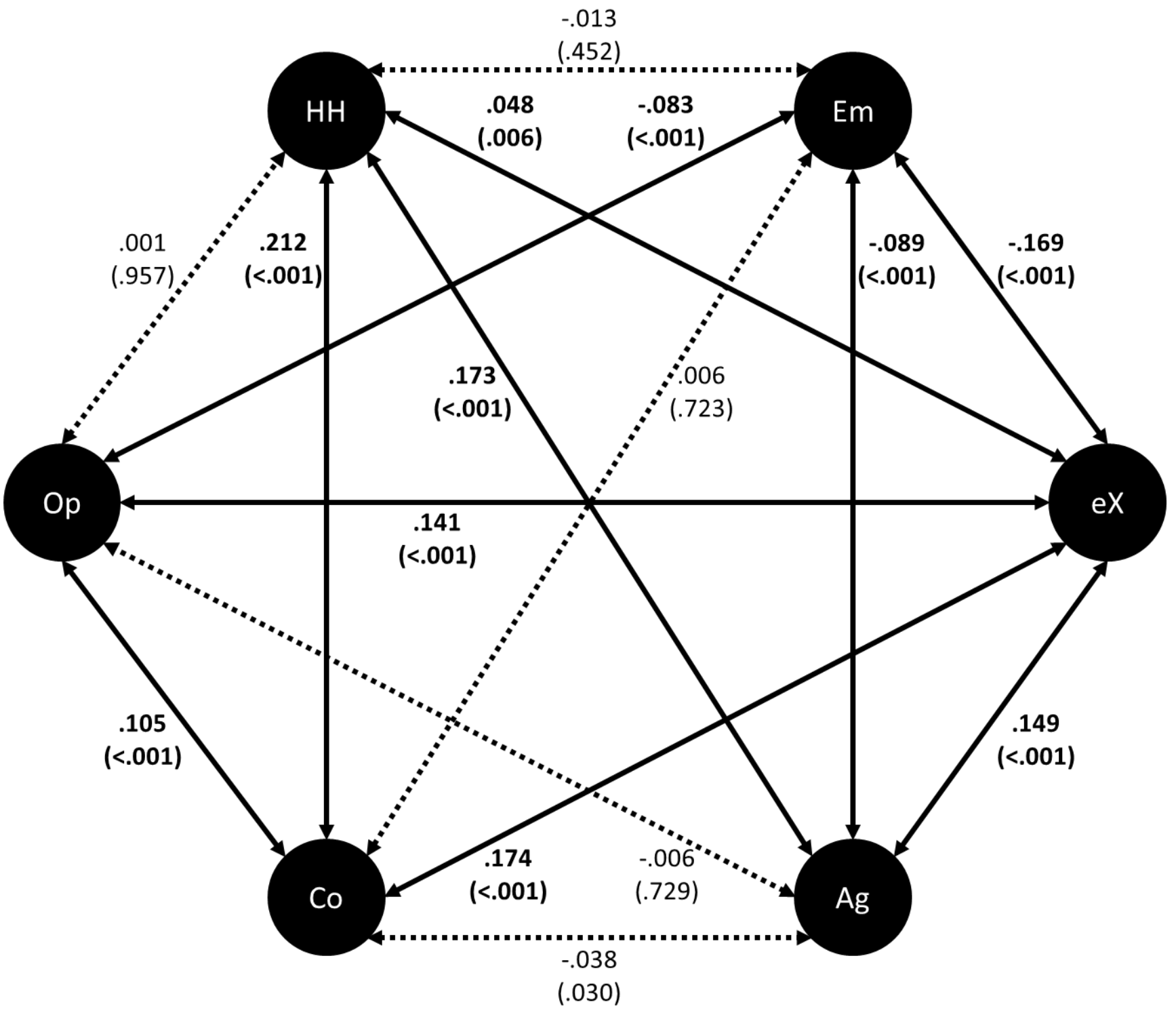


**Figure S1: Robust correlation estimates for HEXACO personality traits.** HH: Honesty-Humility; Em: Emotionality; eX: Extraversion; Ag: Agreeableness; Co: Conscientiousness; Op: Openness. The correlations are based on an 8-group structural equation model (twin a, twin b, mothers, fathers, twin a's spouse, 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; Δ*df* = 105; Δ*p* = .866). Exact *p*-values are shown in parentheses. Statistically significant correlations ($p < .01$) are shown in bold and with solid double-headed arrows.