Comparison of Versions of Kinship Links Joe Rodger's BG Team

November 19, 2013

Outcome: HeightZGenderAge;

Relationship Paths: (Gen1Housemates, Gen2Siblings, Gen2Cousins, ParentChild) [IDs:(1,2,3,4)];

Newer Links Version: 84; Older Links Version: 83;

Newer Links: Adds Gen1 back Older Links: Reverts to V82

R Groups specifically excluded: { }

Drop pair if housemates are not confirmed in the same generation: FALSE

1 Ace - Comparison of R Variants

(See the final table for an explanation of the different R variants.)

| R Variant | a_{new}^2 | c_{new}^2 | e_{new}^2 | N_{new} | a_{old}^2 | c_{old}^2 | e_{old}^2 | N_{old} |
|---------------|-------------|-------------|-------------|-----------|-------------|-------------|-------------|-----------|
| R | .75 | .06 | .19 | 19436 | .69 | .12 | .19 | 4288 |
| RFull | .69 | .08 | .23 | 20279 | .55 | .19 | .27 | 4928 |
| RExplicit | .75 | .06 | .19 | 18919 | .85 | .05 | .10 | 3878 |
| RImplicit | .71 | .07 | .22 | 18253 | .52 | .18 | .30 | 3818 |
| RImplicit2004 | .69 | .08 | .23 | 16331 | .69 | .13 | .18 | 2317 |

Table 1: Comparison of R Variants (by rows) and of Links Versions (left vs right side).

${\bf 2}\quad Subgroups-R$

| R | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_2^2 | $s_{1,2}$ | r | Determinant | PosDefinite |
|-------|-----------------|-------------|-------------|-------------|-------------|---------|-----------|-------|-------------|-------------|
| 0.016 | FALSE | 0 | | | | | | | | FALSE |
| 0.031 | TRUE | 71 | -0.14 | -0.30 | 1.51 | 0.60 | -0.16 | -0.17 | 0.9 | TRUE |
| 0.062 | TRUE | 241 | 0.13 | -0.08 | 1.07 | 0.82 | 0.14 | 0.14 | 0.9 | TRUE |
| 0.125 | TRUE | 2038 | -0.07 | 0.03 | 1.01 | 0.99 | 0.17 | 0.17 | 1.0 | TRUE |
| 0.250 | TRUE | 2160 | -0.05 | -0.06 | 1.03 | 1.06 | 0.27 | 0.26 | 1.0 | TRUE |
| 0.375 | TRUE | 46 | 0.22 | -0.11 | 1.07 | 0.96 | 0.43 | 0.42 | 0.8 | TRUE |
| 0.500 | TRUE | 14853 | -0.06 | -0.02 | 0.96 | 0.99 | 0.41 | 0.43 | 0.8 | TRUE |
| 0.750 | FALSE | 0 | | | | | | | | FALSE |
| 1.000 | TRUE | 27 | -0.11 | -0.13 | 0.69 | 0.99 | 0.69 | 0.83 | 0.2 | TRUE |

Table 2: R – Newer Version of Links

| R | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_2^2 | $s_{1,2}$ | r | Determinant | PosDefinite |
|-------|-----------------|-------------|-------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.062 | TRUE | 39 | -0.41 | -0.12 | 0.84 | 0.83 | 0.24 | 0.29 | 0.6 | TRUE |
| 0.125 | TRUE | 64 | -0.18 | -0.56 | 0.81 | 0.94 | 0.10 | 0.12 | 0.8 | TRUE |
| 0.250 | TRUE | 280 | 0.05 | 0.06 | 1.02 | 1.18 | 0.27 | 0.24 | 1.1 | TRUE |
| 0.500 | TRUE | 3894 | -0.05 | -0.03 | 0.97 | 1.02 | 0.47 | 0.47 | 0.8 | TRUE |
| 1.000 | TRUE | 11 | -0.09 | -0.01 | 0.32 | 0.95 | 0.36 | 0.65 | 0.2 | TRUE |

Table 3: R - Older Version of Links

3 Subgroups – RFull

| RFull | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_{2}^{2} | $s_{1,2}$ | r | Determinant | PosDefinite |
|-------|-----------------|-------------|-------------|-------------|-------------|-------------|-----------|-------|-------------|-------------|
| 0.000 | TRUE | 656 | -0.01 | -0.02 | 0.94 | 0.79 | 0.19 | 0.23 | 0.7 | TRUE |
| 0.016 | TRUE | 12 | -0.85 | 0.07 | 0.34 | 0.09 | 0.02 | 0.12 | 0.0 | TRUE |
| 0.031 | TRUE | 117 | 0.05 | -0.23 | 1.55 | 0.53 | -0.17 | -0.18 | 0.8 | TRUE |
| 0.062 | TRUE | 245 | 0.11 | -0.09 | 1.07 | 0.82 | 0.13 | 0.14 | 0.9 | TRUE |
| 0.094 | TRUE | 12 | 0.23 | -0.21 | 0.85 | 0.01 | 0.00 | 0.05 | 0.0 | TRUE |
| 0.125 | TRUE | 2075 | -0.06 | 0.03 | 1.01 | 0.99 | 0.17 | 0.17 | 1.0 | TRUE |
| 0.188 | TRUE | 5 | 1.28 | 0.25 | 0.42 | 0.49 | -0.08 | -0.17 | 0.2 | TRUE |
| 0.250 | TRUE | 2172 | -0.05 | -0.06 | 1.03 | 1.06 | 0.26 | 0.25 | 1.0 | TRUE |
| 0.375 | TRUE | 60 | 0.23 | 0.02 | 1.17 | 0.98 | 0.40 | 0.37 | 1.0 | TRUE |
| 0.500 | TRUE | 14887 | -0.06 | -0.02 | 0.96 | 0.98 | 0.41 | 0.43 | 0.8 | TRUE |
| 0.750 | TRUE | 11 | -0.14 | 0.10 | 0.87 | 0.81 | 0.66 | 0.79 | 0.3 | TRUE |
| 1.000 | TRUE | 27 | -0.11 | -0.13 | 0.69 | 0.99 | 0.69 | 0.83 | 0.2 | TRUE |

Table 4: RFull – Newer Version of Links

| RFull | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_{2}^{2} | $s_{1,2}$ | r | Determinant | PosDefinite |
|-------|-----------------|-------------|-------------|-------------|-------------|-------------|-----------|------|-------------|-------------|
| 0.000 | TRUE | 537 | 0.02 | -0.02 | 0.95 | 0.81 | 0.21 | 0.24 | 0.7 | TRUE |
| 0.062 | TRUE | 43 | -0.45 | -0.14 | 0.81 | 0.81 | 0.19 | 0.24 | 0.6 | TRUE |
| 0.125 | TRUE | 92 | -0.02 | -0.47 | 0.95 | 0.99 | 0.16 | 0.17 | 0.9 | TRUE |
| 0.250 | TRUE | 292 | 0.04 | 0.07 | 1.00 | 1.16 | 0.25 | 0.23 | 1.1 | TRUE |
| 0.375 | TRUE | 14 | 0.24 | 0.44 | 1.61 | 0.86 | 0.31 | 0.26 | 1.3 | TRUE |
| 0.500 | TRUE | 3928 | -0.05 | -0.03 | 0.97 | 1.02 | 0.46 | 0.47 | 0.8 | TRUE |
| 0.750 | TRUE | 11 | -0.14 | 0.10 | 0.87 | 0.81 | 0.66 | 0.79 | 0.3 | TRUE |
| 1.000 | TRUE | 11 | -0.09 | -0.01 | 0.32 | 0.95 | 0.36 | 0.65 | 0.2 | TRUE |

Table 5: RFull – Older Version of Links

4 Subgroups – RExplicit

| RExplicit | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_{2}^{2} | $s_{1,2}$ | r | Determinant | PosDefinite |
|-----------|-----------------|-------------|-------------|-------------|-------------|-------------|-----------|------|-------------|-------------|
| 0.000 | TRUE | 52 | -0.03 | 0.25 | 0.75 | 0.87 | 0.19 | 0.23 | 0.6 | TRUE |
| 0.062 | TRUE | 203 | 0.23 | -0.08 | 1.05 | 0.83 | 0.11 | 0.12 | 0.9 | TRUE |
| 0.094 | TRUE | 14 | 0.30 | -0.00 | 0.87 | 0.27 | 0.09 | 0.19 | 0.2 | TRUE |
| 0.125 | TRUE | 1969 | -0.06 | 0.04 | 1.02 | 0.98 | 0.16 | 0.16 | 1.0 | TRUE |
| 0.250 | TRUE | 2035 | -0.06 | -0.07 | 1.05 | 1.06 | 0.29 | 0.28 | 1.0 | TRUE |
| 0.375 | TRUE | 216 | 0.04 | 0.01 | 0.92 | 1.14 | 0.17 | 0.17 | 1.0 | TRUE |
| 0.500 | TRUE | 14414 | -0.06 | -0.02 | 0.96 | 0.98 | 0.41 | 0.43 | 0.8 | TRUE |
| 1.000 | TRUE | 16 | -0.13 | -0.21 | 0.99 | 1.06 | 0.95 | 0.92 | 0.2 | TRUE |

Table 6: RExplicit – Newer Version of Links

| RExplicit | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_{2}^{2} | $s_{1,2}$ | r | Determinant | PosDefinite |
|-----------|-----------------|-------------|-------------|-------------|-------------|-------------|-----------|------|-------------|-------------|
| 0.000 | TRUE | 41 | -0.06 | 0.34 | 0.82 | 1.05 | 0.22 | 0.24 | 0.8 | TRUE |
| 0.062 | FALSE | 2 | -0.01 | -1.21 | 0.22 | 0.26 | 0.24 | 1.00 | 0.0 | FALSE |
| 0.250 | TRUE | 268 | 0.06 | 0.07 | 1.07 | 1.21 | 0.29 | 0.26 | 1.2 | TRUE |
| 0.375 | TRUE | 36 | -0.07 | 0.04 | 1.03 | 1.08 | 0.33 | 0.32 | 1.0 | TRUE |
| 0.500 | TRUE | 3533 | -0.05 | -0.02 | 0.96 | 1.02 | 0.47 | 0.47 | 0.8 | TRUE |

Table 7: R
Explicit – Older Version of Links $\,$

${\bf 5}\quad {\bf Subgroups-RImplicit}$

| RImplicit | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_{2}^{2} | $s_{1,2}$ | r | Determinant | PosDefinite |
|-----------|-----------------|-------------|-------------|-------------|-------------|-------------|-----------|------|-------------|-------------|
| 0.000 | TRUE | 297 | 0.11 | 0.03 | 0.93 | 0.66 | 0.06 | 0.07 | 0.6 | TRUE |
| 0.062 | TRUE | 94 | -0.36 | -0.23 | 1.20 | 0.85 | 0.29 | 0.28 | 0.9 | TRUE |
| 0.125 | TRUE | 1610 | -0.02 | 0.04 | 1.05 | 1.00 | 0.17 | 0.16 | 1.0 | TRUE |
| 0.250 | TRUE | 1906 | -0.06 | -0.09 | 1.03 | 1.02 | 0.26 | 0.26 | 1.0 | TRUE |
| 0.500 | TRUE | 14330 | -0.05 | -0.01 | 0.96 | 0.99 | 0.41 | 0.42 | 0.8 | TRUE |
| 0.750 | FALSE | 0 | | | | | | | | FALSE |
| 1.000 | TRUE | 16 | -0.13 | -0.21 | 0.99 | 1.06 | 0.95 | 0.92 | 0.2 | TRUE |

Table 8: RImplicit – Newer Version of Links

| RImplicit | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_{2}^{2} | $s_{1,2}$ | r | Determinant | PosDefinite |
|-----------|-----------------|-------------|-------------|-------------|-------------|-------------|-----------|------|-------------|-------------|
| 0.000 | TRUE | 183 | 0.07 | -0.04 | 0.90 | 0.72 | 0.14 | 0.17 | 0.6 | TRUE |
| 0.250 | TRUE | 163 | -0.02 | 0.01 | 0.83 | 0.87 | 0.19 | 0.22 | 0.7 | TRUE |
| 0.500 | TRUE | 3472 | -0.03 | -0.02 | 0.98 | 1.02 | 0.44 | 0.45 | 0.8 | TRUE |

Table 9: RImplicit – Older Version of Links

${\bf 6}\quad Subgroups-RImplicit 2004\\$

| RImplicit2004 | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_{1}^{2} | s_{2}^{2} | $s_{1,2}$ | r | Determinant | PosDefinite |
|---------------|-----------------|-------------|-------------|-------------|-------------|-------------|-----------|-------|-------------|-------------|
| 0.031 | TRUE | 80 | 0.29 | -0.03 | 1.36 | 0.60 | 0.19 | 0.21 | 0.8 | TRUE |
| 0.062 | TRUE | 32 | -0.49 | -0.34 | 0.90 | 0.23 | 0.07 | 0.15 | 0.2 | TRUE |
| 0.094 | TRUE | 184 | 0.12 | 0.13 | 0.95 | 0.94 | 0.14 | 0.14 | 0.9 | TRUE |
| 0.125 | TRUE | 923 | -0.12 | 0.04 | 0.91 | 1.05 | 0.19 | 0.20 | 0.9 | TRUE |
| 0.188 | TRUE | 25 | 0.17 | 0.27 | 0.68 | 0.51 | -0.15 | -0.26 | 0.3 | TRUE |
| 0.250 | TRUE | 1509 | -0.08 | -0.10 | 1.00 | 1.02 | 0.26 | 0.26 | 1.0 | TRUE |
| 0.375 | TRUE | 1268 | -0.06 | -0.05 | 0.99 | 0.97 | 0.34 | 0.35 | 0.8 | TRUE |
| 0.500 | TRUE | 12265 | -0.05 | -0.01 | 0.96 | 0.98 | 0.41 | 0.42 | 0.8 | TRUE |
| 0.750 | TRUE | 30 | 0.02 | 0.03 | 0.60 | 0.91 | 0.42 | 0.57 | 0.4 | TRUE |
| 1.000 | TRUE | 15 | -0.07 | -0.19 | 1.01 | 1.13 | 1.00 | 0.93 | 0.2 | TRUE |

Table 10: R Implicit
2004 – Newer Version of Links

| RImplicit2004 | Included in SEM | N_{Pairs} | \bar{x}_1 | \bar{x}_2 | s_1^2 | s_{2}^{2} | $s_{1,2}$ | r | Determinant | PosDefinite |
|---------------|-----------------|-------------|-------------|-------------|---------|-------------|-----------|------|-------------|-------------|
| 0.125 | TRUE | 73 | -0.07 | -0.25 | 0.79 | 1.01 | 0.12 | 0.13 | 0.8 | TRUE |
| 0.250 | TRUE | 43 | -0.13 | -0.07 | 0.75 | 1.04 | 0.22 | 0.25 | 0.7 | TRUE |
| 0.375 | TRUE | 306 | -0.02 | 0.02 | 0.94 | 1.14 | 0.46 | 0.44 | 0.9 | TRUE |
| 0.500 | TRUE | 1865 | -0.00 | -0.00 | 0.95 | 0.98 | 0.45 | 0.47 | 0.7 | TRUE |
| 0.750 | TRUE | 30 | 0.02 | 0.03 | 0.60 | 0.91 | 0.42 | 0.57 | 0.4 | TRUE |

Table 11: R Implicit
2004 – Older Version of Links

7 Explanation of R Variants

| Variant | Explanation |
|-----------------------|---|
| \overline{R} | We recommend researchers typical use this version. |
| R_{Full} | The most complete version we have; doesn't exclude groups like $R=0$. |
| R_{Pass1} | Supposed to be fooled only by errors in the subject's/mother's knowledge |
| RImplicit | Uses only implicit items |
| $RImplicit_{Pass1}$ | Uses only implicit items & supposed to be fooled only by knowledge errors |
| $RImplicit_{Mother}$ | Uses only mother's implicit items (exists only for Gen2) |
| $RImplicit_{Subject}$ | Uses only subject's implicit items |
| $RImplicit_{2004}$ | The state of the links in 2004. Rodgers & Rowe for Gen1; Rodgers, Johnson & Bard for Gen2 |
| RExplicit | Uses only explicit items |
| $RExplicit_{Pass1}$ | Uses only explicit items & supposed to be fooled only by knowledge errors |