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

October 24, 2013

Outcome: HeightZGenderAge;

RelationshipPath: Gen1Housemates [ID:1]; Newer Links Version: 83; Older Links Version: 82;

Newer Links: Reverts to V82

Older Links: Failed attempt to bring back part of V74 Uses parents' birthyear

at 0, 5, 15, +; disconfirms; unlikely

R Groups specifically excluded: { 0, 0.0625 }

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              | .90         | .00         | .10         | 4119      | .90         | .00         | .10         | 4119      |
| RFull          | .90         | .00         | .10         | 4212      | .90         | .00         | .10         | 4212      |
| RExplicit      | .81         | .05         | .15         | 3728      | .81         | .05         | .15         | 3728      |
| RImplicit      | .57         | .14         | .28         | 3534      | .55         | .15         | .29         | 3535      |
| RImplicitPass1 | .37         | .25         | .38         | 822       | .37         | .25         | .38         | 822       |
| RImplicit2004  | .75         | .09         | .16         | 2262      | .75         | .09         | .16         | 2262      |

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

### 2 Subgroups – R

| R     | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_2^2$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|-------|-----------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.062 | FALSE           | 37          | 0.79        | 0.98    | 0.38      | 0.43 | 0.6         | TRUE        |
| 0.125 | TRUE            | 63          | 0.95        | 0.95    | 0.09      | 0.10 | 0.9         | TRUE        |
| 0.250 | TRUE            | 267         | 0.99        | 1.13    | 0.27      | 0.25 | 1.0         | TRUE        |
| 0.500 | TRUE            | 3778        | 0.98        | 1.02    | 0.44      | 0.44 | 0.8         | TRUE        |
| 1.000 | TRUE            | 11          | 0.29        | 0.61    | 0.37      | 0.89 | 0.0         | TRUE        |

Table 2: R – Newer Version of Links

| $\overline{R}$ | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_2^2$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|----------------|-----------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.062          | FALSE           | 48          | 0.78        | 0.85    | 0.35      | 0.43 | 0.5         | TRUE        |
| 0.125          | TRUE            | 63          | 0.95        | 0.95    | 0.09      | 0.10 | 0.9         | TRUE        |
| 0.250          | TRUE            | 267         | 0.99        | 1.13    | 0.27      | 0.25 | 1.0         | TRUE        |
| 0.500          | TRUE            | 3778        | 0.98        | 1.02    | 0.44      | 0.44 | 0.8         | TRUE        |
| 1.000          | TRUE            | 11          | 0.29        | 0.61    | 0.37      | 0.89 | 0.0         | TRUE        |

Table 3: R - Older Version of Links

# 3 Subgroups – RFull

| RFull | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_2^2$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|-------|-----------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.000 | FALSE           | 512         | 0.94        | 0.82    | 0.21      | 0.24 | 0.7         | TRUE        |
| 0.062 | FALSE           | 41          | 0.77        | 0.96    | 0.32      | 0.37 | 0.6         | TRUE        |
| 0.125 | TRUE            | 88          | 0.91        | 0.95    | 0.15      | 0.16 | 0.8         | TRUE        |
| 0.250 | TRUE            | 279         | 0.97        | 1.12    | 0.25      | 0.24 | 1.0         | TRUE        |
| 0.375 | TRUE            | 13          | 1.61        | 1.01    | 0.48      | 0.38 | 1.4         | TRUE        |
| 0.500 | TRUE            | 3811        | 0.98        | 1.02    | 0.44      | 0.44 | 0.8         | TRUE        |
| 0.750 | TRUE            | 10          | 0.78        | 0.76    | 0.55      | 0.71 | 0.3         | TRUE        |
| 1.000 | TRUE            | 11          | 0.29        | 0.61    | 0.37      | 0.89 | 0.0         | TRUE        |

Table 4: RFull – Newer Version of Links

| RFull | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_2^2$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|-------|-----------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.000 | FALSE           | 523         | 0.94        | 0.82    | 0.21      | 0.24 | 0.7         | TRUE        |
| 0.062 | FALSE           | 50          | 0.81        | 0.87    | 0.32      | 0.38 | 0.6         | TRUE        |
| 0.125 | TRUE            | 88          | 0.91        | 0.95    | 0.15      | 0.16 | 0.8         | TRUE        |
| 0.250 | TRUE            | 279         | 0.97        | 1.12    | 0.25      | 0.24 | 1.0         | TRUE        |
| 0.375 | TRUE            | 13          | 1.61        | 1.01    | 0.48      | 0.38 | 1.4         | TRUE        |
| 0.500 | TRUE            | 3811        | 0.98        | 1.02    | 0.44      | 0.44 | 0.8         | TRUE        |
| 0.750 | TRUE            | 10          | 0.78        | 0.76    | 0.55      | 0.71 | 0.3         | TRUE        |
| 1.000 | TRUE            | 11          | 0.29        | 0.61    | 0.37      | 0.89 | 0.0         | TRUE        |

Table 5: RFull – Older Version of Links

### 4 Subgroups – RExplicit

| RExplicit | Included in SEM | $N_{Pairs}$ | $s_1^2$ | $s_{2}^{2}$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|-----------|-----------------|-------------|---------|-------------|-----------|------|-------------|-------------|
| 0.000     | FALSE           | 40          | 0.80    | 1.00        | 0.20      | 0.22 | 0.8         | TRUE        |
| 0.062     | FALSE           | 2           | 0.07    | 0.29        | 0.15      | 1.00 | 0.0         | FALSE       |
| 0.250     | TRUE            | 257         | 1.04    | 1.15        | 0.30      | 0.27 | 1.1         | TRUE        |
| 0.375     | TRUE            | 34          | 1.01    | 1.18        | 0.27      | 0.25 | 1.1         | TRUE        |
| 0.500     | TRUE            | 3437        | 0.97    | 1.02        | 0.44      | 0.45 | 0.8         | TRUE        |

Table 6: RExplicit – Newer Version of Links

| RExplicit | Included in SEM | $N_{Pairs}$ | $s_1^2$ | $s_{2}^{2}$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|-----------|-----------------|-------------|---------|-------------|-----------|------|-------------|-------------|
| 0.000     | FALSE           | 40          | 0.80    | 1.00        | 0.20      | 0.22 | 0.8         | TRUE        |
| 0.062     | FALSE           | 2           | 0.07    | 0.29        | 0.15      | 1.00 | 0.0         | FALSE       |
| 0.250     | TRUE            | 257         | 1.04    | 1.15        | 0.30      | 0.27 | 1.1         | TRUE        |
| 0.375     | TRUE            | 34          | 1.01    | 1.18        | 0.27      | 0.25 | 1.1         | TRUE        |
| 0.500     | TRUE            | 3437        | 0.97    | 1.02        | 0.44      | 0.45 | 0.8         | TRUE        |

Table 7: RExplicit – Older Version of Links

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

| RImplicit | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_{2}^{2}$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|-----------|-----------------|-------------|-------------|-------------|-----------|------|-------------|-------------|
| 0.000     | FALSE           | 178         | 0.97        | 0.78        | 0.23      | 0.26 | 0.7         | TRUE        |
| 0.250     | TRUE            | 157         | 0.83        | 0.88        | 0.21      | 0.25 | 0.7         | TRUE        |
| 0.500     | TRUE            | 3377        | 0.98        | 0.98        | 0.42      | 0.43 | 0.8         | TRUE        |

Table 8: RImplicit – Newer Version of Links

| RImplicit | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_2^2$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|-----------|-----------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.000     | FALSE           | 243         | 0.93        | 0.87    | 0.26      | 0.29 | 0.7         | TRUE        |
| 0.250     | TRUE            | 158         | 0.83        | 0.88    | 0.22      | 0.25 | 0.7         | TRUE        |
| 0.500     | TRUE            | 3377        | 0.98        | 0.98    | 0.42      | 0.43 | 0.8         | TRUE        |

Table 9: RImplicit – Older Version of Links

## ${\bf 6}\quad {\bf Subgroups-RImplicitPass 1}$

| RImplicitPass1 | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_2^2$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|----------------|-----------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.000          | FALSE           | 1           |             |         |           |      |             | _           |
| 0.500          | TRUE            | 822         | 0.94        | 1.01    | 0.42      | 0.44 | 0.8         | TRUE        |

Table 10: RImplicitPass1 – Newer Version of Links

| RImplicitPass1 | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_2^2$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|----------------|-----------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.000          | FALSE           | 1           |             |         |           |      |             |             |
| 0.500          | TRUE            | 822         | 0.94        | 1.01    | 0.42      | 0.44 | 0.8         | TRUE        |

Table 11: RImplicitPass1 – Older Version of Links

# ${\bf 7}\quad {\bf Subgroups-RImplicit 2004}$

| RImplicit2004 | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_2^2$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|---------------|-----------------|-------------|-------------|---------|-----------|------|-------------|-------------|
| 0.125         | TRUE            | 70          | 0.78        | 0.94    | 0.03      | 0.04 | 0.7         | TRUE        |
| 0.250         | TRUE            | 42          | 0.77        | 0.98    | 0.22      | 0.25 | 0.7         | TRUE        |
| 0.375         | TRUE            | 297         | 0.96        | 1.22    | 0.51      | 0.47 | 0.9         | TRUE        |
| 0.500         | TRUE            | 1823        | 0.96        | 0.96    | 0.44      | 0.45 | 0.7         | TRUE        |
| 0.750         | TRUE            | 30          | 0.65        | 0.90    | 0.46      | 0.60 | 0.4         | TRUE        |

Table 12: R<br/>Implicit<br/>2004 – Newer Version of Links  $\,$ 

| RImplicit2004 | Included in SEM | $N_{Pairs}$ | $s_{1}^{2}$ | $s_{2}^{2}$ | $s_{1,2}$ | r    | Determinant | PosDefinite |
|---------------|-----------------|-------------|-------------|-------------|-----------|------|-------------|-------------|
| 0.125         | TRUE            | 70          | 0.78        | 0.94        | 0.03      | 0.04 | 0.7         | TRUE        |
| 0.250         | TRUE            | 42          | 0.77        | 0.98        | 0.22      | 0.25 | 0.7         | TRUE        |
| 0.375         | TRUE            | 297         | 0.96        | 1.22        | 0.51      | 0.47 | 0.9         | TRUE        |
| 0.500         | TRUE            | 1823        | 0.96        | 0.96        | 0.44      | 0.45 | 0.7         | TRUE        |
| 0.750         | TRUE            | 30          | 0.65        | 0.90        | 0.46      | 0.60 | 0.4         | TRUE        |

Table 13: RImplicit2004 – Older Version of Links

# 8 Explanation of R Variants

| Variant               | Explanation   |  |  |  |
|-----------------------|---|--|--|--|
| 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                 |  |  |  |