

Is there a general factor of personality? Probably not.

Presented as part of a symposium on the Structure of Personality
49th Annual Meeting of the Society of Multivariate Experimental
Psychology

Shalishan, Oregon, October 8-11, 2009


William Revelle and Joshua Wilt

Northwestern University

The claim

- I. “A recent hypothesis is that a General Factor of Personality occupies the apex of the hierarchical structure of personality in the same way that g, the general factor of mental ability, occupies the apex in the organization of cognitive ability.” Rushton and Irwing, 2009. p 571
- II. Hofstee (2001): the p factor of personality: “the Primordial One”

Recent Claims



The K-factor, Covitality, and personality
A Psychometric Test of Life History Theory

Journal	Human Nature
Publisher	Springer New York
ISSN	1045-6767 (Print) 1936-4776 (Online)
Issue	Volume 18, Number 1 / March, 2007
DOI	10.1007/BF02820846
Pages	47-73
Subject Collection	Humanities, Social Sciences and Law
SpringerLink Date	Thursday, January 25, 2007

PDF (1.7 MB)

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2007

Journal of Research in Personality 42 (2008) 1173–1185



Contents lists available at ScienceDirect

Journal of Research in Personality

journal homepage: www.elsevier.com/locate/jrp



2008

The genetics and evolution of the general factor of personality

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Even more claims

Personality and Individual Differences 45 (2008) 679–683



Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid



2008

A General Factor of Personality (GFP) from two meta-analyses of the Big Five: Digman (1997) and Mount, Barrick, Scullen, and Rounds (2005)

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Personality and Individual Differences 46 (2009) 437–442



Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid



2009

A general factor of personality in the Comrey Personality Scales, the Minnesota Multiphasic Personality Inventory-2, and the Multicultural Personality Questionnaire

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Papers given at ISSID 2009

3.14 Wednesday 10:00 - 12:00: Is There a General Factor of Personality?

J. Philippe *Rushton* (University of Western Ontario, Canada) & Paul *Irwing* (University of Manchester, UK)

3.14.1 The Genetics and Evolution of the General Factor of Personality

J.P. *Rushton* (University of Western Ontario, Canada)

3.14.2 Just One GFP in Four Data Sets From the Same Sample

P. *Irwing* (University of Manchester, UK)

3.14.3 Trans-Cultural Stability of the Highest-Order Factor of Personality

J. *Musek* (University of Ljubljana, Slovenia)

3.14.4 The General Factor of Personality: A Large Meta-Analysis ($k = 212$, $N = 144,000$) and Criterion Validity Study

D. *van der Linden* & J. *te Nijenhuis* (University of Nijmegen, The Netherlands)

3.14.5 A General Factor of Personality in the Big-5 and Trait Emotional Intelligence and the Big-5 and Mental Toughness

L. *Veselka* & J.A. *Schermer* (University of Western Ontario, Canada), & K.V. *Petrides* (University of London, UK) & P.A. *Vernon* (University of Western Ontario, Canada)

And even more

Personality and Individual Differences 47 (2009) 571–576



Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid



2009

A General Factor of Personality (GFP) from the Multidimensional Personality Questionnaire

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^b Manchester Business School, University of Manchester, Manchester M13 9PL, UK

Based upon implausible (impossible) solutions

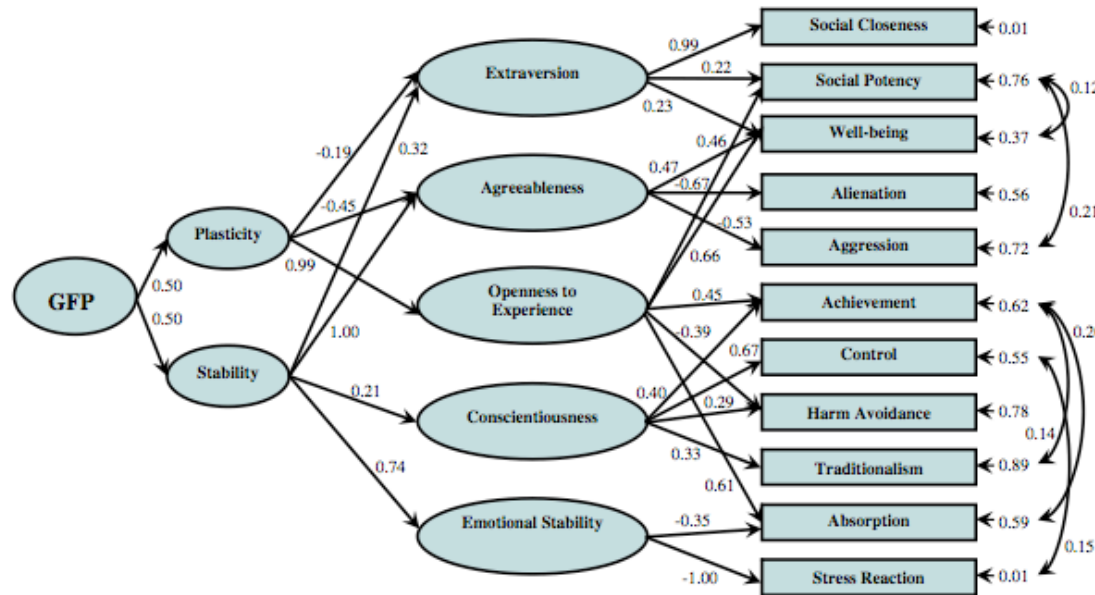


Fig. 1. MPQ third-order confirmatory common factor structure. (Ellipses enclose factors, boxes enclose indicators. Long unidirectional arrows represent factor loadings, short arrows unexplained variance, and double-headed arrows depict correlated errors. GFP = General Factor of Personality.)

claim that GFP accounts for 25% of “first order factors”

23% based on multilevel structure

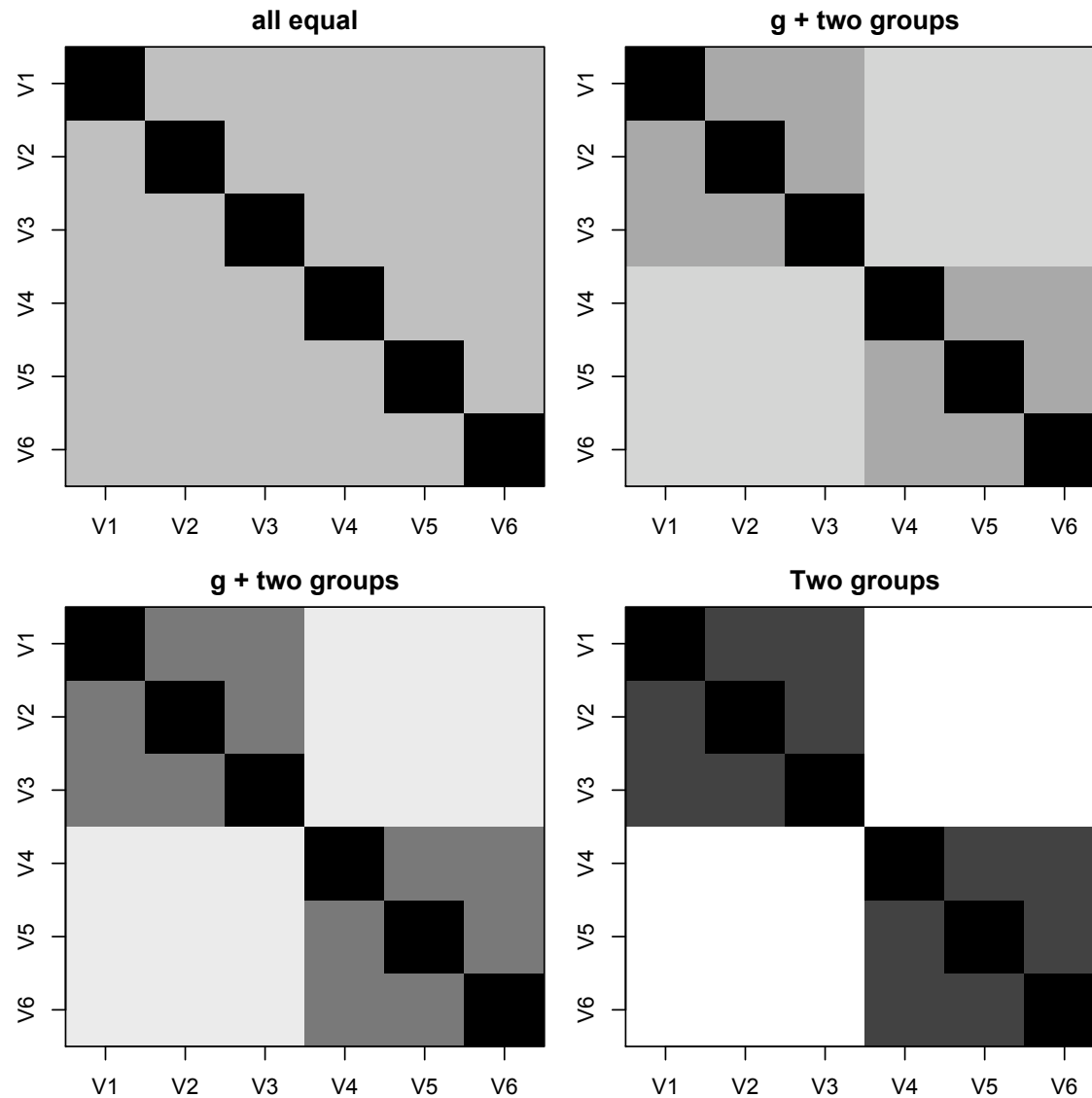
Rushton and Irwing, 2009

Personality and Individual Differences 47 (2009) 571–576

Is the General Factor of Personality really general?

- I. Ways of estimating a general factor
- II. Comparisons with g of ability
- III. General factors from uncorrelated factors
- IV. Why there could be a general factor (but probably isn't)

Viewing g : using R graphics



Estimating a general factor

I. Magnitude of first factor -- NO

II. Loadings of lower order factors on a higher order factor -- NO

III. McDonald's omega hierarchical -- YES

A. Exploratory procedure - using omega function in the psych package in R ω_h

B. ICLUST to estimate β the worst split half reliability

C. Confirmatory procedure - using the sem package

Estimating a general factor: the MPQ

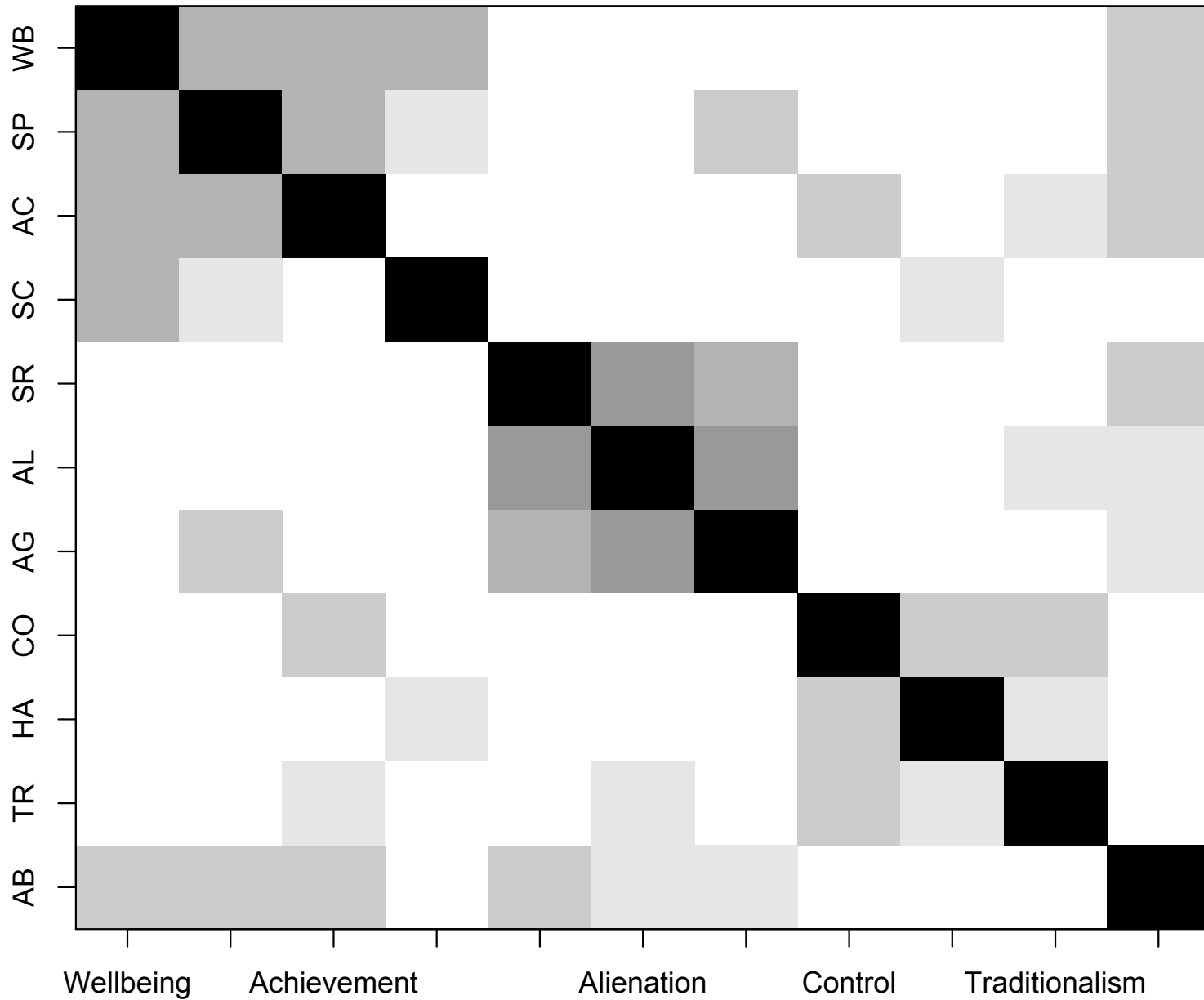
I. Graphical description

II. Exploratory Factoring using minres

III. Omega solutions

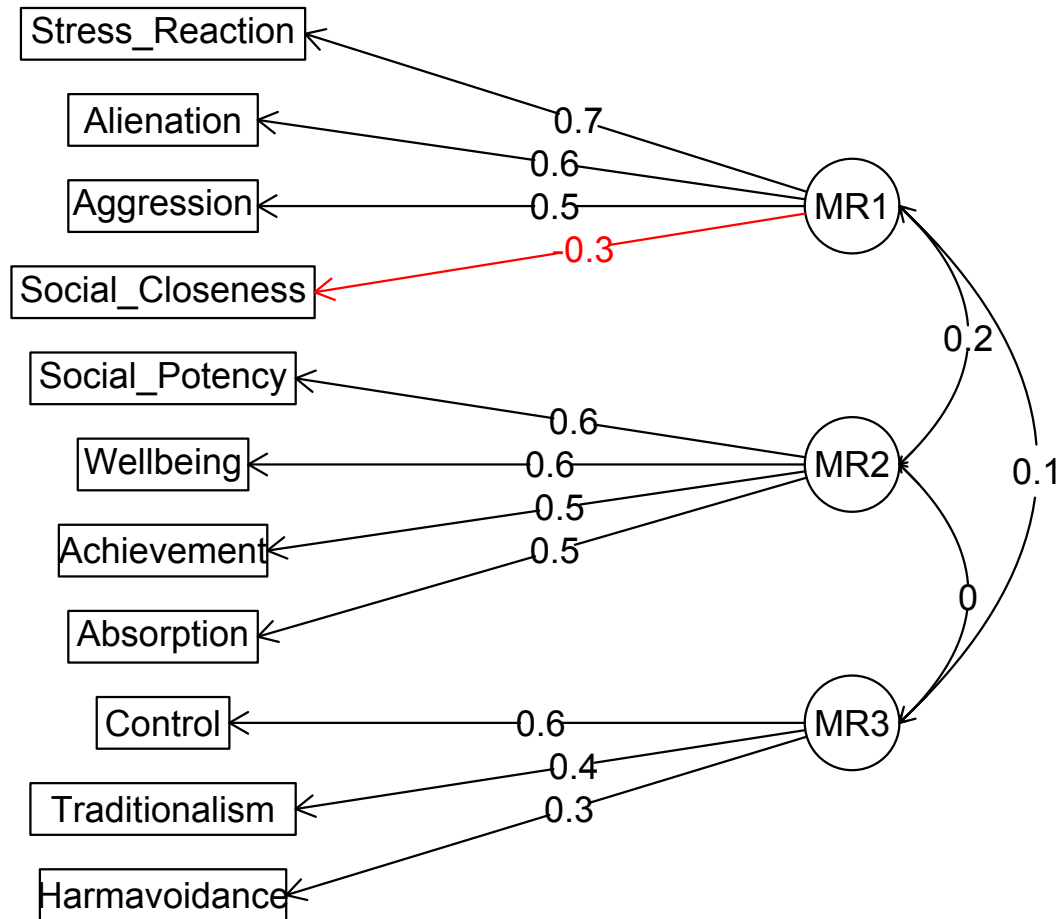
IV. ICLUST

Correlation plot of MPQ



MinRes with oblimin

Oblimin transformation of MPQ

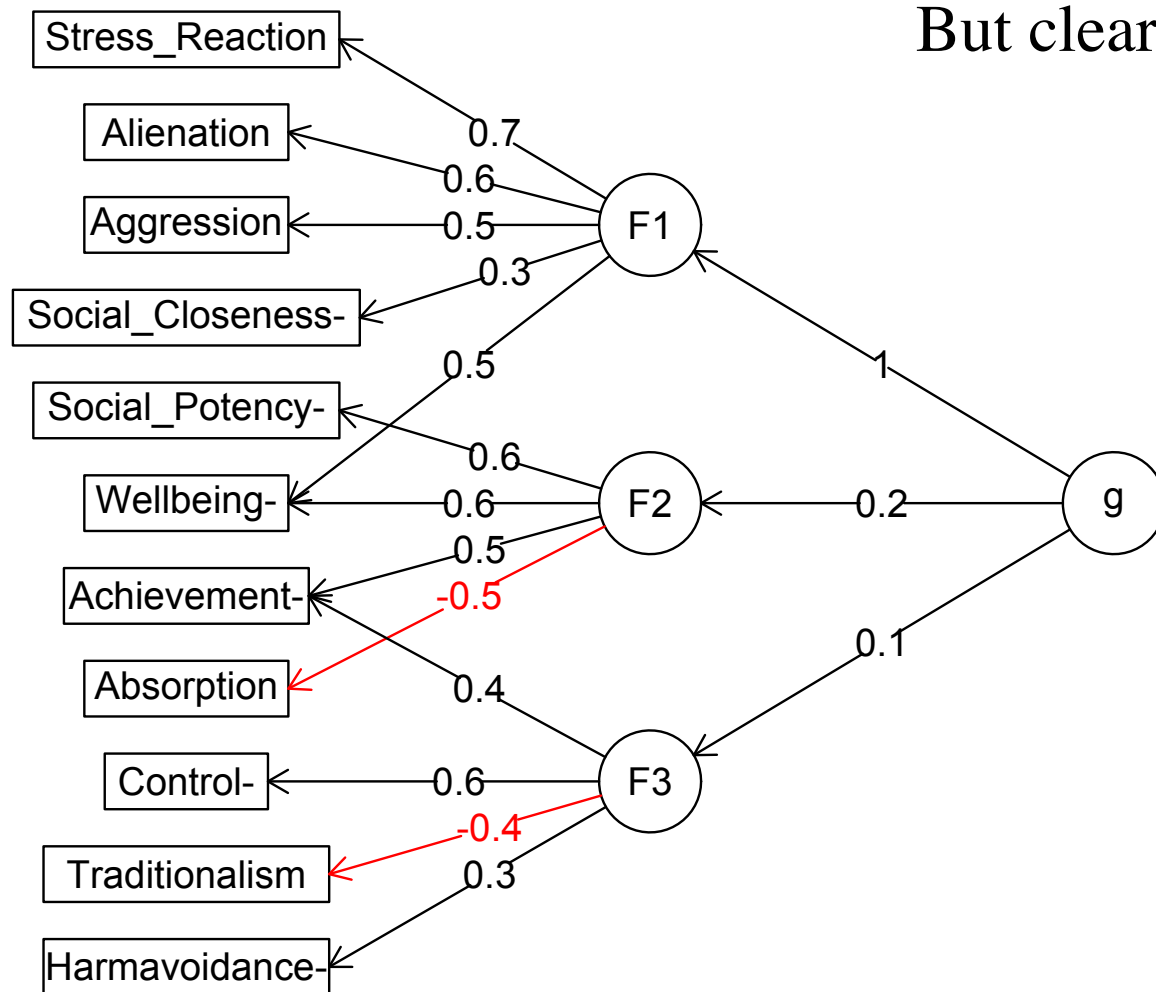


Exploratory solution

Hierarchical (multilevel) Structure

$$\omega_h = .53$$

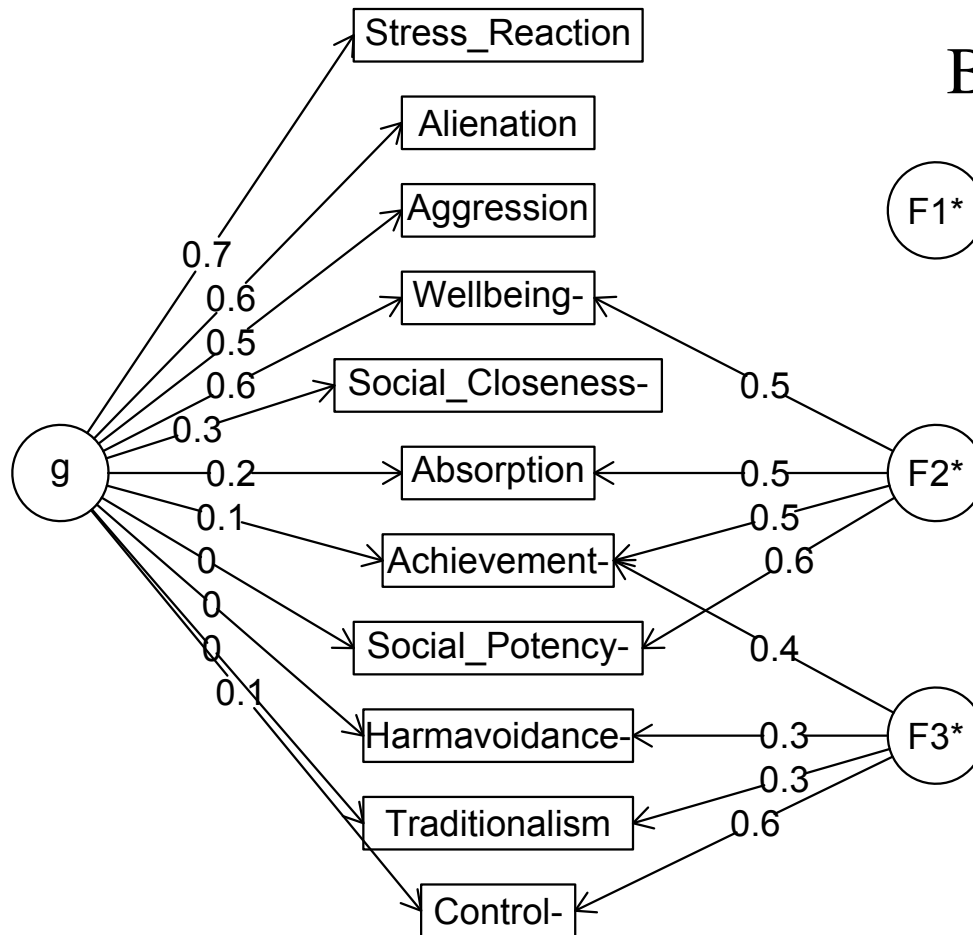
But clearly due to F₁



Omega with Schmid Leiman Transformation

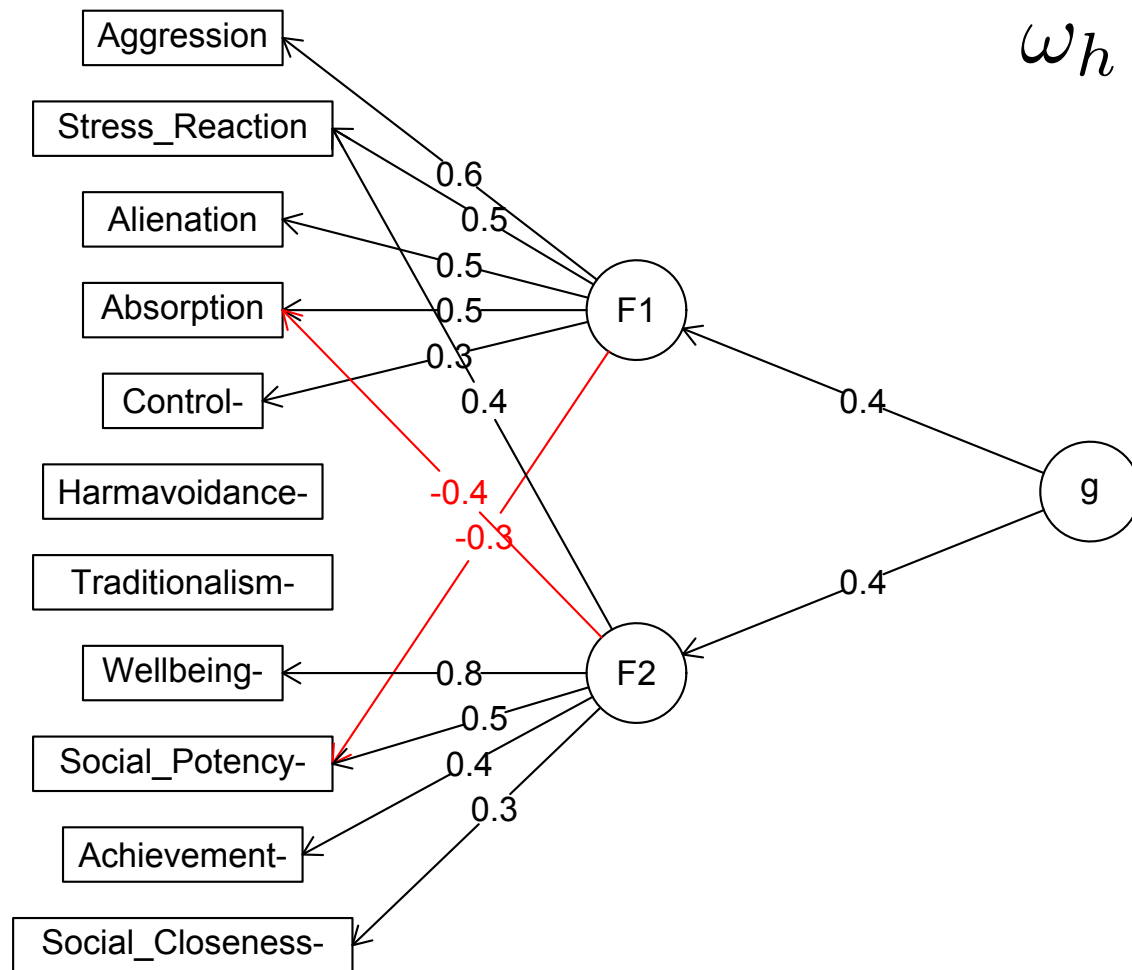
$$\omega_h = .53$$

But clearly due to F₁

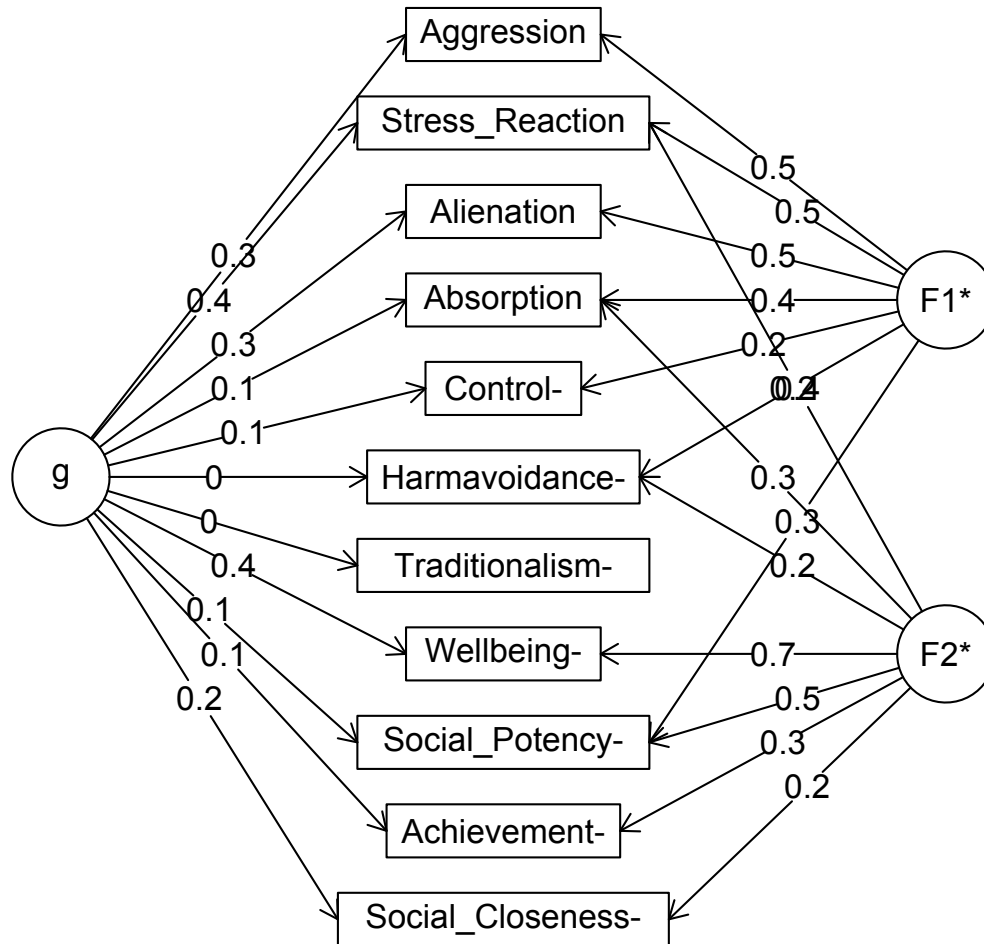


Hierarchical (multilevel) Structure

$$\omega_h = .17$$



Omega with Schmid Leiman Transformation

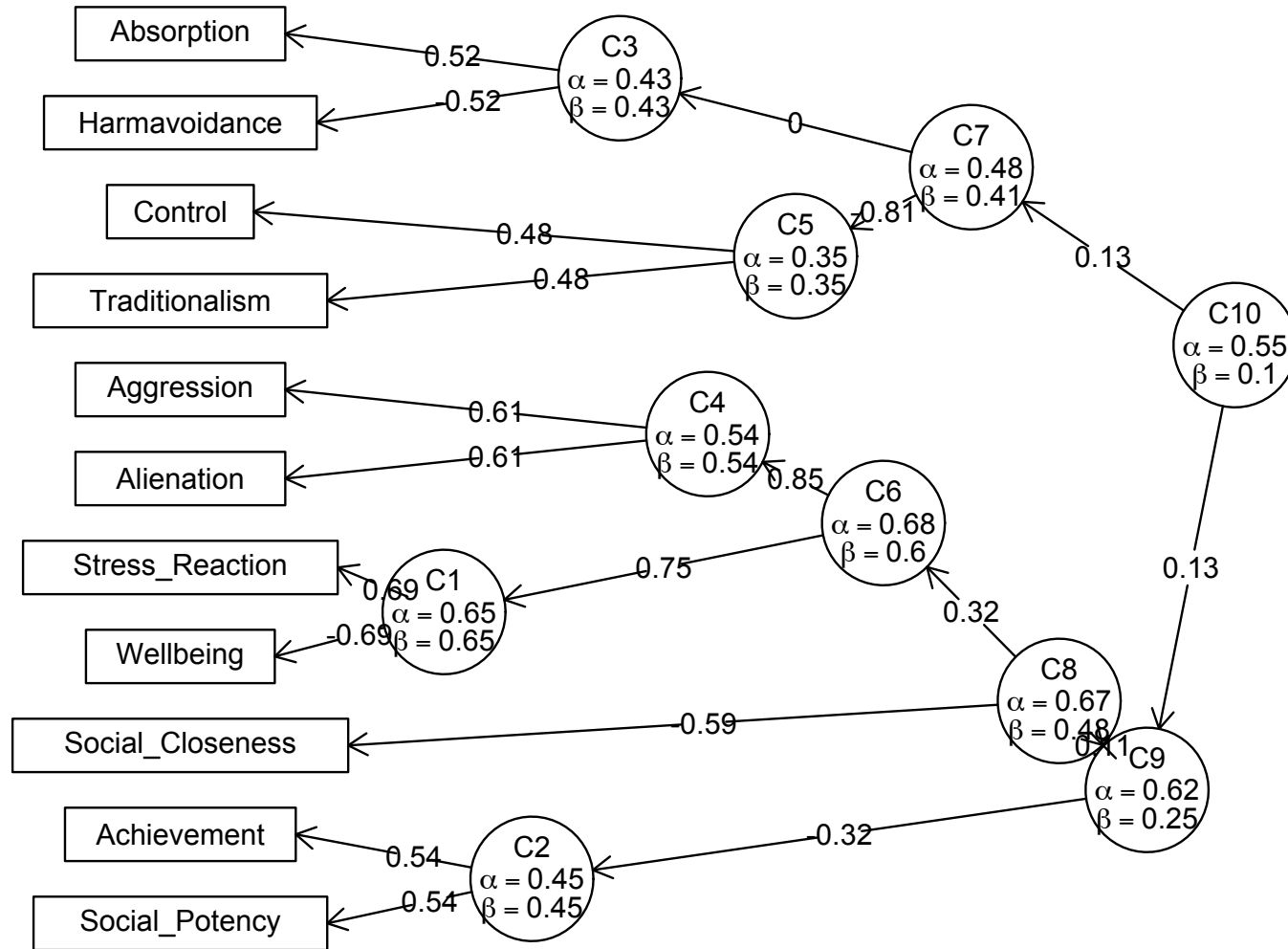


$$\omega_h = .17$$

ICLUST of MPQ

General factor
based upon worst
split half

$$\beta = .10$$



Comparing GFP to g

I. Classic cognitive data sets

A. Thurstone 9 variables

B. Holzinger 14 variables (example of bifactor)

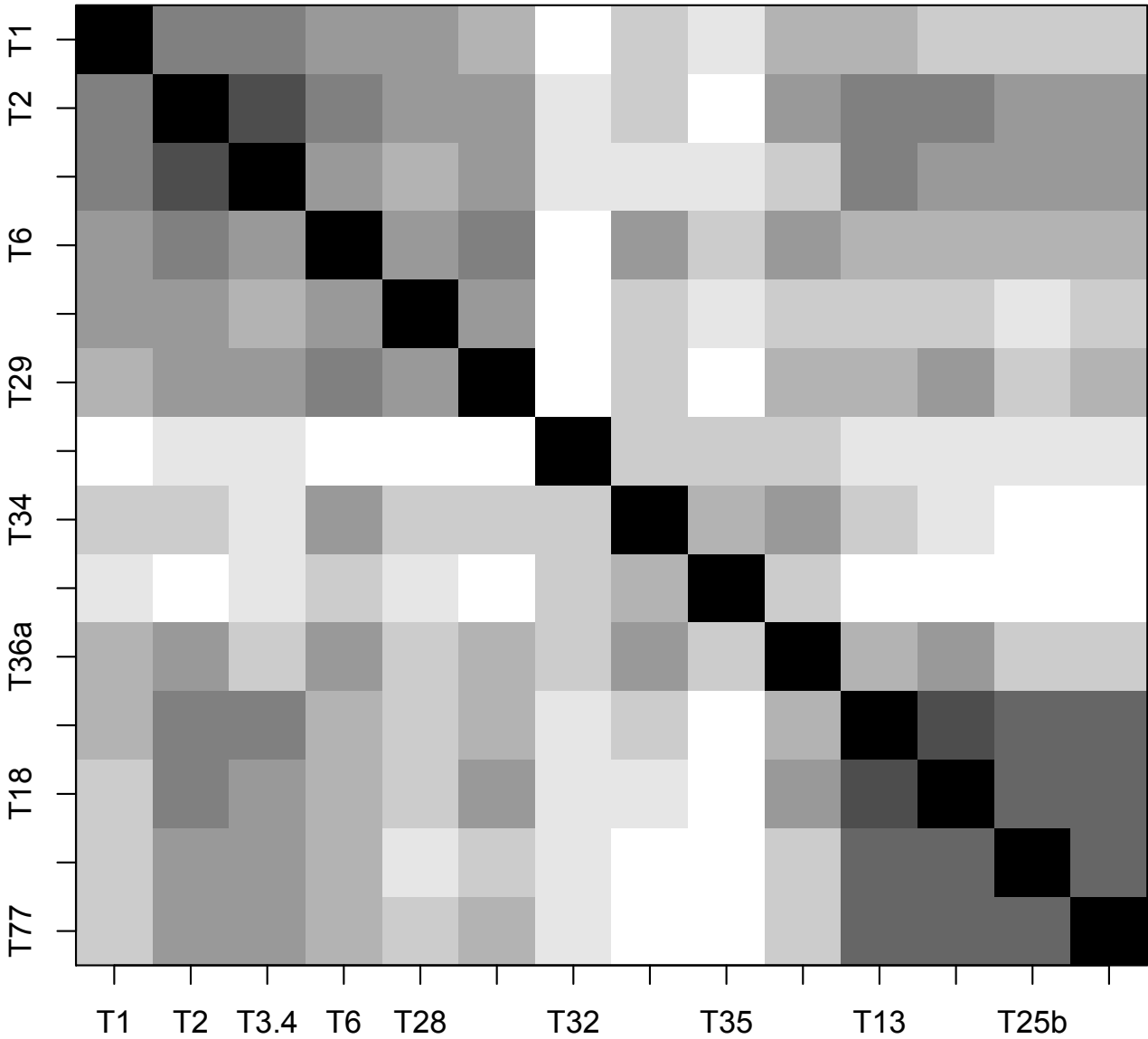
II. Purported GFP results

A. MPQ

B. Digman's data sets

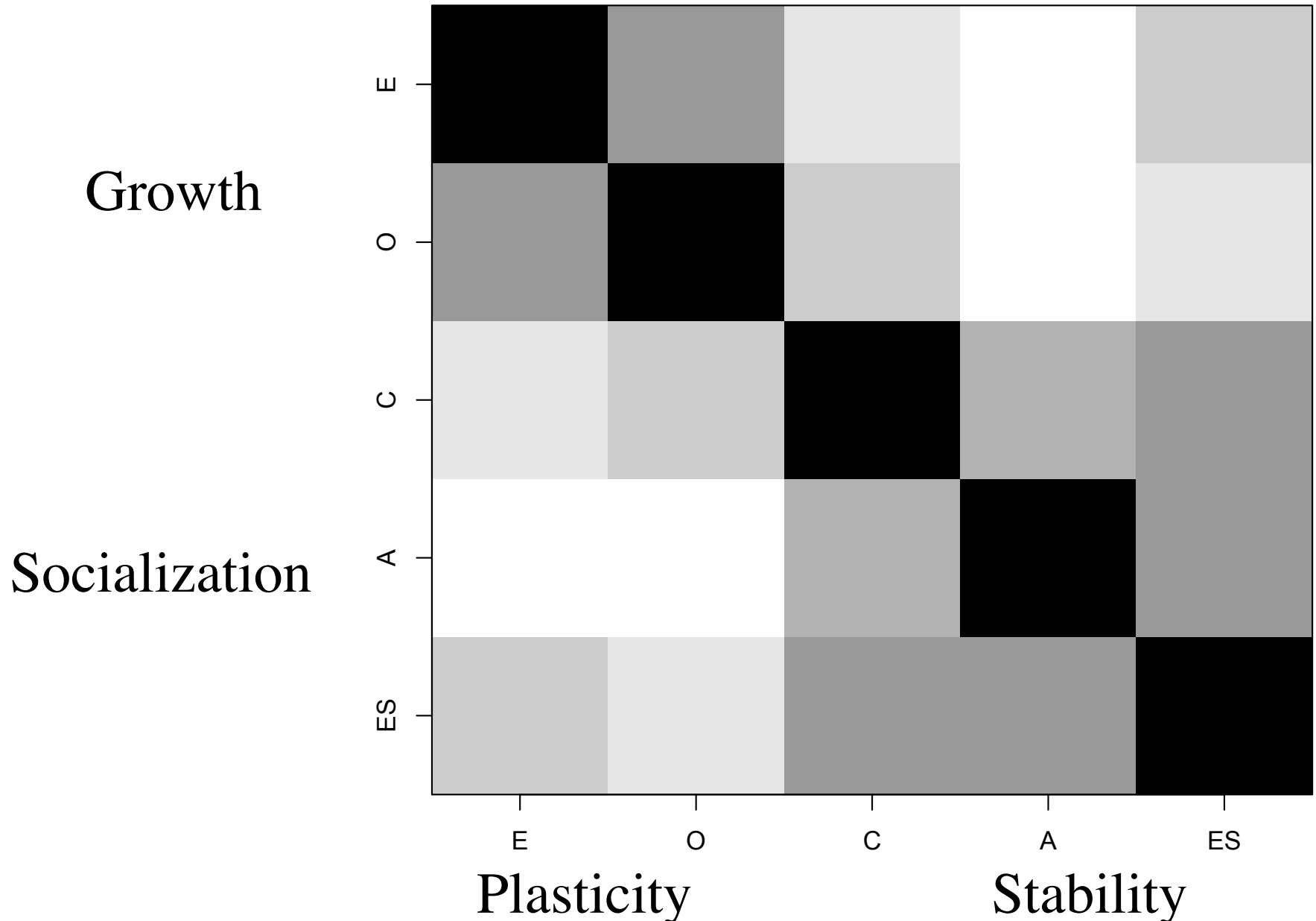
Correlation plot of 14 cognitive variables from Holzinger

$\omega = .71$

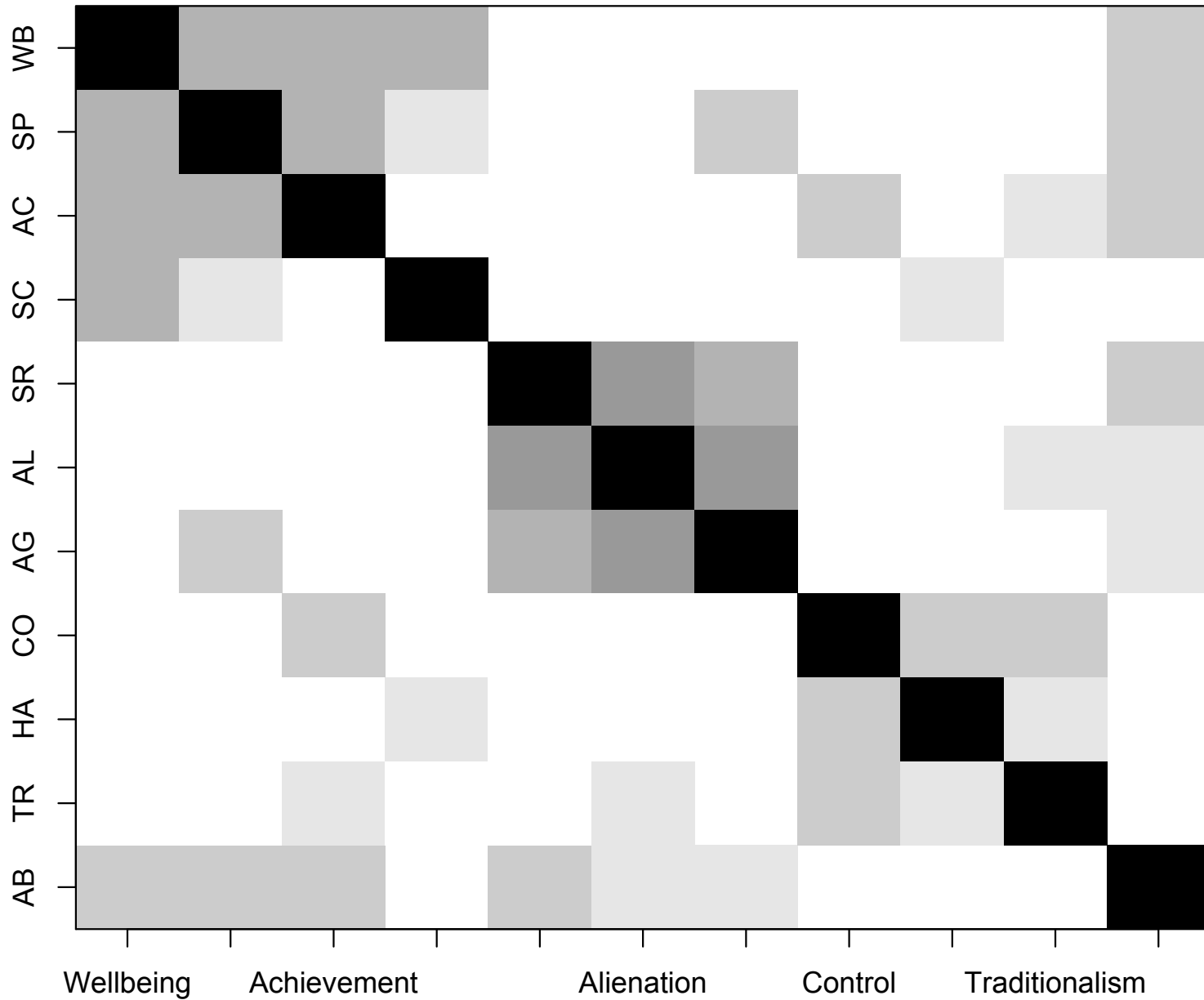


Correlation plot of Digman meta analysis

$\omega = .35$

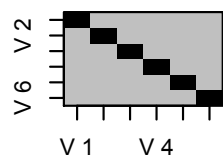


Correlation plot of MPQ

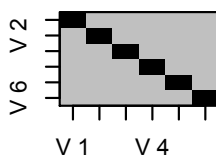


Interocular Trauma test

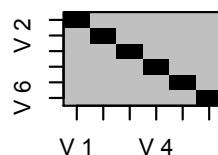
S1: all equal
 $\omega = .72$



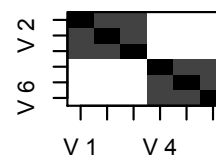
S2: g + two groups
 $\omega = .49$



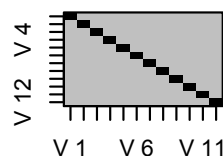
S3: g + two groups
 $\omega = .25$



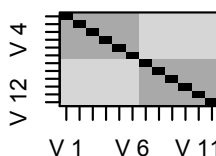
S4: two groups
 $\omega = .0$



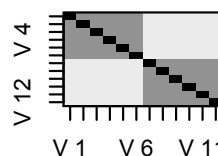
S5: all equal
 $\omega = .70$



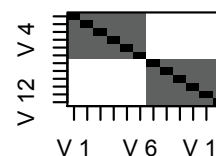
S6: g + two groups
 $\omega = .57$



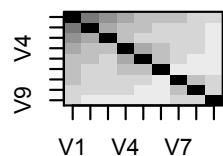
S7: g + two groups
 $\omega = .29$



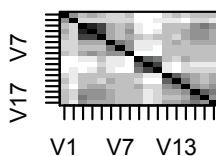
S8: two groups
 $\omega = .0$



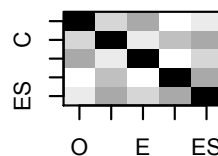
Jensen
 $\omega = .69$



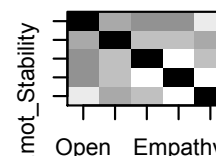
Bechtold
 $\omega = .67$



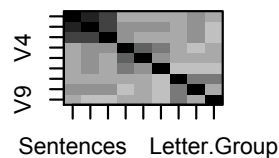
Digman
 $\omega = .35$



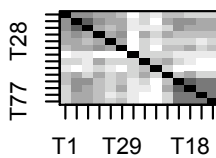
MPQ
 $\omega = .31$



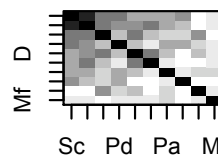
Thurstone
 $\omega = .79$



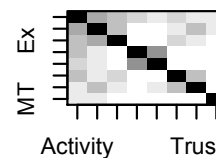
Holzinger
 $\omega = .71$



MMPI
 $\omega = .31$



Comrey
 $\omega = .29$

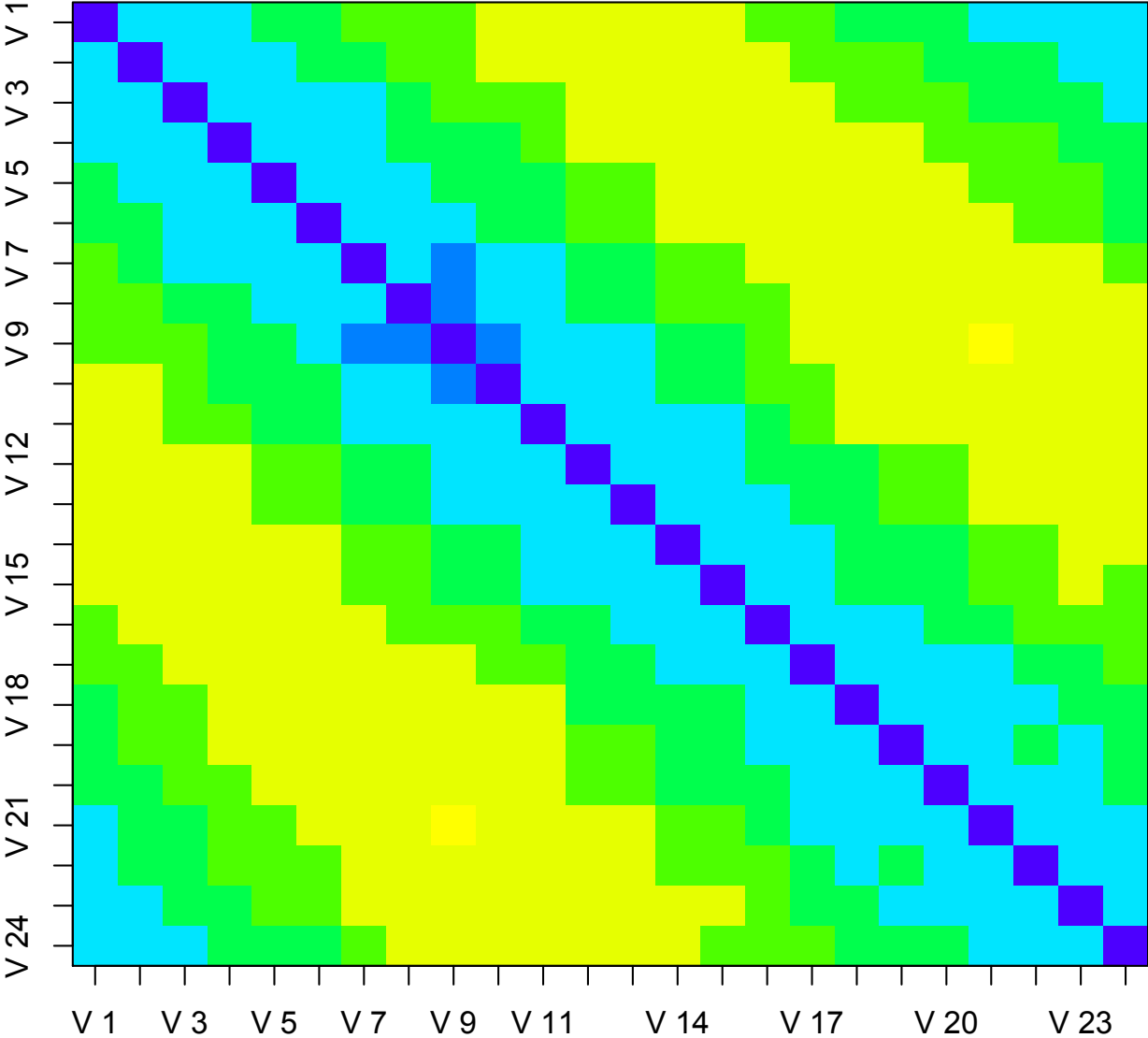


Creating g when it is not there

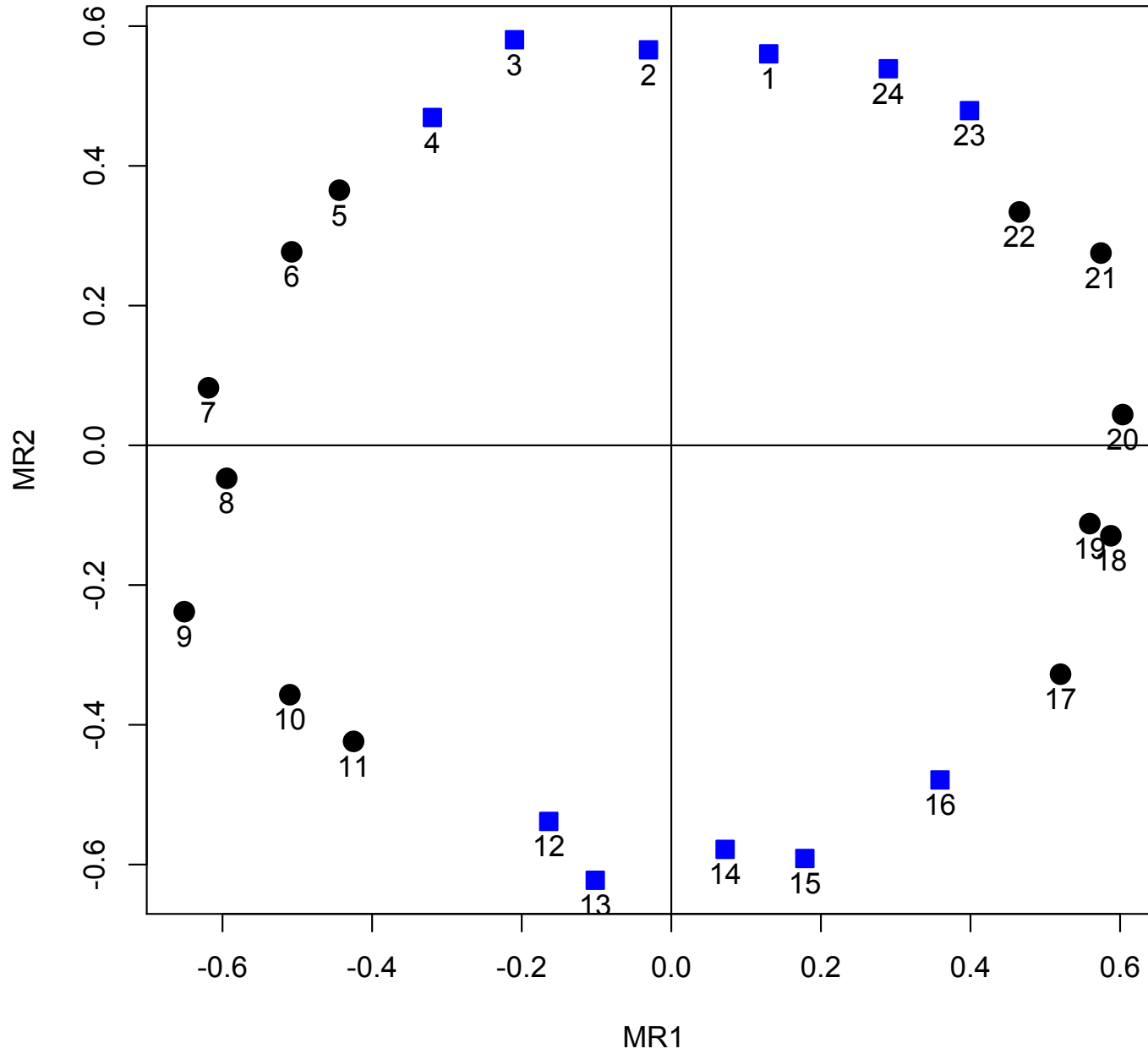
- I. g implies a positive manifold
- II. reverse scoring items can lead to the appearance of g
- III. Consider the case of a circumplex with and without reverse keying half of the items

Correlation plot of 24 circumplex variables

$\omega = .03$

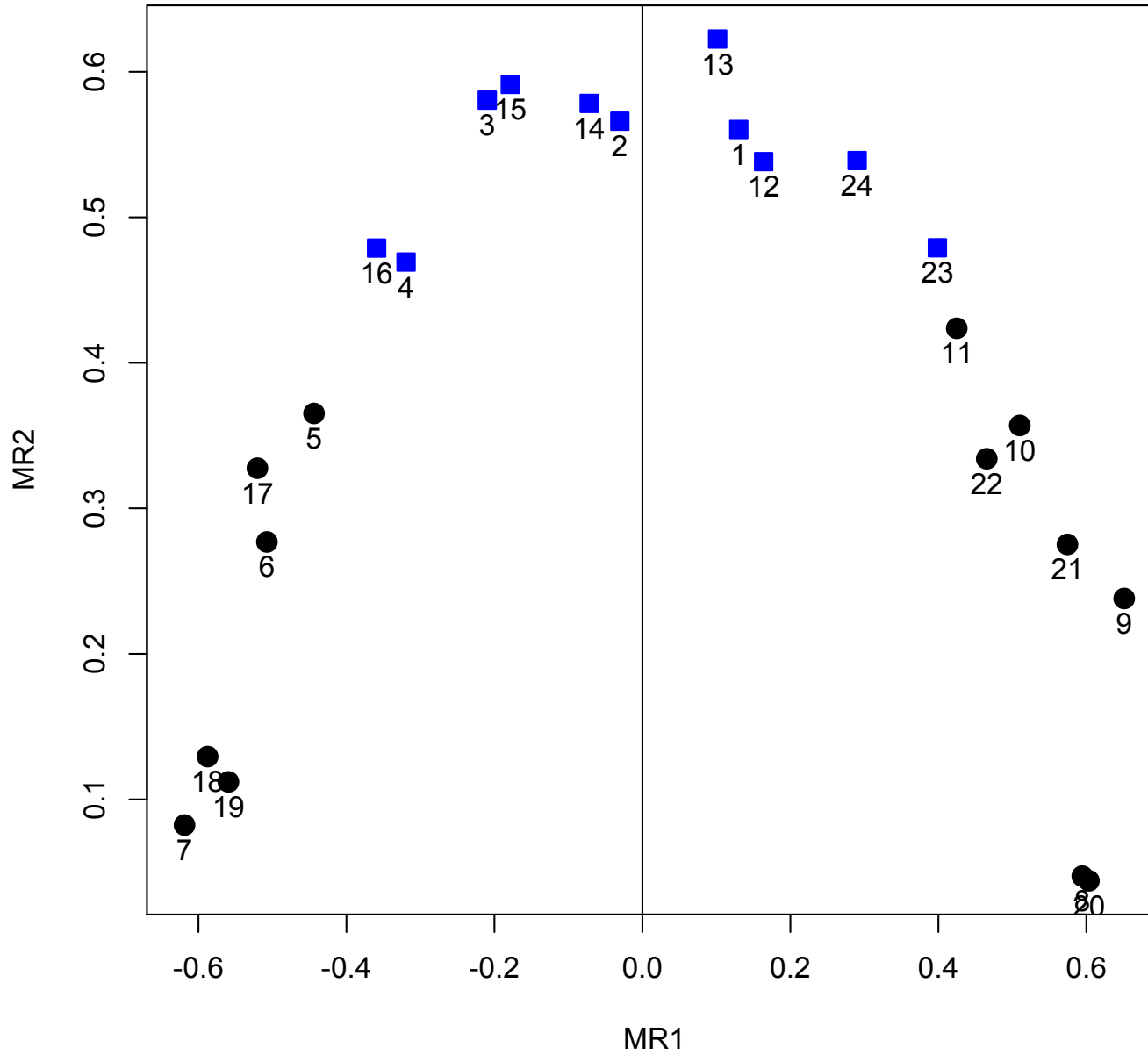


24 circumplex variables



reverse scoring 12 items leads to a 'general' factor

$\omega = .85$



Is there a general factor
of personality?

Is there a general factor
of personality?

Probably not

Is there a general factor
of personality?

Probably not

How important is the General Factor of Personality? A General Critique
William Revelle and Joshua Wilt
Northwestern University
<http://personality-project.org/revelle/syllabi/454/gfp.pdf> (to be submitted)



Why there could be a general factor

- I. Goldberg, Peabody, Saucier talk about
general evaluation
- II. Rushton: Evolutionary selection