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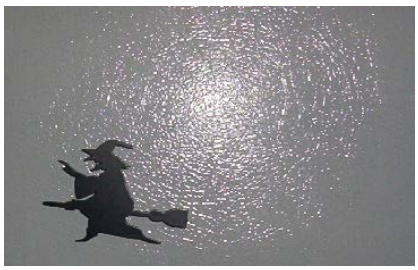
THE EDI STUDY

EVOLUTION AND DESIGN OF INTELLIGENCE

Museum of the science of future

José Tiberius



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Hobbies: chess, padel and philosophy among others

José Tiberius is the main author of Molwick publisher books.

With over 40 million visitors and two million books downloaded in PDF format, he is undoubtedly one of the most widely read authors in Spanish of scientific essays in the current millennium.

There are more than 10000 links to Jose's website, where his books on theoretical physics, theory of evolution, quantitative genetics, cognitive theory, philosophy of science, metaphysics, and children's stories are showcased in five languages. Many of these links –to all these different fields– come from universities, projects done by university students and blogs created by teaching professionals and Educational Specialists.

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♦

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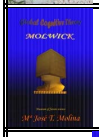	*Global Cognitive Theory (Book series)*	978-84-15328-73-5 978-84-15328-74-2* 978-84-15964-00-1**
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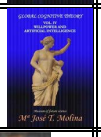	*Willpower and Artificial Intelligence*	978-84-15328-17-9
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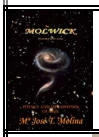	*Physics and Metaphysics of Time*	978-84-15328-84-1 978-84-15328-80-3* 978-84-15964-02-5**
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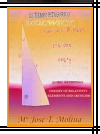	*Theory of Relativity, Elements, and Criticism*	978-84-15328-81-0
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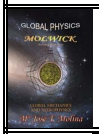
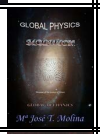
	*Global Mechanics and Astrophysics*	978-84-15328-37-7 978-84-15328-83-4* 978-84-15964-03-2**
	*Global Mechanics*	978-84-15328-35-3
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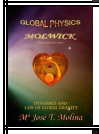	*Dynamics and Law of Global Gravity*	978-84-15328-91-9 978-84-15328-86-5* 978-84-15964-04-9**
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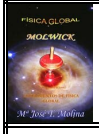	*Global Physics Experiments*	978-84-15328-88-9 978-84-15328-89-6*
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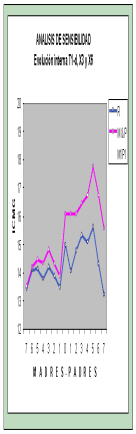

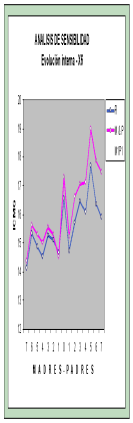

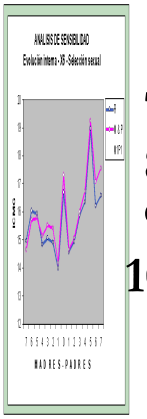

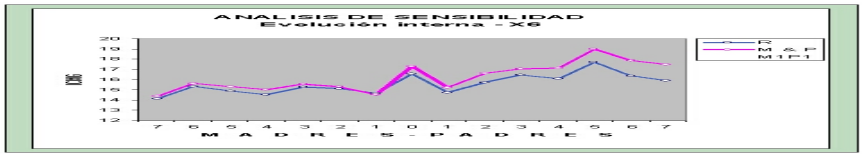

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THE EDI STUDY

EVOLUTION AND DESIGN OF INTELLIGENCE

1. Cognitive psychology research

The purpose of this statistical study is to validate the model about the hereditary nature of relational intelligence, which has been developed to prove the General Theory of Conditional Evolution of Life through the detection of the Logical Verification of Information method (LoVeInf)

The connection of the EDI Study with the Global Cognitive Theory is also broad since the latter is an enlargement of the consequences of the Conditional Evolution of Life on cognitive psychology.

The designed model represents the configuration of the elegant intelligence and its biological mechanisms.

Experimental Psychology

It is not so much about knowing the parameters of the quantitative model but checking whether the adjustment is good enough to accept or reject some proposals. This characteristic is evident in the Globus Model, which is a sensitivity analysis of the changes in the goodness of fit concerning the intelligence evolution between parents and their children.

The source data used in the cognitive psychology research of the *EDI Study* and the specifications of the model are accurately identified, allowing for the reproduction of the

work and the formal acceptance of its outcomes.

The results have been satisfactory; not only they show the innate nature of the IQ scores but also that the genetic information with less intellectual potential is the significant one, like the Conditional Evolution of Life states regarding the concept of conditional intelligence.

Other weighty results are:

- The functions of human reasoning are quite concentrated in a single chromosome.
- The EDI Study finds correlations of more than 0,8 showing that the genetic component of relational intelligence is much higher than the generally accepted and seems the main factor considering the difficulties of IQ measurements and the variability of its manifestation.
- A statistical simulation with generated IQ vectors that behave as the IQ variables observed empirically
- According to what the *Conditional Evolution of Life* (CEL) discloses, following the basic knowledge of sexual biological reproduction, the increase of the genetic intellectual ability of only a particular ancestor substantially improves the adjustment of the model in its simulation when using sensitivity analysis.

  Genetic differences due to gender are essential because of the specialization they imply. Doubtlessly, the other ancestor contribution goes through alternative ways, also included in the model.
- On sexual differentiation, there is an influence of a particular requisite when forming a couple regarding intelligence. The validation of the new hypothesis

simultaneously reinforces the model's overall coherence.

It has been observed a substantial increase in the goodness of fit of the simulation under the new relation on the sexual or couple selection; reaching correlations of 0,97

Given that the EDI Study suggests a radical change from the prevailing opinions of the scientific community, the logical deduction should be to perform more extensive studies with the same methodology.

With a more straightforward approach, the CEL book contains two proposals to confirm the results of the *EDI Study* about the security functions of women in the sexual differentiation, the update of genetic information carried out by men throughout their lives, the hereditary nature of intelligence and a 10% increment in each generation.

- Darwin-out experiment

  It is a linear discriminant analysis of the origin of the maternal X chromosome.

  The idea arose in 2011 due to the remarkable adjustment of the September 2002 additional hypothesis of sexual selection to the initial April 2002 EDI Study.

- Menssalina experiment

  It investigates quantitative genetics with chromosomes of the grandparents to analyze the transfer of characters with sexual differentiation to grandchildren.

  It is more powerful and cheaper to perform than the Darwin-out experiment and could be applied equally to study the evolution of different chromosomes and their participation in many biological processes with possible

evolutionary differences due to gender.

The CEL is a theory based on the purpose of expanding the sphere of freedom of living beings and the use of mechanisms subject to environmental and logical conditions.

In other words, it would imply a teleological or finalist theory and, consequently, random mutations and natural selection would no longer constitute the main components of evolution.

2. Flynn effect and other statistical studies

Many arguments help to understand why this subject remains controversial; they arise from both the intrinsic sophistication of intelligence and the different initial premises of the models.

The **Flynn effect** shows an increase in intelligence quotients in different countries. The results are generally accepted.

The problem comes from the causes and interpretation of the facts presented.

The most common views are:

2.a) Lack of a unique definition

This view of the concept of intelligence is somewhat negative.

2.b) Francis Galton and regression to the mean

Francis Galton (1822-1911), the cousin of Charles Darwin, indicated the necessity of using statistical methods to verify theories; thus, in his work *Natural Inheritance* (1889) he introduced the concept of line of regression from a survey comparing the statures of parents and their children.
In his descriptive analysis, tall parents have tall children, but not so tall on average, and short parents have short children, but not so much. He denominated these observations a regression to the mean.

Perhaps the phenomena in which the famous *regression to the mean* takes place can be explained in greater detail with a multifactor analysis approach.

2.c) The Bell Curve and correlations below 0,5

Richard J. Herrnstein and Charles Murray mention many references to essays on human intelligence in their book *The Bell Curve* with different answers about evolution, including the *Flynn effect*. For the elaboration of their ideas, they assume an approximate correlation of 0,5 remaining in between genetics and environmental influence.

There is no general agreement on the stability of these capacities throughout life, although it seems the average environmental influence is higher in early ages than maturity, which is contrary to expectations.

2.d) High correlations in twin studies

Numerous works try to resolve the controversy on genetic and environmental influences on intelligence throughout the analysis of identical twin's data.

These have many advantages as they avoid some elements that could cause differences in intelligence. Even the *Flynn effect* vanishes as it would operate in both identical twins.

Identical twins correlate up to 0.87 as far as intelligence is concerned; in non-twin siblings, correlation oscillates around 0.55. This info comprises of an experience of **Jensen** in 1972, which led to his primary conclusion that 80% of the variance in a population, related to the figures of the intellectual quotient (IQ), can be explained by inherited factors.

Logically, if Jensen were correct, intelligence would have an

innate nature, although it would not mean predetermination because there are factors like the genetic combination by the laws of Mendel.

The concept of **hereditariness in a strict sense** establishes the relation between the observed and the expected correlations. In those cases, in which the expectation is less than the unit, it would be necessary an upward tweak for the degree of hereditariness.

2.e) Flynn effect and complex econometric models

Studies of sizeable statistical complexity have also tried to resolve the controversy. Two of them are interesting. One is eminently theoretical and the other experimental.

The article *Heritability Estimates Versus Large Environmental Effects: The IQ Paradox Resolved,* by William T. Dickens and James R. Flynn, affirms to have solved the problem introducing variables with temporary feedback. However, it is easy to reach high statistical results working with strongly correlated variables plus temporal feedback.

On the other hand, this article tries to explain the observed Flynn effect or gain in IQ throughout different generations; specifically, the 20 points increase that occurred between 1952 and 1982 in some countries.

The second study, discriminating pre- and postnatal factors, from the Medical School of the University of Pittsburgh, concludes the prenatal maternal environment exerts a powerful influence on intelligence.

3. IQ data set

3.a) Available statistical IQ data set

3.a.1 Young Adulthood Study

The current statistical research uses the IQ data set contained in the *Young Adulthood Study: 1939-1967* [made accessible in 1979 on electronic files]. The data set collected by **Virginia Crandall** and made available through an archive at the **Henry A. Murray Research Center** of The **Radcliffe Institute for Advanced Study, Harvard University, Cambridge, Massachusetts** [Producer and Distributor]

The collection of longitudinal data contains the variables needed for the model: those relative to the intelligence quotients (IQ) of parents and their corresponding children. Also, data reliability is another characteristic.

After a preliminary analysis of the available data vectors, the researchers used one variable for the mothers (**M**) (Otis intelligence test), fathers (**F**) (Otis test) and children (C4) with their 70 corresponding values. Two more from the children (C1 and C5) with 69 values, and another set of three variables of the children (C2, C3, and C6 with 58, 42, and 64 items respectively) that only helped to create variable **X6**, the average of the children's six variables.

The info is taken from average class white families, with a mean IQ of 110, slightly above regular. For each family, the data source corresponds to the father, the mother, and one child.

YOUNG ADULTHOOD STUDY
(Statistical IQ data set)

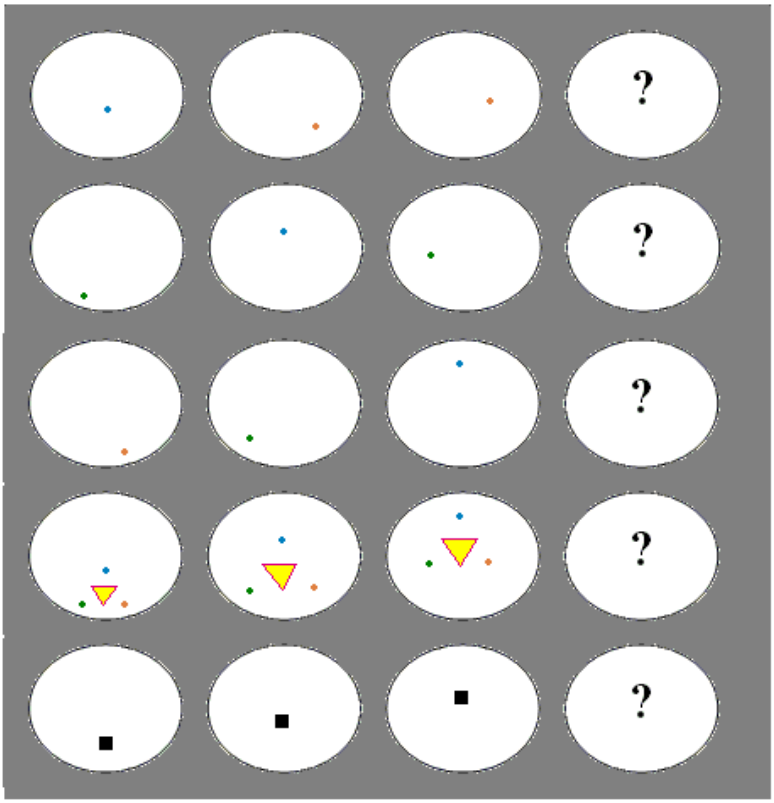
Variables	Name	Reference		Period and Statistical data set
Mothers	M	186	d12c66	T3 mothers IQ data (otis)
Fathers	F	187	d12c70	T3 fathers IQ data (otis)
Children	C1/T1	201	d13cl62	T1 Stanford-Binet IQ data, score at ages 3, 6, 10-old/10
	C2	217	d14cl62	T2 Stanford-Binet IQ data, score at ages 3, 6, 10-old/10
	C3	233	d15cl62	T3 Stanford-Binet IQ data, score at ages 3, 6, 10-old/10
	C4/T4	185	d12c62	T4 IQ data at age 12
	C5/WB	273	d18c30	T4 Wechsler-Bellevue IQ data, @ 13 yrs, perf
	C6	318	d20c62	Primary Mental Abilities-ttl (17-18 yrs.)
	C7	279	d18c54	T4 Wechsler-Bellevue IQ data, recent perf
	X3			= (C1+C4+C5) / 3
	X6			= (C1+C2+C3+ C4+C5+C6) / 6
	T1-d			= C1 smoothed tails, 10% of X6

3.a.2. Limitations of the statistical data set

- **The sample sizes**

  The limitation of the sample size could become serious; although the families are 70 (n=70) (Otis IQ test of mothers and fathers and one of the children) when analyzing by groups, there are only seven with a sample size of 10 families each one.

Logic and correlation



Nevertheless, there is grouping for values of 2, 3, 4, 5, 6, 7, 8, 9, and 10. Also, different variables act when changing the criteria of the order the 70 values.

Consequently, as shown in the following sections, the

number of studied variables increase by more than 50. The treatment of information is in detail in the surprising results section of the Social Model.

Then, the model becomes very sensitive to small data variability in the groups.

The diverse variables suppose views on the same statistical data; in other words, they will simultaneously provide estimations of the correlations in several dimensions.

The sensitivity of the Social Model is the strongest point of the model: the suitable adjustments obtained are very significant regarding the goodness-of-fit of the model's structure, mainly because there is not any modification of the original variables, giving total statistical data reliability.

The strength of the analysis performed allowed to attain the initial objectives and much more.

- **Data set quality**

  The test types or methods of IQ evaluation are diverse, as shown in the previous table of the selected variables.

  The values considered extreme should go out of the model.

  There is only one statistical data set for the parents' IQ and several sets for the children.

  Even so, these limitations reinforce the results since, with more precise global info, it would be a higher correlation between variables.

  The relatively homogenous sample will also work against the study's goal because it is harder to discriminate between the study's values. Therefore, with a diverse sample, the conclusions would be more pertinent.

- **Temporary stability of intellectual ability**

  The IQs of children belong to different years. Without having reached a definite idea, it is fair to say that the steadiness of the data set is compatible with the observed values in the model's simulation.

3.b) Preliminary analysis - Correlations between Wechsler and Stanford Binet scales

The first surprise is the observation of low correlations not only between the variable of the Mothers (**M**) and Fathers (**F**) with **C** (Children) but also among children variables, which correspond to the same children at different times. And not only the correlations between the two scales are not high but even between two IQ vectors of the same children with the Stanford Binet test.

The preliminary analysis of correlations of the involved variables, including Wechsler and Stanford Binet scales, helps to understand the technical hitches of the initial model of intelligence, the reasons for its reformulation, and even the convenience of performing a simulation to confirm the model's goodness-of-fit.

IQ Correlations of Wechsler and Stanford Binet test scales

PRELIMINARY ANALYSIS

Coef. r^2	M	F	T1	T4	WB	X6
M	1	0,08	0,10	0,09	0,02	0,10
F	0,08	1	0,09	0,08	0,08	0,13
T1	0,10	0,09	1	0,33	0,29	0,62
T4	0,09	0,08	0,33	1	0,28	0,81
WB	0,02	0,08	0,29	0,28	1	0,53
X6	0,11	0,13	0,62	0,81	0,53	1

The coefficient $r^2 = 0.33$ is the largest one among the IQ variables of the children (Wechsler, Stanford Binet, and another test). With this information, it seems hard to imagine

high correlations between the children and their parents.

The initial model did not consider the previously mentioned grouping of values. To improve the results, the researchers thought about substituting the extreme values by their averages, but the different variables continued to show low associations.

These assessments of the low or not very high correlation among the children variables **C** imply the measurements are not very homogenous because there is agreement about IQ remaining stable after six years of age.

Given that the averages of the chosen variables were not equal, the team standardized them for a proper calculation of the centered variables **X3** and **X6**. This technique is necessary to avoid distortions and any additional problems, considering that the model does not try to study the generational increase in IQ. Almost everybody accepts the growth, although different explanations on the subject exist. In the EDI Study, the best adjustment of the IQ data set of the children is 10% above the average of the mothers and fathers.

A consequence of the lack of IQ measurement precision is the impossibility to make a discretionary selection of 50% of the sample to isolate the cases in which supposedly the gene with less potential dominates; in agreement with the statistical model initially proposed.
Imagine having several photos or pictures of each child that, sometimes, do not look alike; but perhaps, altogether, they could give us a relatively clear image of the child.

Other factors contributing to the mentioned impossibility are the multifunctional character of human intellect and that, as the model depicts, the IQ of the child can be inferior to the smaller of the two parents. This aspect appears in more detail

in other chapters.

As shown in the tables, this preliminary analysis has allowed recognizing the hitches to obtain satisfactory results and that it is better to use original values since their manipulation, although objective, does not improve the results significantly.

Also, the team tried centered variables with smoothed tails due to a limitation of a 10% deviance from the average (**T1-d**) and variables **X3** (Wechsler, Stanford Binet test and another test) and **X6**, which are average values of three and six original variables respectively (observed values)

The solution will come with the model reformulation and a bit of imagination.

4. MENDELIAN GENETICS AND CEL

4.a) Initial Model of intelligence and method LoVeInf

The the basis for the Logical Verification of Information (LoVeInf) that modulates the Mendelian genetic combination is in Title IV of the online book of the Conditional Evolution of Life (CEL)

The statistical model for experimental validation appears in detail in Title VI of the mentioned book.

The following briefly presents the formulation of the model of the heritability of intelligence, based on the Mendelian genetic combination with the corrections provided by the CEL.

The research tries to confirm the LoVeInf method for the potential measured by the intelligence tests.

The proposed model assumes the following hypotheses:

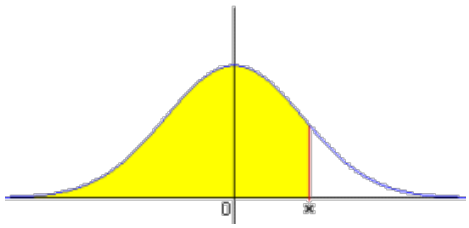
- Evolution with external Logical Verification of Information transmitted for the studied capacity.
- There is a function ξ that measures the different potentials from this capacity.

The IQ refers to the relative position employing a standardized function $\xi(I)$ of the statistical distribution.

This figure shows the generic form of the function ξ (IQ). For an IQ value, it tells the cumulative probability that the

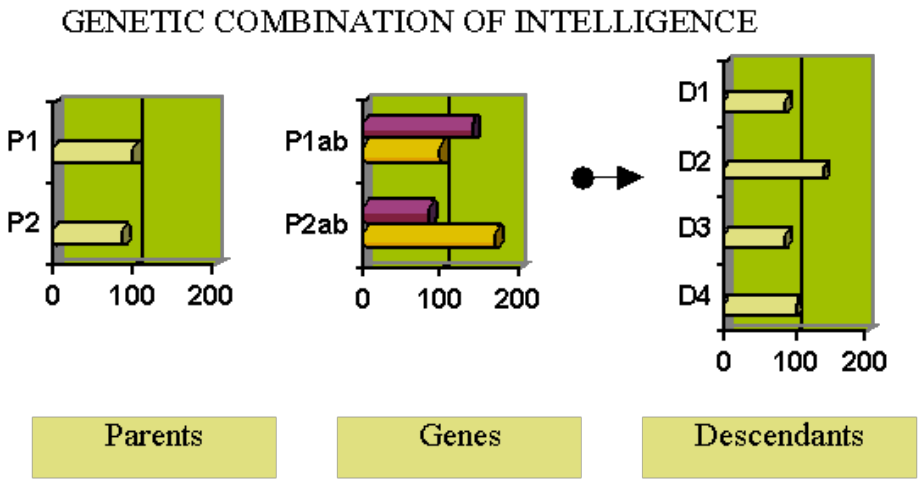
population's IQ is equal to or lower than the same.

The statistical IQ data set includes de variables of Wechsler, Stanford Binet, and Cattel scales that have Normal distribution with a standard deviation of 15, 16, and 24 respectively.



The result of the combination of the four chromosomes in agreement with mendelian genetics significance will produce four different cases. The mathematical expected value of the capacity of the new individual in accord with the CEL will be the sum of the anticipated averages of each one of the cases pondered by their probabilities.

Mendelian genetics
Evolution of intelligence



EXPRESSION	INT. EVOL.	EXT. EVOL.	EXPRESSION
MEASURING	AFINITY	FUNCT. LIMIT.	MEASURING

In the present model of the scientific theory, there are some simplifications to ease its presentation.

Later, it will be necessary to complicate the genetic combination and the LoVeInf method of the Initial Model of

the evolution of intelligence to obtain better and impressive estimations. For example, the confirmation of an increase of 10% in IQ for each generation.

4.b) Results of the Initial Model of intelligence

The aim of the empirical research of Mendelian genetics with method LoVeInf and the ordinary least squares is not to obtain the value of the parameters. On the contrary, it is the goodness-of-fit of the estimation, its correlation coefficient (r), and determination coefficient (r^2); they represent the relation between the explained variance and the total variance.

Fisher's statistical function F has confirmed that no estimated relationships between the dependent and independent variables of the models are by chance.

The table shows the poor results of the Initial Model of intelligence with Mendelian genetics and method of Logical Verification of Information (LoVeInf)

Mendelian genetics,
Wechsler, and Stanford Binet test

INITIAL MODEL

Coefficient r^2	T1	T4	WB	T1-d	X3	X6
R	0,13	0,12	0,06	0,14	0,16	0,16
M1F1	0,12	0,12	0,06	0,14	0,16	0,15
Semi-add=(M+F)/ 2	0,14	0,13	0,06	0,15	0,18	0,18
M & F	0,14	0,13	0,08	0,15	0,18	0,18

On top of the table, there are the six variables, the three original variables of the children T1 *(Stanford Binet scale),* T4, WB *(Wechsler scale)* and the centered variables, T1-d *(Stanford Binet scale)* corrected with the extreme values, *(Wechsler, Stanford Binet* test and other test), and **X6** *(Wechsler, Stanford Binet test* and other test).

The other set of variables is made up of the variables

proposed by the Conditional Evolution of Life model; parents' variables are functions **R, M1F1, (M+F)/2** and **M&F;** where **M1F1** is the vector formed by the smaller values of **M** or **F** vectors for each family. The **M&F** correlations are attained using the *ordinary least squares* method with **C** variables *(Wechsler, Stanford Binet* test and another test) and with both ancestors simultaneously.

The best result comes when using the variables **M** and **F** simultaneously**.** Nevertheless, it continues being very low and below the range of the generally accepted dependency, which is within 0.35 - 0.80 by previous studies on twins.

A correction due to the degree of kinship between expected and observed correlations for determining the hereditariness degree is not possible since the predicted relationship between parents and children is unknown.

Even if the kinship correction were 50%, the results would continue being very low, although they would be around the indicated inferior level of 0.35

Variations due to the mendelian inheritance explain these results partially. Also, the weak correlations between **C** children variables themselves mean the incorporation of considerable deviations due to their measurements, the intelligence test used, and the manifestation of the intellectual potential or brainpower due to fatigue.

At this stage, the researchers decided to perform the analysis in groups with the hope that the deviations would compensate and, consequently, improve the model outcome.

5. The Social Model of the evolution of intelligence

5.a) Statistical data of homogenous groups

The weak adjustment obtained in the previous section was foreseeable; the initial specifications of the model included that the proposed estimator would be unbiased and its variance enormous due to the random character of the Mendelian inheritance.

In addition, it indicated the impossibility of correcting the problem of the statistical data by selecting 50% of the sample where the deviations would have to be minimum. Lack of precision in measurements and temporary and functional variations of the intelligence expression are the leading causes. The issue with the statistical data is higher than expected.

The analysis by groups seemed the only way to surpass the limitations of the available statistical data. The Social Model makes different size groups with the various rearrange orders of the initial seventy values.

The aggregation without reorder would not be satisfactory since the values of all the variables would tend towards the average as the group's elements increase.

Reorganizing the initial sample with criteria such as **M1F1** or **(M+F)/2,** it will be possible to achieve homogenous groups in which:

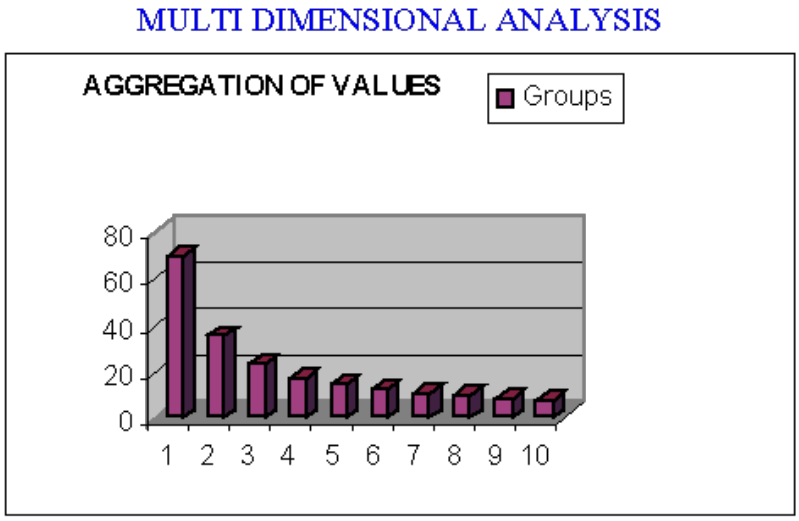
- The effectiveness of the previously mentioned

compensations will be optimum.

- The groups divided in stratums will allow for a suitable adjustment of the tendency or relation between the variables of the model.

For each variable, the model uses a hundred and ten generated variables based on the diverse number of elements and criterion to the group's rearrangement; there are ten group sizes and eleven modes of the arrangement, including the initial order, which is unknown.

Group size
correlational research



The variables to rearrange the groups are **M, F, R, M1F1, (M+F)/2, 2F2M, C1, C2, C3,** and **W.** Variable **2F2M** will be opposed to **M1F1** conceptually;**C** variables correspond to the children of a particular analysis and **W** variables appear in the model simulations artificially.

The image shows the design of grouping the elements of the sample to compensate for the deviations due to measurement errors and the genetic combination.

The graph contains the number of elements of the sample for each group size.

The Social model has a double formulation, on the one hand, calculating the correlation of children **C** vectors with respect to the objective function **R**, determined in accordance with the *Conditional Evolution of Life* (CEL). On the other hand, with respect to the variables of the statistical data **M** and **F** directly, allowing for a comparative analysis between the two formulations.

The final effect is that the statistical data evaluated by the model about the nature of intelligence has multiplied several times over and random variations have compensated. Consequently, its power to detect the correction of its specifications has improved significantly. At the same time, the model of evolution of intelligence has become very sensitive and can compare between close configurations of the statistical data.

5.b) Quantitative approach

The Social Model aims to verify innate engineering in the evolution of intelligence according to the Global Cognitive Theory.

The main conclusion of the model with grouping, Mendelian genetics, and the Conditional Evolution of Life (CEL) is the confirmation of the goodness of the adjustments by grouping the values and their prior arrangement. The correlations achieved, despite the limitations of the available information, allow to affirm that the characteristics collected by the intelligence tests transmit from one generation to another fundamentally.

The results are surprising regarding the nature of intelligence, which can be observed both in the graphs of the statistical annex and in the following tables. An aspect that will allow reaching some crucial conclusions is the model sensitivity of the arrangement criterion.

Indeed, this model offers an almost instantaneous perception of the exactitude of a specification; sixty coefficients of determination **(r^2)** highlights the global and underlying relations of the involved statistical data for each case.

The considerable increase of the correlation between homogenous groups of the statistical data is not due to the reduction from 68 to 5 or 4 degrees of freedom, since the results with non-homogenous groups, without previous rearrangement, have the same degrees of freedom and the correlation even lowers for the sample without grouping.

The Social Model provides a double formulation; on the one hand, the statistical analysis of the IQs of the children on the Wechsler and Stanford-Binet scale concerning the objective function **R** determined according to the CEL and the Mendelian genetics. On the other hand, the correlations between the IQs of the children versus the mothers **(M)** and the fathers **(F)** directly, permitting a comparative analysis. In the latter case, the estimation of the multiple regression has been carried out by the method of ordinary least squares.

Likewise, for both formulations, there are four statistical criteria of the prior ordering of values corresponding to the variables marked with (*)

5.b.1) Stanford Binet and Wechsler IQ test

The Social Model adjusts perfectly, showing a determination coefficient **r²** superior to 0.9 in several cases.

Moreover, it is interesting that the objective function **R** is almost as powerful as variables of mothers **M** and fathers **F** together.

As for the statistical criteria of ordering (*), the best one is variable **WB,** and the variables **(M+P)/2, M1P1,** and **R** are similar.

SOCIAL MODEL: T1, T4, and WB

Statistical study on IQ

Order	Objective function					
	R			M & F		
	Graphics	GMCI	r^2 max.	Graphics	GMCI	r^2 max.
(M +F)/2	q011	12,48	0,67	q012	13,05	0,80
M1F1	q013	12,17	0,87	q014	13,28	0,87
R	q015	12,07	0,74	q016	13,05	0,75
WB	q017	13,22	0,92	q018	14,68	0,99

The estimated correlations to variables **M** and **F** of **r²** are of 0.99 for variable **WB** (Wechsler intelligence test) when the rearrangement variable is the same **WB** variable. This

impressive outcome is possible because, in their configuration, the **children** variables **C** not only incorporate criterion **M1F1** but the real information of the power of all the genes and their correct Mendelian inheritance combination, in agreement with the CEL.

Variables **M1F1** and **R** only incorporate, so far, a partial effect which is the Mendelian inheritance and, therefore, variable **WB** (Wechsler intelligence test) is a better order criterion.

Nevertheless, this does not take place in all cases; it is a consequence of the incorporation of the differences due to the expression and measurement of the IQ in **C** variables, which does not happen with variables **M1F1** and **R.**

The table shows the **G-MCI** (Global Multidimensional Correlation Index) and the maximum $\mathbf{r^2}$ of the correlations between the IQ of the **parents (M & F)** or vector **R,** and the children's IQ rearranged in four criteria. The **C** variables are original ones with no change in any of their values.

Also, when the model has more freedom with the two variables, **M** and **F,** it adjusts better by statistical effect, or just the available data.

This table helps to understand the irregular relation between the maximum $\mathbf{r^2}$ and the **G-MCI.**

One unusual aspect not delved into the analysis is the different outline of the graphs without prior order, the **T4** and the **WB** on the one hand and the **T1** on the other. The correlations of the latter show the typical teeth shape of the ordered values more clearly but without the upward trend.

It is as if there is a deviation only in the variable **T1** not included in the model that is mostly compensated and therefore must be random and, at the same time, is

independent of the value of the intelligence coefficients. Perhaps it is due to the young age of the children when performing the test.

This deviation occurs for correlations with both the **R** function and **M & F** as explanatory variables. Although, in the second case, the compensation is more exact and could indicate that somehow information regarding this deviation vanishes when generating the **R** function from the **M & F** variables.

5.b.2) Centered or average variables (Combination of Stanford Binet and Wechsler IQ test)

Centered or average variables incorporate some correction in their values, either of the extremes values or for being average of other variables Wechsler and Stanford-Binet test, such as the children variables T1-d, the X3, and the X6.

As expected, the compensation of random deviations in the values of the centered variables makes the new statistical analysis fit significantly better than the model with original vectors. Besides, the more focused the variable, the better fit it provides in almost all cases.

SOCIAL MODEL: T1-d, X3, and X6

Statistical study on IQ

Order	Objective function					
	R			M & F		
	Graphs	GMCI	r^2 max.	Graphs	GMCI	r^2 max.
(M+F)/2	q021	15,71	0,79	q022	16,03	0,80
M1F1	q023	14,98	0,92	q024	16,07	0,92
R	q025	15,02	0,89	q026	15,88	0,90
X6	q027	15,05	0,91	q028	17,20	0,88

In the eight graphs of this model, the Global Multidimensional Correlation Index (GMCI) is superior to the maximum GMCI of the model with original IQ variables.

Regarding the coefficients of determination r^2, there are values of 0.79 or higher in all the graphs of the model.

Due to the higher coefficients of determination r^2 of each graph, on the one hand, the goal variable **R** exceeds the variables **M & F** together with the sorting criteria **X6** and, on the other hand, that the sorting order **M1F1** is higher than **WB.**

It is interesting to note that the goal function **R** is almost as powerful as the **M & F** variables together, reaching similar values to the highest coefficients of determination r^2 of each graph.

As for the sorting criteria (*), the four variables **(M+P)/2, M1P1, R**, and **X6** are similar. The variable **X6** stands out for the GMCI with the **M & F** as explanatory variables and the **(M+F)/2** with the **R** function.

Now, paying attention to the graphs of the centered variables, **T1-d, X3,** and **X6,** in the first place, the **q23** has a singular beauty because of its shape and content.

This graph shows an increase of correlation with the **R** aim function proposed by the General Theory of Conditional Evolution of Life (CEL) regarding the nature of intelligence, until it surpasses 0,9 (GMCI = 14.98), as the other correlation vectors involved a move to more centered values.

After all, the variables are not as off as they seemed at the beginning. In particular, the result of the quantitative approach is coherent with the supposition that these centered

variables should have fewer problems with the variability in the expression and measurement of the intelligence quotients, since, by definition, they imply a compensation of those deviations.

On the other hand, bearing in mind the parallelism between the variables **T1-d, X3,** and **X6** and the upright correlations that they provide, it was a reasonable assumption to generate variable **T1-d** with a 10% maximum margin of variation to the average in variable **T1** (Stanford Binet IQ test). It does, however, make sense that the results are not as virtuous as the **X3** and **X6** variables.

Another element to point out is the effectiveness of the employed multidimensional analysis. It lets us to draw quickly some conclusions while maintaining a high degree of coherence and security in the reasoning.

The groups have a maximum of ten elements, and due to the observed tendency, with groups of 20, the correlation will be more significant.

It seems there is not much margin left to deny the hereditary nature of intelligence, not even to try to reduce it to less than 80%.

5.c) Nature of intelligence: Validation of the Method of Logical Verification of Information (LoVeInf)

The main goal of this work was not to verify the hereditary nature of intelligence but to demonstrate the Logical Verification of Information method (LoVeInf) pointed out by the *Conditional Evolution of Life* (CEL).

The analysis of intelligence through the concepts of Mendel's laws of recessive and dominant genes or, more appropriately, the determination of the criteria to identify the significant chromosome or genes and their mechanisms of expression.

The Moon on the rocks

(Public domain image)

The outcomes of the correlations and multiple regression graphs show how the sorting criterion based on **M1F1** is

excellent, confirming the genetic expression mechanisms derived from the LoVeInf method regarding the innate character of intelligence.

With the LoVeInf method and the laws of Mendel, the children's variables **C** would be the **M1F1** component with a 50% probability.

From another point of view, function **R** is also excellent, both as the goal function and as an arrangement criterion in the simulation model. It makes sense because it incorporates the effect of the genetic combination in agreement with the **laws of Mendel.** Despite, it is a bit inferior to the **M1F1** arrangement criterion.

SOCIAL MODEL: METHOD LoVeInf

Statistical study on IQ

Order	Objective function					
	R			M & F		
	Graphs	GMCI	r^2 max.	Graphs	GMCI	r^2 max.
3 - Original variables T1, T4, and WB						
M	q031	8,48	0,61	q032	9,16	0,69
F	q033	9,44	0,59	q034	12,52	0,78
2F2M	q035	7,55	0,61	q036	10,25	0,73
4 - Centred variables T1-d, X3 and X6						
M	q041	11,79	0,67	q042	12,14	0,71
P	q043	12,28	0,69	q044	14,38	0,80
2F2M	q045	9,20	0,56	q046	12,39	0,70

In order to be sure of the behavior foreseen by the LoVeInf method, it is possible to check a particular rearrangement criterion: the opposed order of **M1F1,** that is to say, the order of the vector formed by the grater values of **M2** and **F2,** that we will call **2F2M.**

The product of the model is substantially inferior with **2F2M** than with the **M1F1;** therefore, a rigorous assumption would be that the LoVeInf method, or something similar, is operative in the inheritance of the characters associated to cognitive functions.

The precision of the results is critical to maintaining a certain degree of confidence in the interpretations; when the lines corresponding to **C** variables and their different groupings in the graphs follow a clear tendency, it seems that the results are not a consequence of statistical coincidences. It is especially visible within the analysis of variables **X3** and **X6.**

Another observation of the behavior of the centered variables is when using the vectors **M** of the mothers and **F** of the fathers as statistical ordering criteria.

For these two vectors of the progenitors, the result of the simulation is superior compared to variable **2F2M,** but it continues being quite inferior in respect to **M1F1.**

The same comparisons can be made with original variables, although the results are less powerful than with centered ones.

A curiosity of this analysis is the different behavior between **M** and **F** because up until now, there were no hints for it. In the corresponding graphs (following the links), vector **M** seems slightly more significant as rearrangement criterion whereas its correlation with **X3** and **X6** was smaller than vector **F.** Regardless of the correlation level of **M** and **F**

separately; it seems as if their lines or curves were mirror images of one another.

Sociologically speaking, this subject of the nature of intelligence and mirrors has always been susceptible between **M** and **F.** Surely, when the first humans realized that women always had the children, there were tremendous and violent discussions about the importance of matriarchy, especially, in its economic aspect.

6. STATISTICAL SIMULATION: GLOBAL MODEL

6.a) Computer simulation of the evolution of intelligence

- **Actual values and observed values!**

The Social Model –the properly reformulated Individual Model– has been useful to determine that the significant chromosome is the one with the least potential, there is only one relevant chromosome and it seems is the sexual one.

Due to the accuracy of the Social Model of the evolution of intelligence, and having all the elements to simulate the proposed model by the Conditional Evolution of Live (CEL), the researchers developed a computer simulation to confirm the results. The statistical simulation should generate artificial intelligence quotients –variable **W**– behaving like those observed in the longitudinal study.

Statistical study
Computer simulation of evolution
Artificial intelligence quotients

Graphics	Subject	Observations
q050	MCIW	Too high
q060	MCIW	Like GMCI

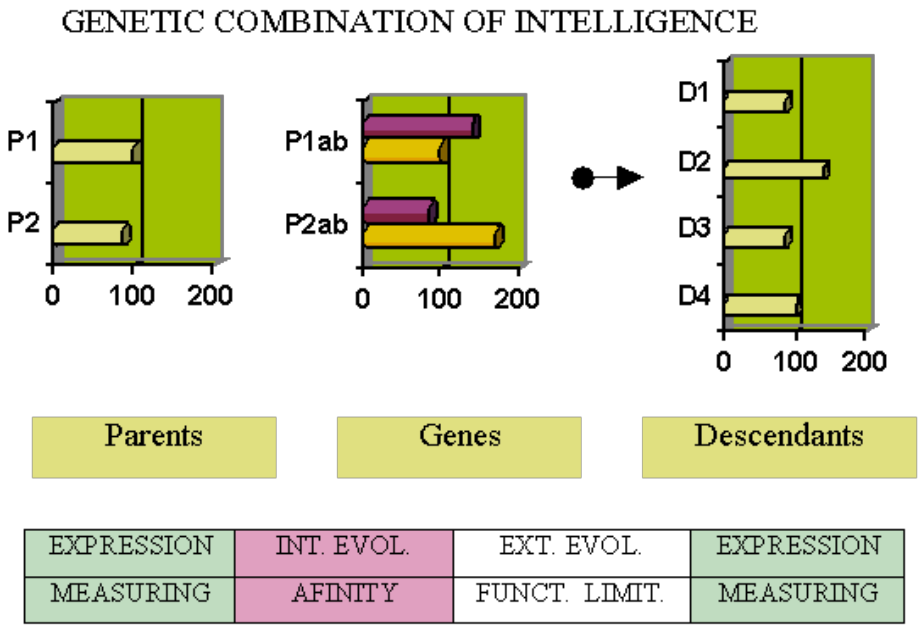
A second big surprise was the initial failure of the simplified Social Model to obtain the objective of statistical simulation of the processes and mechanisms of biological inheritance of intelligence.

The task was much more complicated than previously thought, forcing to eliminate all the simplifications of the Social model.

The introduction of the ability to generate quantitative variables with disturbances close to real ones implies a new statistical simulation, the Global Model.

Evolution of intelligence

Complex model with random deviations



A typical result of the generated variable **W** is in the **q050** graph. Considering that **W** is a stochastic variable, the figure represents the average of ten estimates for the corresponding correlations.

The Multidimensional Correlation Index (MCI) of the artificial intelligence quotients vector **W,** which has been multiplied by

3 for comparative reasons, is over 25 and far above the Global Multidimensional Correlation Index (GMCI) for the observed **C** variables of the children.

Therefore, the Global Model needs to include the random deviations in the expression and measurement of intelligence and other variables of its evolution, which the Individual and Social Models had excluded for simplicity.

The Individual Model showed that the differences in IQ measurements of the same children were very high due to the manifestation of the child's capacity at any given moment, and even more so, over the years.

Other factors causing similar deviations are the intelligence test used and the specific test session within a standard test.

Although the observed differences are superior to 10% to the average in some cases, the Global Model introduces an additional combinatorial algorithm to represent a factor of a mean deviation of 3% upward and 3% downward.

For the same reason, the Global Model incorporates stochastic error patterns in children variables **C** and parents **M** and **F**.

Nevertheless, the high correlation of **W** in the computer simulation does not decrease substantially, and vector **W** does not behave like the original IQ vectors from the **Stanford Binet** and **Wechsler** intelligence tests.

6.b) Statistical simulation model: complexity and optimization

It is necessary to introduce more haphazard elements to capture the complexity of the Global Model; otherwise, the model would not be acceptable. In particular, the new features must lower the correlation in the unordered groups, and mainly in the small groupings.

At the same time, in the previously rearranged groups, the correlations should decrease in the small groups and increase or remain the same in the big ones. Once achieved a good model specification for the evolution of intelligence, it could begin its optimization.

6.b.1) Genetic affinity

The first idea should be to eliminate the simplifications carried out in the model's theoretical argumentation to avoid its complexity.

To continue dropping the multidimensional correlation index of **W,** the Global Model will include the filter effect mentioned by the Conditional Evolution of Life (CEL) in the proposal for a statistical simulation model regarding the resulting intellectual power of the genetic combination. Now, it will be equal to the intersection of the potentials and not to the smaller one.

Of course, this decrease due to the lack of genetic affinity will not be equal in all cases. Consequently, it will imply a random pattern in the statistical simulation; meaning another margin

of 3% upwards or downwards bearing in mind the possible drag effect of the ancestors.

After considering this affinity filter effect, the correlation lowers again, but not much. The complexity of the statistical simulation model continues to increase while adding elements.

6.b.2) Genetic problems

- **Functional limitations!**

Despite other achievements, until this phase, the Multidimensional Correlation Index (MCI) of the artificial IQ vector **W** is too high compared with the observed correlations.

The correlations require something else to diminish sufficiently. Finally, after studying different options, the researches decided to introduce some elements of functional limitations, especially in the mechanisms of the initial development of intelligence.

They will arise after the Mendelian genetic combination, and with the filter of gene affinity, some genetic problems may diminish the expected intelligence quotient (IQ) 30 points. The amount comes from the optimization parameter in the sensitivity analysis within the simulation of the evolution of intelligence.

Logically, there must be previous genetic problems not reproducing in the next generation; so, it is compulsory to include sudden increments in IQ of half of 30 points with the same probability of occurrence. Half because the effect on the final capacity would be conditioned by the ability of the other ancestor, taking into account the presence of the Logical Verification of the Information method (LoVeInf)

By the way, these functional limitations play a part in the evolution model of the Conditional Evolution of Life about the nature of intelligence; although there was no special

mention to them to simplify the presentation. However, they did appear, in all clarity, in the simulation of the evolution incorporated in the **Esnuka** program (1992) following CEL guidelines.

The instructions of the evolutionary game **Esnuka** say: *"the black or white circle in the middle of the ball represents the number of fouls accumulated by the player. The genes are carriers of these fouls and, as such, can change through evolutionary processes. Furthermore, the number of fouls represents the probability of a genetic accident throughout these steps; an accident means the player is reduced to the lowest state within the scale."*

Dark hallway

(Public domain image)

According to the game Esnuka and with the stochastic analysis, the functional limitations will appear once every five times in the negative sense and the positive sense, but with half the intensity.

The explanation of the existence of the functional limitations can be diverse; the following are among the probable causes:

- Not all intelligence functions are on the same chromosome or portion of DNA, following the Mendelian genetic combination. Therefore, it causes additional discontinuities

in the final determination of ability.

- There is the necessity of specific materials in the initial development; for example, food craving during pregnancy. Everybody does not have the same power to produce proteins; lacking some of them could cause the no-expression of the genetic information; again, this could provoke gaps regarding cognitive abilities transmission.

  The conclusion of the study about discriminating pre- and postnatal factors from the Medical School of the University of Pittsburgh would fit perfectly here. These factors are part of the structural development of intelligence, and they are not environmental factors in a strict sense. In other words, the technology of materials is genetic; another matter is the necessary elements at any moment, and the lack of these elements will not usually be the case.

- The complementarity to memory or other functions

- Genetic accidents in the broadest sense, including exceptional cases with certain risk factors
- Correct paternity!
- Environment. It should be assumed to have some influence, even if it is small!
- ...

From another point of view, the functional limitations would correspond to the expression the black sheep of the family up to a certain point.

The q060 graph shows the final result of the Global Model,

with the addition of the genetic problems and attuned with an average of ten **W** variables. The accuracy of the adjustment reveals both visually and by the level of the **MCI** of **W** (16.85) that has gone down to standards of the GMCI (15.61)

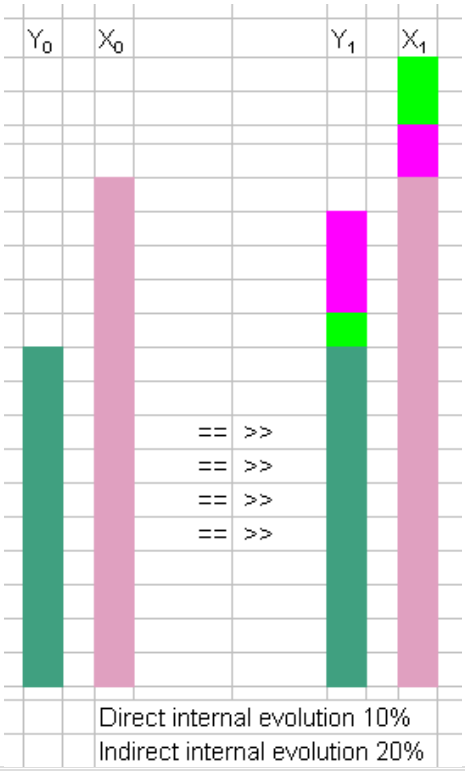
In the end, the variable **W** is like the IQ vectors observed in the longitudinal study.

6.b.3) Sensitivity analysis - Globus Model

One of the objectives of the EDI Study is to test the genetic mechanisms in the transmission of intelligence. The Social Model achieved an astonishing sensitivity allowing for an explicit confirmation of the Conditional Evolution of Life (CEL) predictions.

Internal evolution

Genetic evolution of intelligence



A simplification of the Social model referred to evolution itself. The CEL indicates that genetic modifications indeed exist, intelligence increases throughout life by internal work, and it transmits to descendants. Now, the Global Model

introduces this improvement in the simulation. Of course, complexity also intensifies while adding the correspondent combinatorial algorithms of error patterns.

Likewise, the new model has the possibility of incorporating asymmetric combinatorial algorithms to help to decrease the Multidimensional Correlation Index (MCI), internal evolution will only take place in the male genes; intricacy growths again. The reason behind this CEL assumption is that men are continually renewing their genetic load, and the ovules create at a very early age in girls.

Furthermore, by following the CEL model, there is an option to distinguish between direct and indirect internal evolution; in the former, the capacity will rise in a percentage of its value while in the latter, the increment will be a percentage of the potential of the other gene or, better said, chromosome. It implies an additional asymmetry and will make the correlation drop a little more.

Now, the model is reaching very high levels of statistical complexity. However, computers greatly simplify the realization of mathematical simulation.

MODELO GLOBUS
(Gráficos do Modelo Global parametrizado)

variável X3 q573º	**variável X6 q576º**	**seleção sexual com X6 q577º Super Modelo Globus**

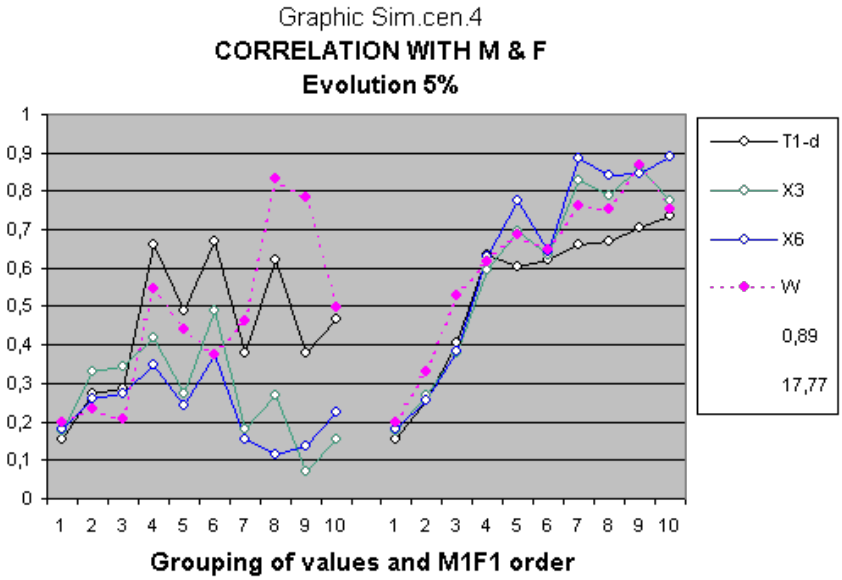
AJUSTE DA EVOLUÇÃO INTERNA

Parâmetros Evo. interna°		T1-d, X3 e X6 e critério de ordenação M1P1°					
		Função objetivo					
Direta	Indireta	R°			M & P		
Mães		Gráficos	ICMG	r² máx.	Gráficos	ICMG	r² máx.
5	5	q171°	14,14	0,72	q172°	14,46	0,72
3	3		14,21	0,82		14,81	0,82
1	1		13,49	0,80		13,89	0,80
Nula							
0	0	q123	14,98	0,92	q124	16,07	0,92
Pais							
1	1		14,06	0,83		16,10	0,87
2	3		14,79	0,87		16,10	0,87
3	3		15,33	0,84		16,47	0,84
4	4		15,09	0,84		16,73	0,84
5	5	q163°	15,61	0,89	q164°	17,77	0,89
6	6		14,30	0,95		16,74	0,95
7	7		13,25	0,83		15,56	0,83
°Os parâmetros da evolução interna afetam a função objetivo R e a ordem M1P1							

The researchers even checked for a factor of minimum internal evolution, but they discarded it due to the low adjustments obtained.

Considering the internal evolution parameters will affect the objective function **R°** and vector **M1F1°** of the sample's previous arrangement, the changes in the correlations would infer variations in the goodness-of-fit and therefore permitting the optimization of their magnitude.

Evolution of intelligence



All the mechanisms of simulation allowing sensitivity analysis are the optimization algorithms. Their complexity derives from both the mathematical functions necessary for its statistical treatment and the considerable accumulation of small concepts and innovations.

The EDI Study comprises of around 500 million correlation coefficients.

The Globus Model refers to the optimization algorithms, the sensitivity analysis, and the different graphic presentation from the Global Model.

Regarding the results, the optimization with original variables

is not as conclusive as with centered variables.

The graph shows the optimization done and that the best adjustment corresponds to a value of 5% for each of the parameters of internal evolution, direct and indirect. In other words, it means 10% growth in each generation of male genes. It is imperative to emphasize that the initial description of the Conditional Evolution of Life (1990) mentioned a figure of 10% while talking about this value.

Although additional studies with more data are convenient, due to the complexity of the model of the evolution of intelligence and all the combinatorial algorithms of error patterns, the differences in the **MCI-G** are sufficiently noteworthy.

Each point of the graph represents 30 determination coefficients, $\mathbf{r^2}$**,** between variables **M** & **F** and the average of variables **C,** and those deviations are compensated not only for the centered children variables **C** but also for the rearranged grouping.

The previous statement will become apparent by looking at the corresponding graphs. With the figures, the density of the optimization algorithms transforms into an immediate visual perception of the underlying relationships in the Globus Model.

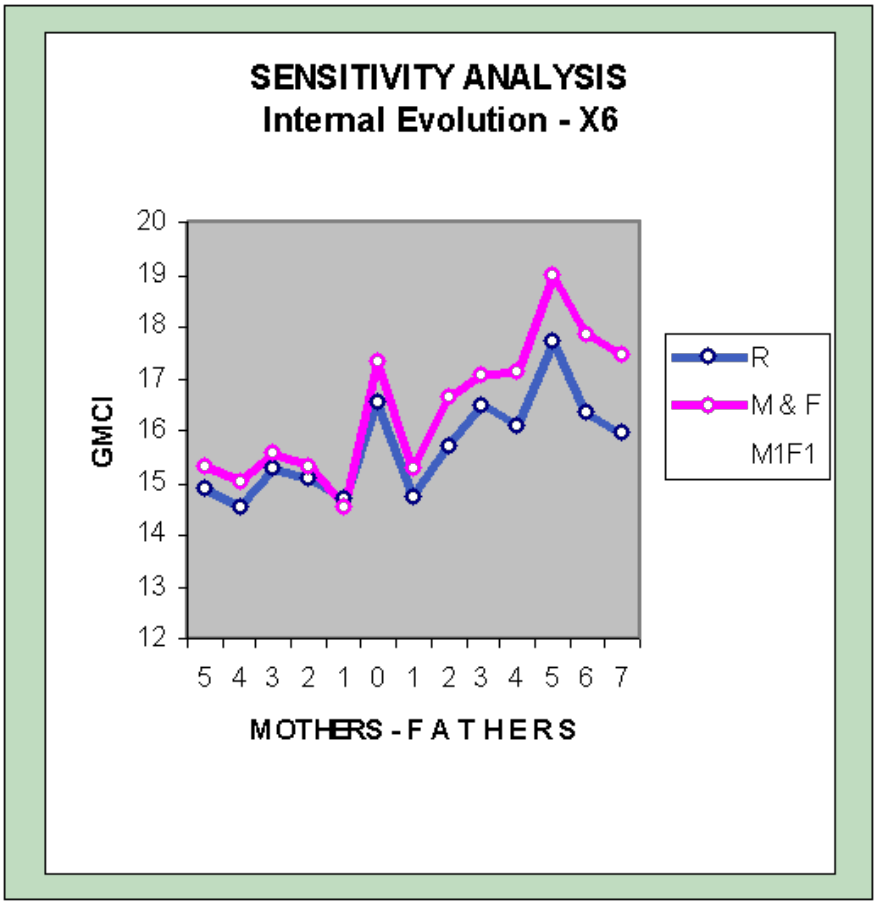
Regardless of all the graphs, here is the one reporting the highest adjustment for the **R°** function.

Above all, the improvement is more evident for the vectors of mean values **X3** and **X6** since **T1-d** worsens slightly for **R°** but not for **M&P.** It is as if **T1-d** lost some of its personality by cutting off the spikes of values.

The figure shows, with the graphic form of the Globus Model,

the results are in the *Optimization Algorithms of internal evolution* chart.

Globus Model
Internal evolution



Given the social sensitivity in these scientific areas, the EDI Study checked whether the opposite assumption of male-female evolution would work in the same fashion; in other words, supposing that only females changed genes. As expected, the adjustments are even worse than in a no-evolution situation.

The CEL explains in detail the basic argument that cancels any sexist interpretation, given the different biological function of men and women.

It is motivating to examine the X3 and X6 variables separately. Doubtlessly, **X6** should present better results as the deviations

of the natural combinatorial algorithms compensate more.

The observed peak for the null evolution, which would mean that both sexes contribute the same percentage to internal growth has a problematic explanation from a genetics point of view. Among others, a precarious idea could be the possibility that not all men carry out the improvement of their genes due to a lack of confidence in Nature when indicators are present.

In this assumption, given the model sensitivity and the standardized variables, the first evolutionary increase of one percent would shrink the correlations, whereas when approaching the optimal value, the effect of a correct percentage of internal evolution would surpass the previous one.

In any way, the optimal amount of 5% of direct internal evolution and 5% of indirect internal evolution, of the capacity transmitted by men's genes is reasonably apparent.

The social aspect is not as severe as it seems bearing in mind what the CEL says about the meaning of sexual differentiation. Women have the chief and arduous task of the initial development of children that implies a biological specialization in the technology of materials.

For that reason, the statistical simulation model has the parameter endogenous external, which gathers the evolutionary effect generated by women. It could imply an average increase of 5% with random distribution. However, since its variation affects neither the objective functions nor the criteria of arrangement, the model cannot verify it now.

Another argument is that some increase generated by men comes from changes due to the improvement of available materials thanks to the amelioration in the quality of their formation when they were in the womb.

On the other hand, it might be that women's genes have a backup function to maximize the guarantee of the viability of the new being. In the opposite case, Nature would be the first good programmer who would not make copies of its marvelous programs once they have acquired a certain degree of complexity and accumulated work.

The result of evolution parameters is the most outstanding of the EDI Study. If it is correct, it will imply the General Theory of Conditional Evolution of Life is right, at least, in its central idea of the existence of a finalist evolution and the abandonment of the theory of random mutations and, consequently, of natural selection as the primary mechanism of the genome development.

The complexity of the optimization algorithms of the Globus Model should not be an excuse for not recognizing the statistical evidence.

6.c) Esnuka billiards and genetic algorithms of the Global Model of simulation

After introducing into the Social Model the functional limitations due to genetic problems and providing it with stochastic processes capable of generating quantitative variables with random disturbances similar to the variables of observed data, the complete model of the genetic inheritance of intelligence or Global Model works satisfactorily as the images associated with the following tables show.

The third surprise was that the complete model contains the same parameters as the billiards game Esnuka (1992) about the genetic problems regarding the nature of intelligence. Some of those problems were not in the initial model to simplify both its presentation and the statistical study.

There is no need for either a simulation or the generation of the objective function **R** if the adjustments are made directly on **M** (mothers) and **F** (Fathers) to prove the innate nature of intelligence and the presence of the LoVeInf method.

The game Esnuka is a billiards program in which the colors of the balls depend on evolutionary states grounded on the obtained cannons, in agreement with the postulates of the Conditional Evolution of Life (CEL). The simulation game Esnuka does not require so many random variables because the computer does not produce errors in the IQ expression or the measurement, and the changing colors of the balls take place with a chosen constant percentage from the options panel.

All the following graphs relate to the Global Model with functional limitations and 5% of internal evolution. Of course, to obtain a suitable optical effect of the graphs, they have been chosen where **W** shows better adjustments to one of the **C** variables of the children.

6.c.1) Original variables

The original individual variables do not always improve their adjustment within the statistical simulation of the Global Model, whereas the centered variables do. For rearrangement criterion **(M+F)/2,** it is obvious because this criterion does not respond to changes in the parameters of internal evolution.

Statistical study

5 - Global Model: T1, T4, and WB

5% internal evolution

Intelligent test of Wechsler and Stanford-Binet scales

Order	Objective function					
	R°			M & F		
	Graphs	GMCI	r² max.	Graphs	GMCI	r² max.
(M+F)/2	q051°	11,73	0,62	q052	13,05	0,80
M1F1°	q053°	10,91	0,79	q054°	13,04	0,79
R°	q055°	10,83	0,73	q056°	12,63	0,94
WB	q057°	12,26	0,89	q058	14,68	0,99

° Internal evolution parameters affect the objective function R and M1F1 order

A graph could only be affected by the evolution parameters when either the objective function or the rearrangement criterion is affected because the **C** variables of the children, mothers **M** and fathers **F** are observational. When values are affected, the variables concerned have a circle in their names; therefore, when the column or row headings of next tables have a (°), it indicates that the model adjustment has changed due to the evolution parameters.

Admittedly, the model could be more precise, but its main structure is valid. Also, it could be that the original variables, with so many deviations and despite the sensitivity of the Global Model with its random variables, are not capable of detecting the limited effect of the internal evolution parameters.

It is too soon to make definite conclusions; for example, sometimes the three **C** variables behave similarly and sometimes very differently. It is possible the different IQ tests measure distinctive abilities and, therefore, responding differently when the perspective of the analysis changes.

The perception of the quantitative analysis of the Global Model is far more profound than just an IQ test alone.

In other words, it could be certain elementary functions of intelligence belong to a hard nucleus that is not usually affected by the internal evolution of a single generation. Confidently, a minimum human IQ would improve the goodness-of-fit of the model; in particular, this minimum could be around an IQ of 50 or 60 points, although there will always be exceptions by severe cerebral alterations of some individuals.

Even so, the correlations obtained with the individual variables are 0.89 for function **R°** defined by the CEL and of

0.99 for **M & F.** This last result, however, is the same as with the model without evolution because the parameters of the model do not alter **M & F** or the criterion of arrangement **WB.**

Also, variable **R°** as an arrangement criterion allows a correlation of 0.94, which is excellent, and 0.79 for both objective functions when the order is **M1F1°**.

Of course, the behavior of variable **W°** is impressive in all of them. Undoubtedly the visual effect of the graphs accounts for the high-quality specifications of the Global Model.

6.c.2. Centered variables

Centered variables maintain a better adjustment than original ones. The graphs of the Global Model speak for themselves.

5% internal evolution

6 - Global Model: T1-d, X3, and X6

Order	Objective function					
	R°			M & F		
	Graphs	GMCI	r² max.	Graphs	GMCI	r² max.
(M+F)/2	q061°	14,70	0,77	q062	16,03	0,80
M1F1°	q063°	15,61	0,89	q064°	17,77	0,89
R°	q065°	15,55	0,84	q066°	17,40	0,97
X6	q067°	15,05	0,91	q068	17,20	0,88
° Internal evolution parameters affect the objective function R and M1F1 order						

In comparison to the centered variables without internal evolution, the GMCI increases more with the objective function **M & F** than with **R°**; although it is significant in both cases. Besides, the GMCI increment is higher with criterion **M1F1°** than with **R°**, with 1.70 and 1.52 points respectively.

For both objective functions **R°** and **M & F,** the results progress with the arrangement criteria **R°** and **M1P1°**.

7.Parametrized Sexy Globus Model with mate selection

The sensitivity analysis of the Global Model generates a new set of statistical simulation values for the evolution of intelligence. The description and the excellent results obtained are in the previous section about the Globus Model; now, there is an additional hypothesis of sexual selection to this model, which confirms the earlier results.

On the page on Evolution of the intelligence of the Conditional Evolution of Life book, the new Darwin-other experiment is explained –not yet carried out– to confirm the results of the EDI Study with a different methodology based on the effect on the evolution of the intelligence of the existing genetic mechanisms thanks to sexual differentiation.

The selection of a partner as an auxiliary mechanism of evolution has been a paradigm since the first development of the theory of evolution. Darwin himself wrote *The Descent of Man and Selection in Relation to Sex* (1871), introducing a new factor, **mate selection or sexual selection,** through which females or males choose those with the most attractive qualities as their partner.

Darwin was right about the choice of the most attractive qualities, but it is still another tautology, whatever those qualities are.

Intelligence is doubtlessly one of these desirable qualities for various reasons. However, from the viewpoint of the Sexy Globus model, it does not deal with imposing such a general

hypothesis and much less given that the IQ of the mother and father are fixed.

When reflecting on the possibility of establishing another hypothesis to the Globus Model that could improve its general adjustment, the researchers thought of trying out the idea of relevance of the difference in intelligence between the father and the mother as a selection criterion or condition for the acceptation of the couple's configuration, in other words, mate selection.

It seems that intelligence is not a strict selection criterion when it comes to choosing a partner; but likewise, a noteworthy difference within the couple is not very common. Then, it should be possible to think of some optimization algorithms representing the indicated condition regarding sexual selection.

This small dissertation of evolutionary psychology about sexual selection becomes more complicated when thinking that there are two sets of intelligence corresponding to each one of the progenitors, and operating under diverse forms or conditions, as the Globus Model has already established. Perhaps the new hypothesis can go a little deeper into Darwin's statement about partner selection.

In short, the additional hypothesis introduced into the Sexy Globus model of mate selection is establishing the limit in the difference in intelligence that:

"The most potent chromosome of one of the couple's members has to be at least as powerful as the least potent chromosome of the other and vice versa."

Here, the chromosome is a simplification to denote the part of intelligence inherited from one progenitor.

Additional

Mate selection and intelligence

The psychological justification of the new hypothesis is that a person does not demand the same intelligence from others to like them, but to form a couple will demand that the other person can at least follow a conversation adequately. Just one chromosome can fulfill with the condition given that following the reasoning in a conversation does need certainty; in fact, the certainty derived from the Logical Verification of Information method comes within the presented initial argument. In other words, the two chromosomes of the person who provided the idea.

Although the explanation may not be very extensive, the relevant issue is that the Sexy Globus model substantially improves the adjustment due to the couple selection hypothesis. Nonetheless, the book of the Global Cognitive Theory deepens this effect.

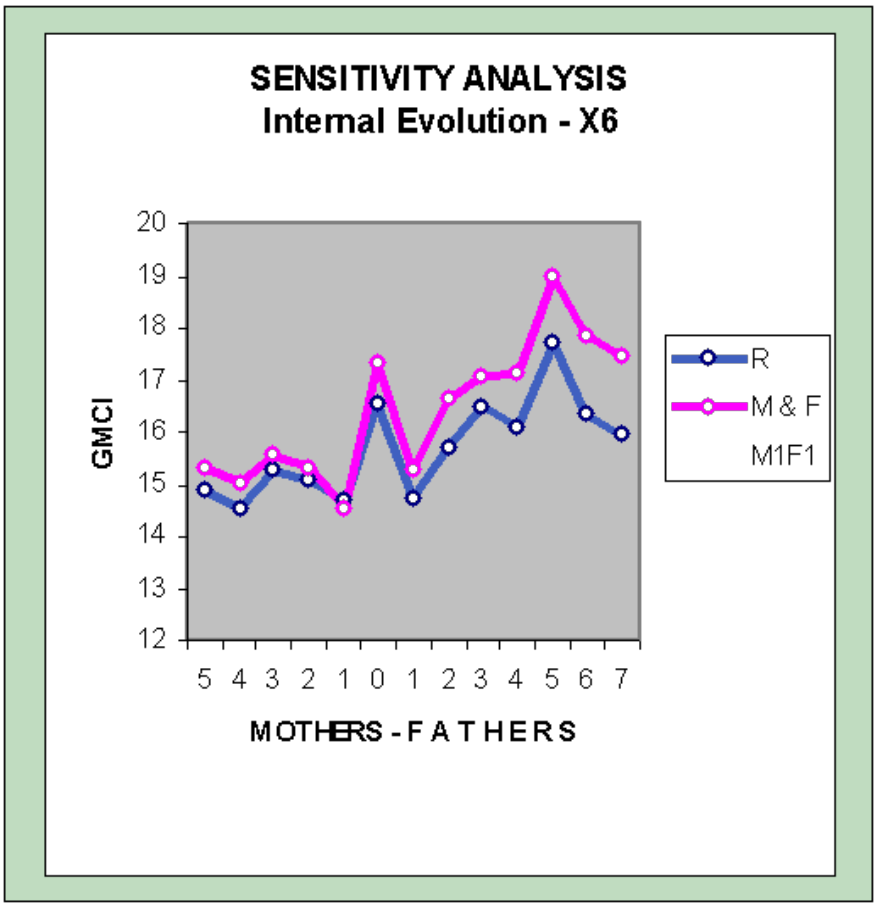
The hypothesis will affect if introduced only the **M2** or **F2** chromosomes. Bearing in mind that the measured IQs collect the power of the significant or less forceful chromosome, the estimations of **M2** and **F2** will change considering the new information introduced in the model.

The Sexy Globus model somewhat improves with the

individual variables (Otis test of fathers and mothers, Intelligence test Wechsler, and Stanford-Binet scales of children), but its response to selection criteria will be higher with centered variables. The GMCI with the rearrangement criteria **M1F1°** goes from 15.61 to 17 and the maximum r^2 from 0.89 to 0.97 for the objective function **R°** –see figures **q063** and **q077.** For the objective function **M & F,** the GMCI is found at 17.62 while it was 17.77, and the maximum **r^2** also rises from 0.89 to 0.97. The maximum values of r^2 almost always correspond to the variable **X6** – the average of six of the children's variables.

Sensitivity analysis Globus Model

without mate selection



The sensitivity analysis carried out with the optimization

algorithms and the variable X6 in the subsection of "Internal evolution" of the section "Simulation of the complexity of the real model" offers the following graph of the Globus Model (without sexual selection):

Repeating the same analysis performed with the variable **X6** in the section of internal evolution of the Globus model, but with the additional hypothesis of partner selection, it gives the graph below of the **Sexy Globus Model** with the following aspects.

- Of the graph's four peaks, three shifts upwards.
- The correlations between the anticipated IQs for the objective function **R°** and the function **M & F** are more similar than before. The overall average of the function **R°** slightly rises, and the **M & F** slightly lower.

  See the statistical table used for the sensitivity analysis of the intelligence evolution model, the internal evolution parameters with the additional hypothesis of sexual selection in terms of the minimum acceptable intelligence limit when forming a couple.

The interpretation is difficult, given the margin of the sensitivity of the introduced changes and the complexity of the Globus model. We have to take into account that only ten of the seventy **IQs** of the function **R°** have been affected in more than two percent of their value, but, trying to give a definite explanation of the mentioned aspects:

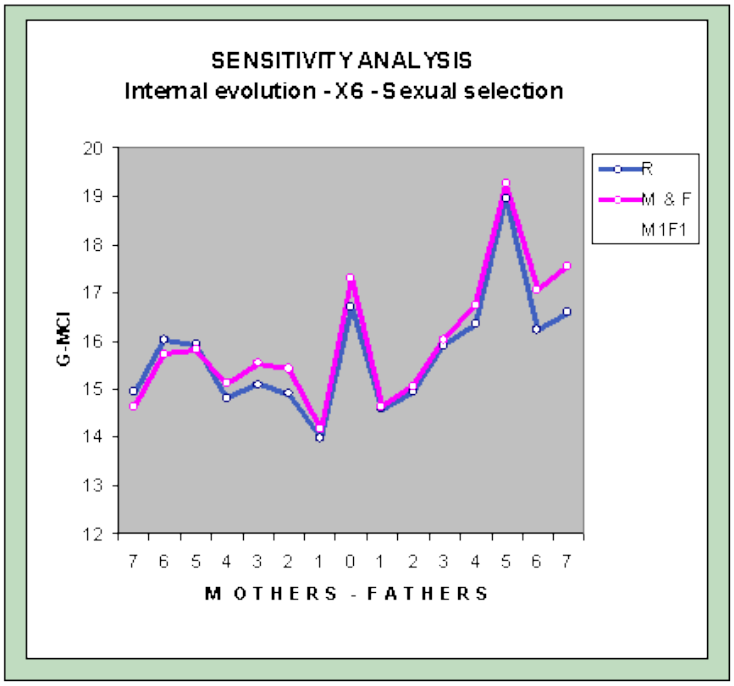
- In respect to the first, it seems as though the model improves when its parameters are correct and that it worsens when the parameters are fictitious, which reinforces both the model and the introduced hypothesis.

- In regards to the second, the function R° improves with additional information in its definition, while the function **M & F,** despite its peaks, decreases because it does not incorporate the effect of the hypothesis introduced on genes **M2** and **F2** given that it only collects information from **M1** and **F1** –that are the known IQs.

On the other hand, the Super Globus model's results of the function **R°** improve as an objective function but not as rearrangement criteria. The reason might be that it deals with the average values of different possibilities because it incorporates the differences due to the genetic combination to a greater extent than the **M1F1°** criteria.

Sensitivity analysis Sexy Globus Model

with mate selection



The argument is similar to results of variable **W°**; in many cases it has very high correlations but, as rearrangement criteria it usually is terrible because it incorporates the effects

of genetic combination, of the functional limitations and affinity as well as the rest of the deviations due to the simulation of the errors of measurement and expression. Likewise, the children's variables tend to be outstanding rearrangement criteria because they do not incorporate the deviations due to genetic combination, affinity, internal evolution, or functional limitations.

If the hypothesis of sexual selection introduced were incorrect, the ICMG of the Sexy Globus Model could go down considerably, even for small changes. The sensitivity analysis graph shows this behavior when changing the internal evolution parameters for the variable **X6,** where one percent of potential increase to be transmitted by the fathers or mothers makes the GMCI drop drastically.

The Globus Model is just a graphical representation of the parameterization of the evolution in the Global Model, and the Sexy Globus Model refers to the introduction of the hypothesis of sexual selection.

In short, the proposed hypothesis of mate selection seems correct. The Sexy Globus model's coherence improves in general, and the correlations of the variables centered with the rearrangement criterion **M1F1°** increase substantially.

8. Family and identical twin study

The Global Model has consolidated and improved the excellent results of the Social Model, both in terms of the transmission of intelligence from one generation to another and the existence of the LoVeInf method with the concentration of intelligence genes in one chromosome.

It has also confirmed the ability of the Conditional Evolution of Life (CEL) to generate sets of vectors of intelligence quotients **W°** that behave like the observed ones, which again settles that the related genes are on the sex-linked chromosome.

This section includes, on the one hand, the correlation and multiple regression graphs of the Global Model on the adjustment of the evolution with increases in the intelligence coefficients of the mothers and the hypothesis of sexual selection; both already explained and used previously for the representation of the Globus Model and Sexy Globus Model respectively.

On the other hand, some curiosities of cases for a better understanding of both biological and statistical models of sex-linked genes and chromosomes within an approach to family and intelligence.

Statistical study
8 - Family - Identical twin study

Graphics	Family relationships	Observations
q071° q072°	Evolution with IQ Mothers	Adjustment for Globus Model
q081	Relation between children **H**	Identical twins
q082°		Siblings or dizygotic twins
q083° q084°		Clons Replica q053° Clons Replica q056°
1 Mothers q085 2 Mothers q086°	Progenitors	Rearrangement criteria **M** and evolution
3 Fathers q087 4 Fathers q088°		Rearrangement criteria **F** and evolution
q089°	Sexual selection - Couples	Without sexual selection q063° With - Sexy Globus Model

8.a) Sensitivity analysis of internal evolution parameters

The theoretical model of the CEL shows that there is the evolution of intelligence with environmental influences, but in a general way, that is, the capacity increases throughout life and transmits to the offspring through genes and chromosomes linked to sex.

It also indicates that internal evolution will only occur in male genes because they are continually renewing in nature, while female eggs do not differ from very early stages.

The method compares the Sexy Globus Model results of only female intelligence evolution with the results without any improvement, and with exclusive intelligence male change. The vast correlations and regression graphs the model represents visually can be seen in the following graphs q173° and q176°, which speak for themselves.

The CEL and the Global Cognitive Theory explains in detail the primary arguments that nullify any sexist interpretation of the results, given the different biological functions of men and women.

8.b) Intelligence in twins, brothers, and clones

The simulation of the behavior of the computer-generated IQ variables allows the design of model configurations without the need for an additional sample. This aspect is essential since the source data of this type of analysis are not only costly but almost impossible to obtain.

An example of an application is to analyze how relational intelligence can vary in siblings since it is possible to obtain many **W°** vectors from the same fathers and mothers. Therefore, the model can compare the genetic variability of intelligence with the observed among siblings to verify different hypotheses about the behavior of intelligence genes and chromosomes, and whether they are sex-linked or not.

For example, specific conditions to the simulation of the Mendelian genetic combination will give IQ vectors of twins.

- *Identical twins.*

  The similarity of the variables **H** in the graph q081 could correspond to the IQ of identical twins while the **W°** would be only normal brothers since it comes from the data of the same fathers and mothers.

  This behavior is repeated on numerous occasions when the sort order is one of the variables **H** –children of the families.

- *Dizygotic brothers or twins*

  In the graph q082°, the statistical ordering criterion is **W°,** and the behavior is somewhat different, it seems that the four variables of IQ correspond to identical twins of the

same families. However, it is just a case.

- *Clones*

  Another example of application may be that different intelligence tests detect different types of human brain functions that make up relational intelligence.

  The correlation and multiple regression graphs q083° and q084° clearly show how **W°** can resemble one or another variable **H** depending on the randomness involved in the Mendelian genetic combination of chromosomes of both sexes. The comment will be entirely understood comparing the images q053 and q056, respectively.

  All variables **H** correspond to a mono-environmental monozygotic twin. While **W°** will be just a brother, and because of that, sometimes it will look alike and sometimes not so much.

It is not difficult to imagine some new and exciting studies on these peculiar characteristics of the sex-linked genes and chromosomes of intelligence with a family approach coefficient.

8.c) Asymmetric behavior of the mothers M and fathers F vectors

Now, the behavior for **R** of the same centered variables is more precise when ordering the data in two other forms, that is, **M** and **F,** both with and without evolution.

The correlations obtained are quite low because **M** and **F** are not very good as management criteria and go down even more when introducing evolution.

The exciting facet is to observe the differences between the two variables of the parents. **F** is a better sorting criterion than **M,** and its correlation with **R** is also higher. However, with evolution, the correlation of **F** with **R°** lowers, and that of **M** goes up.

Regardless of the quantity, it looks like the drawn curves are from mirror images.

Other curiosities are the difference in the behavior of **W°** and its variation to the parents **M** and **F** as statistical ordering criteria.

8.d) Intelligence in sexual or couple selection

Due to the relevance of the subject, the confirmed hypothesis about sexual selection and intelligence is summarized here. Besides, to remark that the concentration of genes related to intelligence in the sex-linked chromosome allows the validation of the hypothesis of sexual selection.

Regarding the possibility of establishing some additional hypotheses to the Global and Globus models to improve their goodness-of-fit, the EDI Study incorporates the relevance of the difference in intelligence between the father and the mother as conditioning for the effective initial acceptance of the couple's configuration.

(Public image domain)

The additional hypothesis introduced in the model is to establish as the limit in the difference in intelligence that:

"The most potent chromosome of one of the couple's members has to be at least as powerful as the least potent chromosome of the other and vice versa."

In the generation of the new values, only ten of the seventy IQs of the **R°** function have been affected by more than two percent of their value. The vector **W°°** is also affected by the new condition imposed on the couple selection.

The model improves to some extent with the individual variables, but the effect is much more noticeable with the centered variables. The GMCI, with the sorting criteria *** M1P1°,** goes from 15.61 to 17 and the maximum **r²** from 0.89 to 0.97 for the objective function **R°°** (see graph q063°)

For the objective function **M & P,** the GMCI stands at 17.62 when it was previously at 17.77, and the maximum **r²** also rises from 0.89 to 0.97. As usual, the maximum values of **r²** correspond to the variable **X6** –the average of 6 variables of the children.

The correlation and multiple regression graph of the Sexy Globus Model collecting visually these values is undoubtedly impressive, see graph q077°

9. An alternative theory of evolution

The *EDI Study - Evolution and Intelligence Design* confirms the forecasts of the theory of Conditional Evolution of Life and the Global Cognitive Theory, which points to a new cognitive paradigm both because of the innate nature of the intelligence as per the functional aspects of its biological basis.

If these characteristics of cognitive processes are confirmed, educational programs should also change.

Before listing the main conclusions of the EDI Study, the observed value of Fisher's statistical function F assured that the parameters were not a random result.

Except for error or omission, and with the appropriate caution, the main results of the *EDI study – Evolution and Design of Intelligence* as a base of an alternative theory of evolution are the following:

- The innate nature of relational intelligence is confirmed
- The historical difficulty in perceiving this characteristic of the brain functions is due mainly to the next factors:
    - The multiple functions of the human intellect
    - The lack of a theoretical-philosophical basis providing the laws of the cognitive abilities that seem to govern the formation of intellectual potential resulting from a genetic mixture. In other words, the identification of the gene or chromosome significant for specific cases of conditional intelligence.

- The fact that not all genetic load expresses
- Lack of stability in the manifestation of intellectual power
- Measurement deviations

  In some instances, different IQ measurements from the same person could have the same deviations as those of monozygotic twins (identical) or those of dizygotic twins (twin brothers), which would be conceptually like semi-mono-environmental siblings as well.
- Shortage of available data for the research due to its nature, economic cost and social sensitivity of the subject
- Random and discrete type of the Mendelian genetic combination

  Other random characteristics operate within continuous variables.
- The existence of functional limitations or genetic problems in the expression of intellectual potential with an unknown origin and treated as random.

  However, the research cites some of its possible causes
- The necessity of capacity for statistical calculi and of intuitive understanding of the results of the Globus model

- It seems the method of Logical Verification of Information (LoVeInf) is operative in the expression of the intelligence power following previsions of the *General Theory of Conditional Evolution* of Life (CEL)

  This method shows that chief genetic information about

intelligence comes from both progenitors. The configuration of the concept of intelligence as a primary group of abstract relational abilities that are highly reliable in regards to their efficiency needs the LoVeInf method.

Similarly, the concepts of the dominant and recessive genes of the Mendel laws are affected by the implications of the existence of this method.

- Approximately 500 million correlation coefficients allowed the results of the EDI Study. From them, through the sensitivity analysis of the parameters involved, it seems that **male genes** provide both direct and indirect internal evolution, also indicated by the CEL.

Cognitive paradigm shift

(Public domain image)

The percentage of internal evolution of the intelligence potential that optimizes the Globus model is 5% for both internal evolutions, representing a total of 10%, again as foreseen by the CEL.

These percentages explain why the IQ test must be normalized every 15 or 20 years.

- The previous points rigorously support the logic of the existence of sexual differentiation and its significant advantages; however, we should not forget that they imply

biological differences.

An aspect to remark is that the increase generated by men also comes from specific changes due to the improvement of available materials thanks to the amelioration in the quality of males' formation when in the womb.

Nonetheless, women's genes may fulfill a **backup function** to maximize the assurance of the viability of the new being.

- If the previous conclusions were correct, there is a non-random and finalist evolution. Therefore, the natural selection would mean a second level supporting the evolutionary processes.
- More extensive studies are necessary, considering the extraordinary results (r^2 superior to 0.9) to be more accurate in the conclusions regarding qualitative specifications of the model and quantification of the parameters involved. These studies could also incorporate other types of conditional intelligence.

  An example of further exploration of this study is in the subsequently added section of the Globus Model with mate selection.

  Another example is Darwinout experiment –not yet carried out– to confirm the results of the EDI Study with a different methodology and, if the X and Y sex chromosomes are not responsible for the evolution of intelligence, to determine the correct chromosome.
- The EDI Study created artificial intelligence quotients vectors in a computer simulation model. The new IQs allow the analysis of the model, and its variability by stages, for example, fixing the Mendelian combination, the level

of genetic affinity, and the functional limitations or genetic problems.

It is important to stress that not only is there a shortage of source data, but also that it can be costly to obtain the necessary and appropriate data.

The EDI Study have scrupulously respected the scientific method rules.

The Globus Model contains the same parameters that the free billiards game Esnuka (1991) handles. That is, the genetic algorithms object of computer simulation are the same.

From previous conclusions and their philosophical implications, it appears that the current Gods of science, **Ra & Dona,** straight reminiscences of the Egyptian Goddess **Hator** and the Mesopotamic God **Ale,** have not been able to continue hiding the logic or intelligence of the evolution of life, nor to prevent the latter from formally appearing to us, although somehow, still timidly.

STATISTICAL ABSTRACT
METHODOLOGY OF THE STATISTICAL STUDY

The title of each graph of the statistical study indicates the parents' variables **(R or M & F)** to which the correlations are related. A point of the colored lines represents the correlations with the examined C variable –children.

Likewise, the variables of unknown order, formed by the different groups of 1 to 10 values from the 70 IQ values of each parent and children variables, appear on the left-hand side of the graph. The criteria order of the groups of 1 to 10 values located on the right-hand side is the variable mentioned at the bottom of the graph.

Each graph condenses more than 5,000 different points of information for the interrelations between:

- 70 values of each IQ variable of the fathers, mothers, and children
- 8 variables of the IQ of fathers, mothers, and children
- 3 variables of individual averages of the previous variables
- 10 criteria of value arrangement
- 10 sizes of groupings of individuals
- 20 values of evolution's parameters in a sensitivity analysis
- Countless random variables created in the simulation model

The set of graphs collects all these interrelations, that is, more than 1,000,000 values. Note that the average of any two values

has a dynamic that is independent of the two values.

An example of the data source could be having a historical sample of 70 packets of cigarettes. However, the sample can be of 70 elements, or many more if, for each packet, the analysis would consider the following aspects:

- The number of cigarettes per packet
- The size of the cigarettes
- The type of cardboard the packet has
- The color
- If it has any images
- If it has any health warnings
- The type or severity of these warnings
- Information about the level of nicotine and tar

Data

The graphs show a instantaneous perception of the goodness-of-fit of a specification; they represent sixty coefficients of determination (r^2) that highlights the underlying relations of the involved data.

In order to facilitate the comparative analysis, there is a multidimensional correlation index (from now on MCI) to represent with one number the global precision of the adjustments shown in any graph. It will be the sum of the determination coefficients of the ten rearranged variables.

There will be an MCI for each variable and a Global MCI for the three variables studied in each graph. The maximum GMCI will be 30 since the graphs always contain three variables and ten groupings.

On the right-hand side and below the variable, there are the r^2 and the GMCI to help to understand the correlations involved.

The results are surprising, which can be observed both in the graphs of the statistical annex and in the following tables. An aspect that will allow reaching some crucial conclusions is the model sensitivity of the arrangement criterion.

DATA SOURCE VARIABLES OF THE STATISTICAL STUDY	
*	These variables are the criteria to rearranged the groups in some instances.
**	These variables are the criteria to rearrange the groups in some instances, but only in the statistical survey to verify the method of Logical Verification of Information (LoVeInf) and the exceptional cases of the progenitors in the Curiosities section.
°	These variables, in some instances, incorporate the effect of the statistical survey evolutionary parameters.
***R°**	The objective function **R** of the statistical study arises from the General Theory of Conditional Evolution of Life (CEL), Mendelian genetics significance, and applying the method LoVeInf to the intelligence quotients of the mothers (M) and fathers (F). Function **R** is the mathematical expected average of the capacity of the children in agreement with the CEL, and it will be the sum of the expected averages of each one of

	the cases weighted by their probabilities, according to the Mendelian genetics.
M&F	Two IQ vectors of a statistical regression using ordinary least squares with one IQ vector of the children.
T1	IQ vector of children. Original variable from the Young Adulthood Study – Stanford-Binet intelligence test.
T4	IQ vector of children. Original variable from the Young Adulthood Study – Stanford-Binet intelligence test applied when children were 12 years old.
***WB**	IQ vector of children. Original variable from the Young Adulthood Study – Wechsler Bellevue intelligence test applied when children were 13 years old.
T1-d	IQ vector of children. **T1** with smoothed tails, 10% of **X6**
X3	IQ vector of children. Mean of three original variables from the Young Adulthood Study.
***X6**	IQ vector of children. Mean of six original variables from the Young Adulthood Study.
***W°**	Children vectors of **artificial intelligence quotients** are generated by the computer simulation of the Conditional Evolution of Life. They should behave like the children's observational data source.

***(M+F)/2**	Vector of IQs produced by the semi-addition of the IQs of the mother **M** and the father **F.**
***M1F1°**	Vector of IQs obtained with the lowest value of **M** and **F** of each family, either the intelligence quotient of the father or the intelligence quotient of the mother.
****M**	IQ vector of the mothers. Original variable from the Young Adulthood Study – OTIS intelligence test.
****F**	IQ vector of the fathers. Original variable from the Young Adulthood Study – OTIS intelligence test.
****2F2M**	Vector of IQs obtained with the highest value of **M** and **F** of each family, either the intelligence quotient of the father or the intelligence quotient of the mother.

Appendix: Graphics table

STATISTICAL MODELS

Social model Data source	Social model Centred variables	Social model LoVeInf Method	Development Artificial IQ vector
Global model Data source	Global model Centred variables	Globus model	Twins study Sexual selection

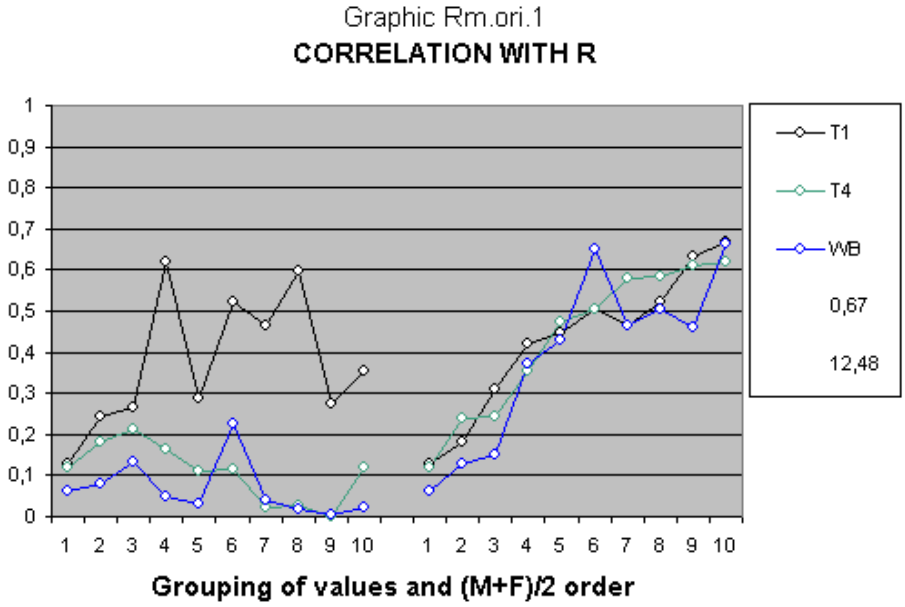
SOCIAL MODEL: T1, T4, and WB

Statistical study on IQ

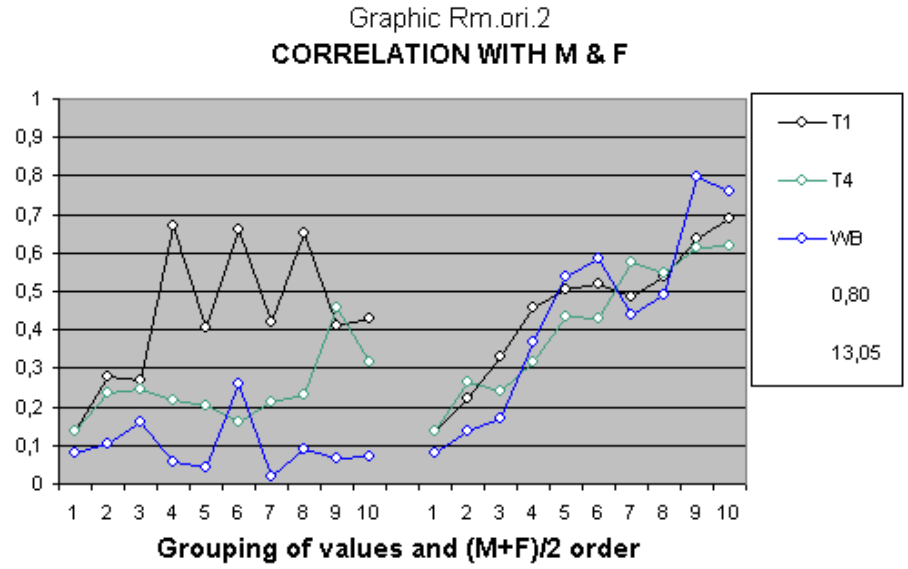
Order	Objective function					
	R			M & F		
	Graphics	GMCI	r^2 max.	Graphics	GMCI	r^2 max.
(M +F)/2	q011	12,48	0,67	q012	13,05	0,80
M1F1	q013	12,17	0,87	q014	13,28	0,87
R	q015	12,07	0,74	q016	13,05	0,75
WB	q017	13,22	0,92	q018	14,68	0,99

Go to EDI Study

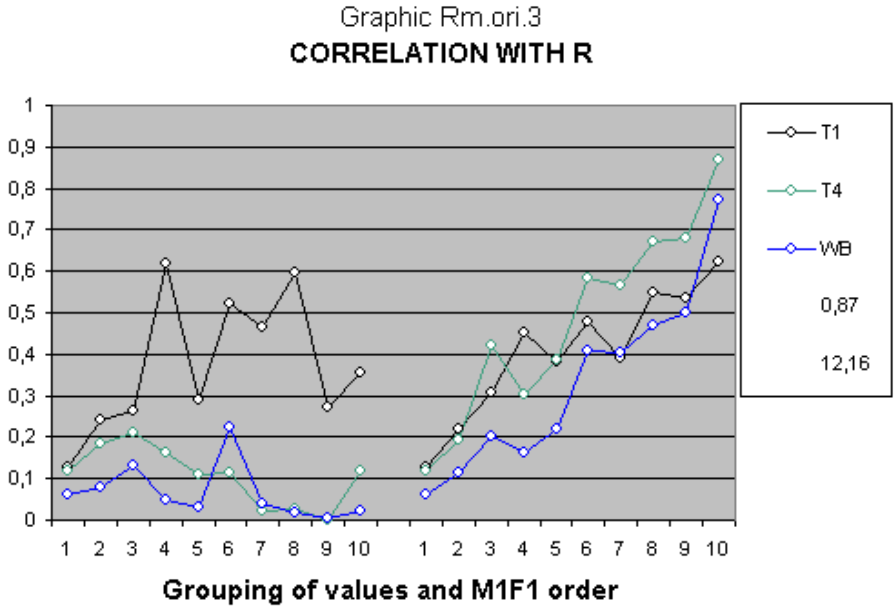
q011


Graphic Rm.ori.1
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and (M+F)/2 order
T1
T4
WB
0,67
12,48

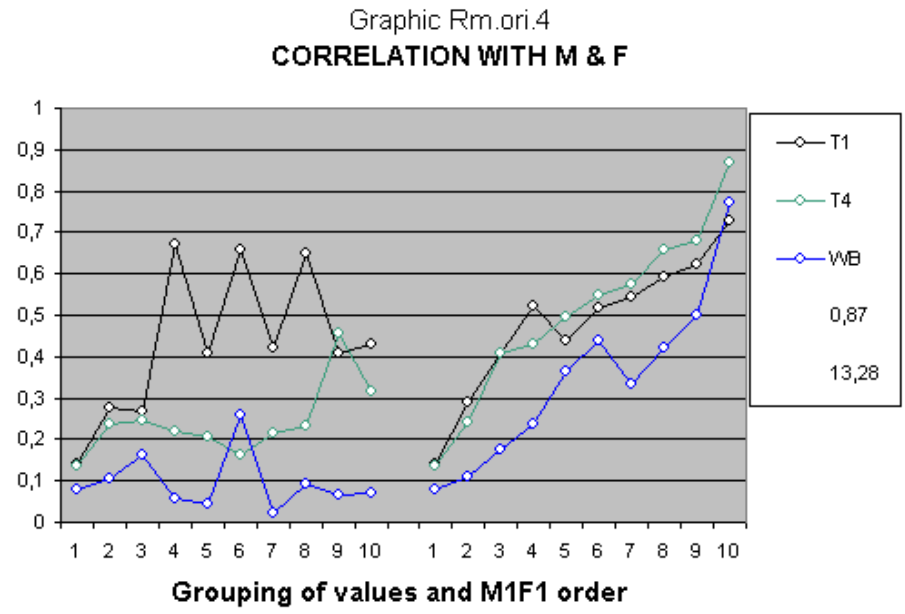
q012


Graphic Rm.ori.2
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and (M+F)/2 order
T1
T4
WB
0,80
13,05

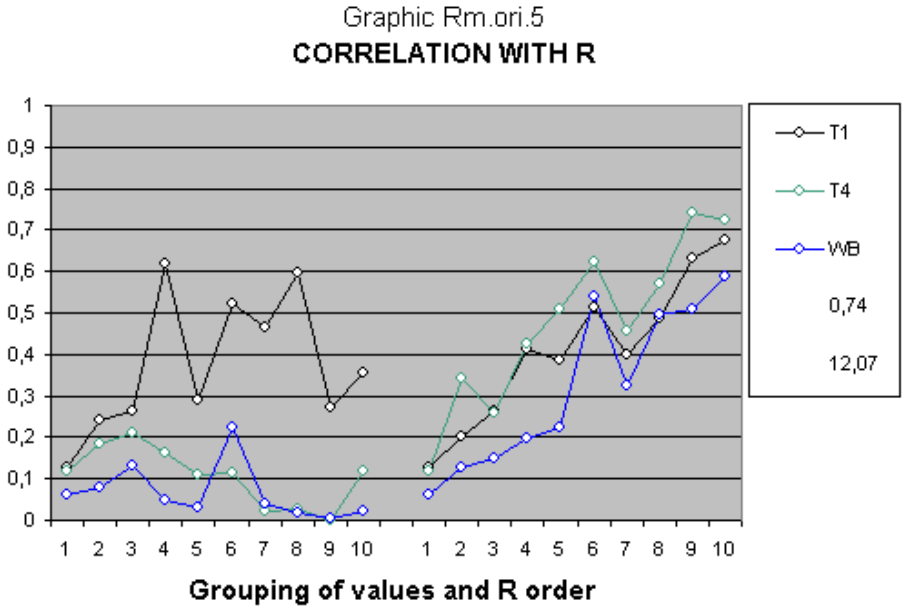
q013


Graphic Rm.ori.3
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M1F1 order
T1
T4
WB
0,87
12,16

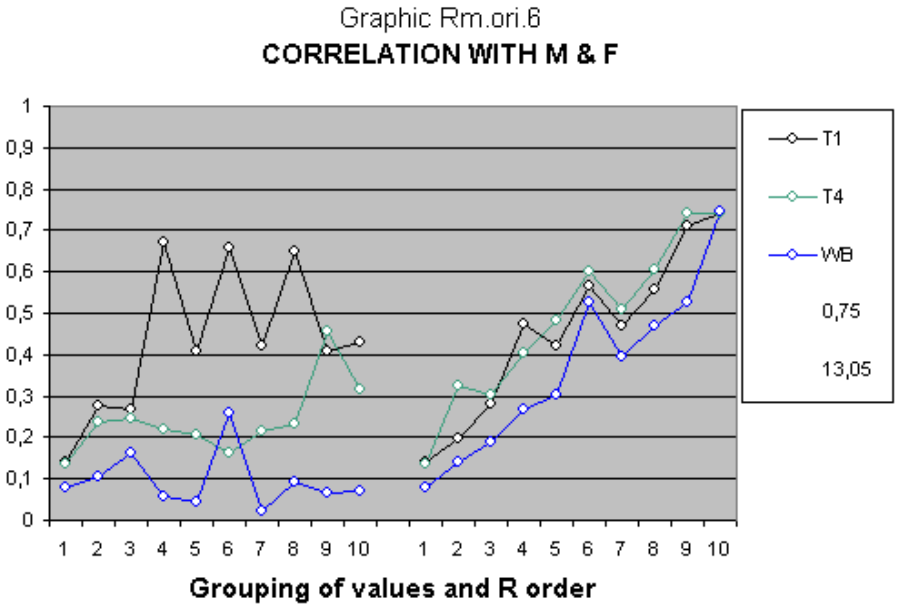
q014


Graphic Rm.ori.4
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M1F1 order
T1
T4
WB
0,87
13,28

q015


Graphic Rm.ori.5
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and R order
T1
T4
WB
0,74
12,07

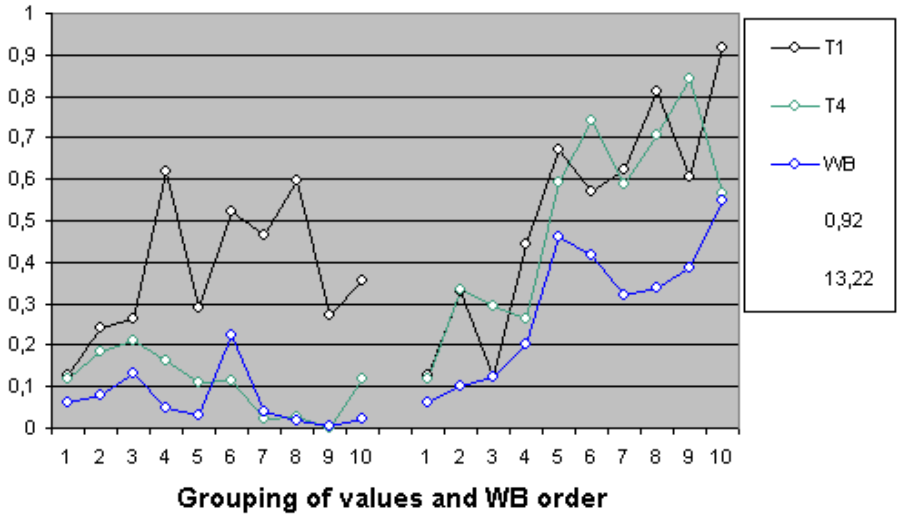
q016


Graphic Rm.ori.6
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and R order
T1
T4
WB
0,75
13,05

q017

Graphic Rm.ori.7

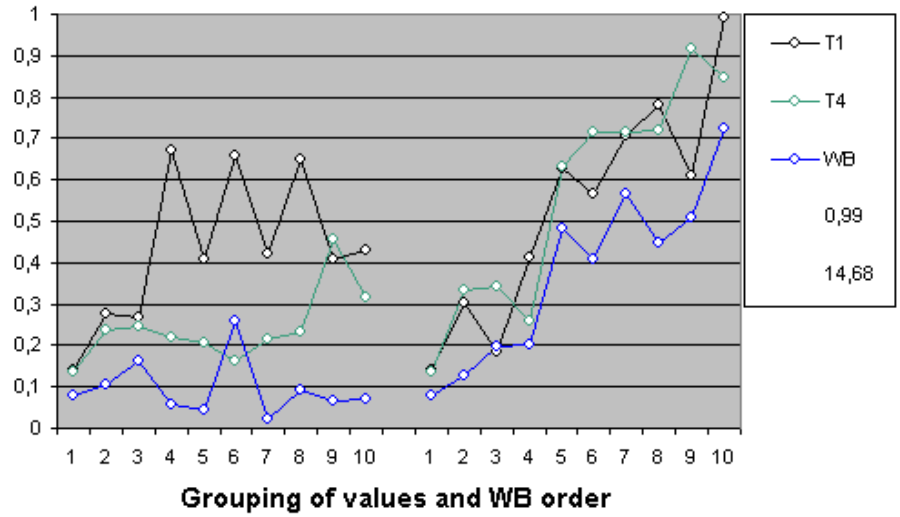
CORRELATION WITH R



q018

Graphic Rm.ori.8

CORRELATION WITH M & F



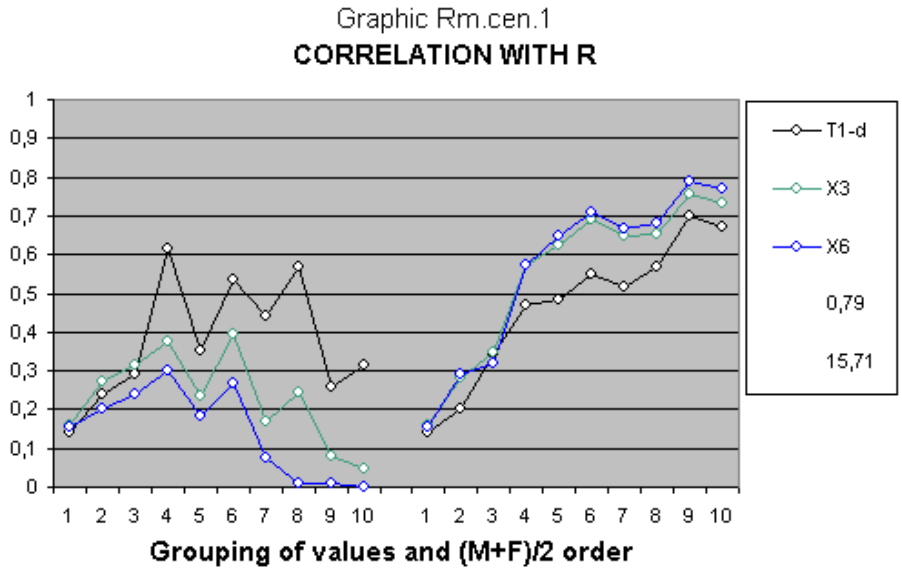
SOCIAL MODEL: T1-d, X3, and X6

Statistical study on IQ

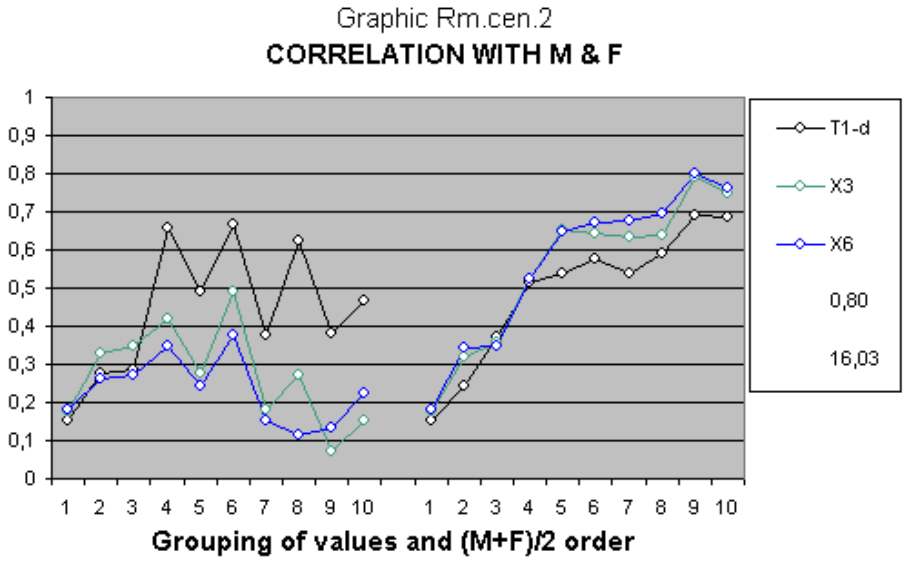
Order	Objective function					
	R			M & F		
	Graphs	GMCI	r^2 max.	Graphs	GMCI	r^2 max.
(M+F)/2	q021	15,71	0,79	q022	16,03	0,80
M1F1	q023	14,98	0,92	q024	16,07	0,92
R	q025	15,02	0,89	q026	15,88	0,90
X6	q027	15,05	0,91	q028	17,20	0,88

Go to EDI Study

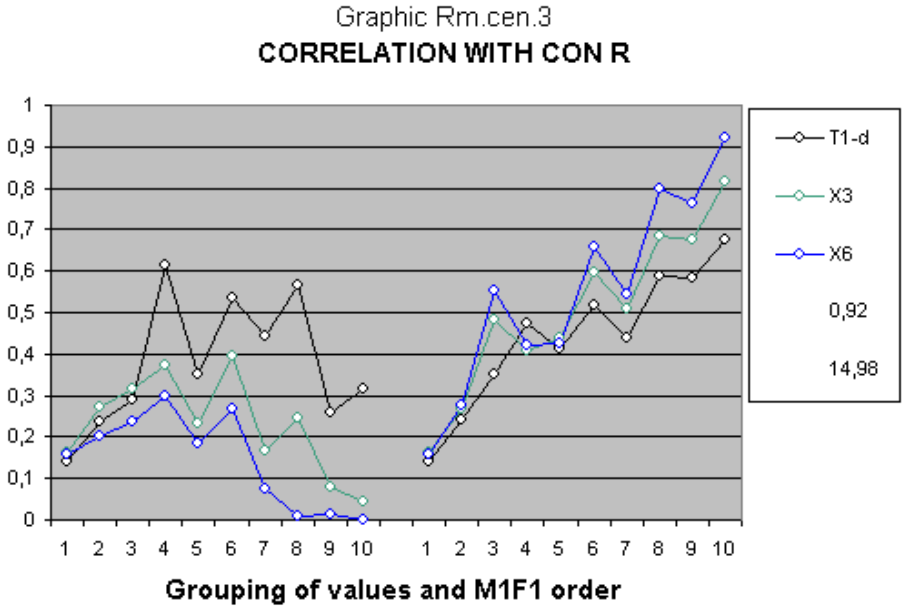
q021


Graphic Rm.cen.1
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and (M+F)/2 order
T1-d
X3
X6
0,79
15,71

q022

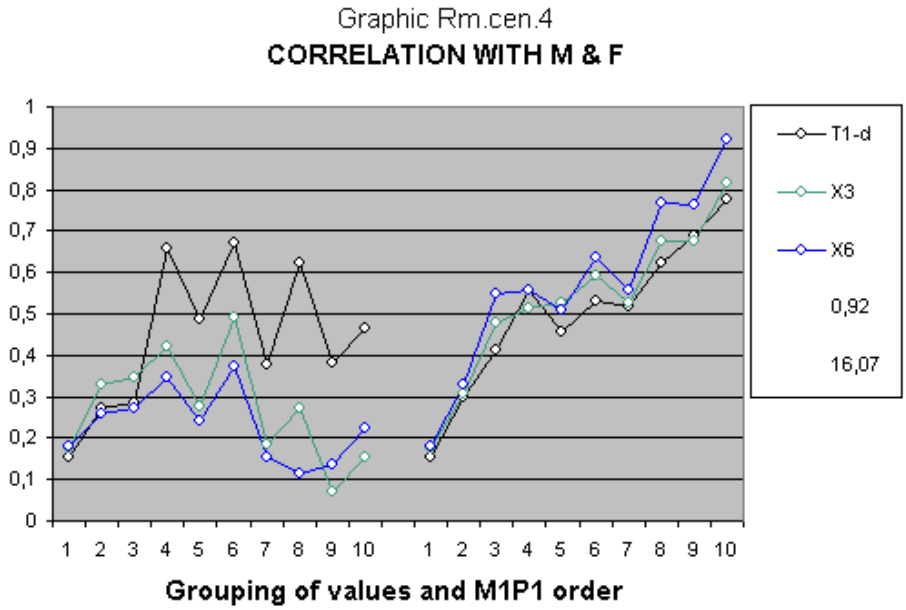

Graphic Rm.cen.2
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and (M+F)/2 order
T1-d
X3
X6
0,80
16,03

q023



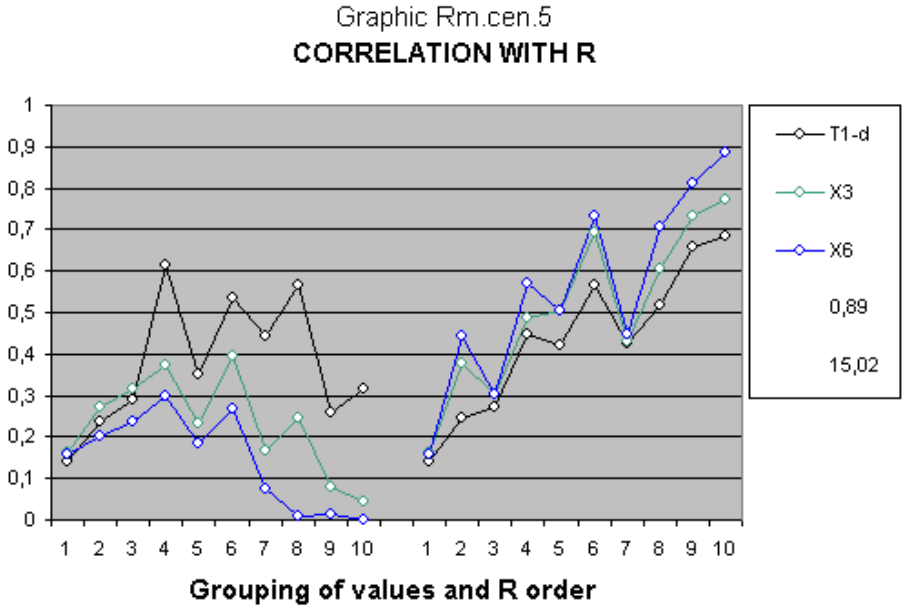
Back to Globus Model

q024

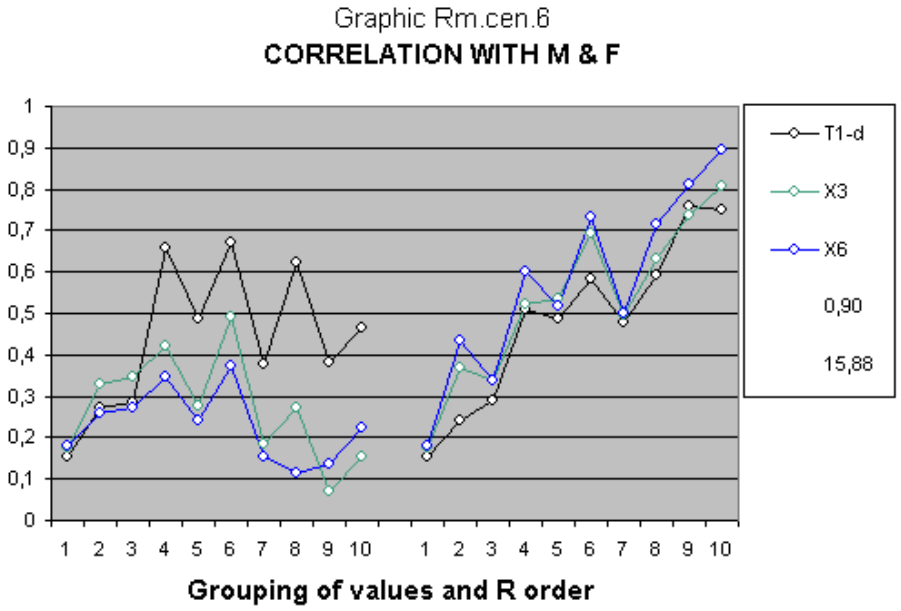


Back to Globus Model

q025


Graphic Rm.cen.5
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and R order
T1-d
X3
X6
0,89
15,02

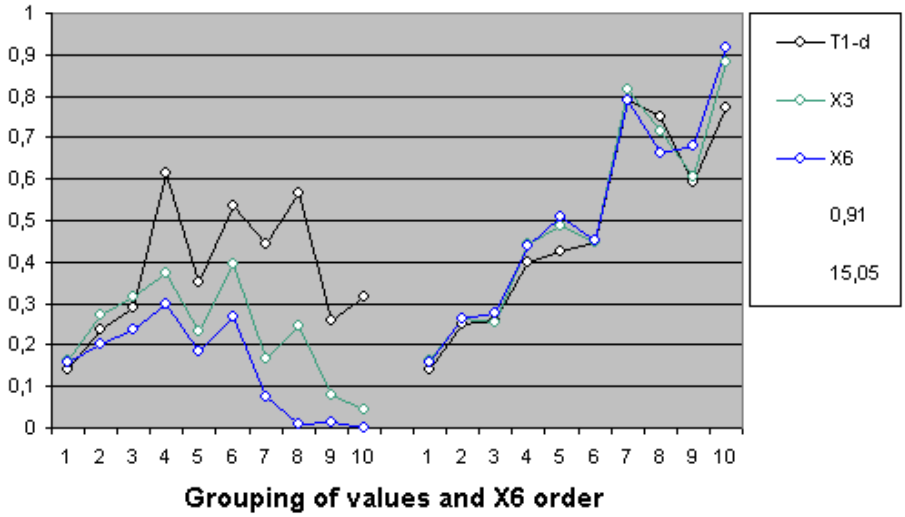
q026


Graphic Rm.cen.6
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and R order
T1-d
X3
X6
0,90
15,88

q027

Graphic Rm.cen.7

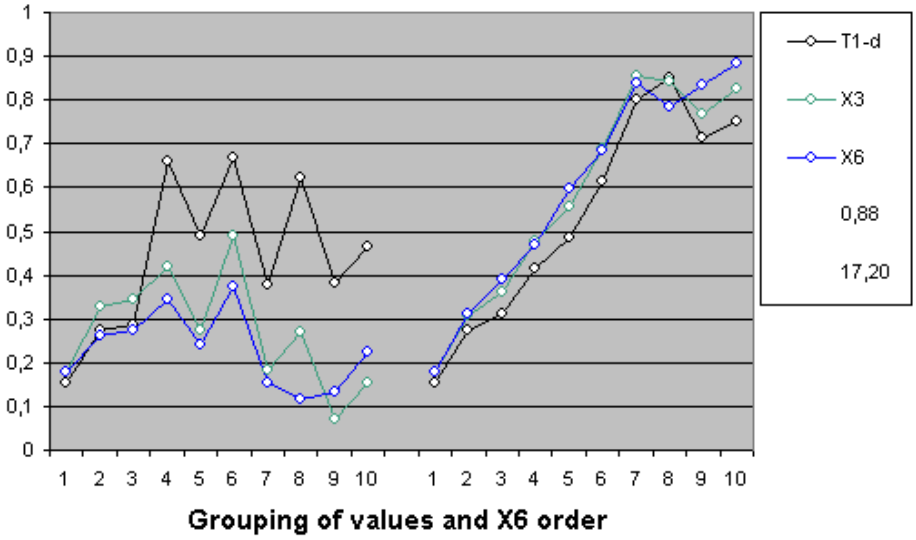
CORRELATION WITH R



q028

Graphic Rm.cen.8

CORRELATION WITH M & F



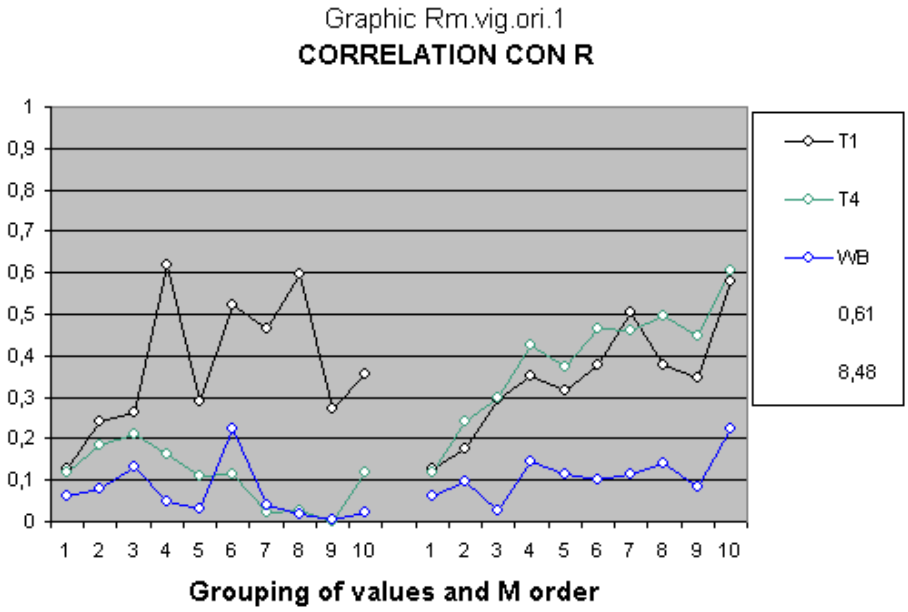
SOCIAL MODEL: METHOD LoVeInf

Statistical study on IQ

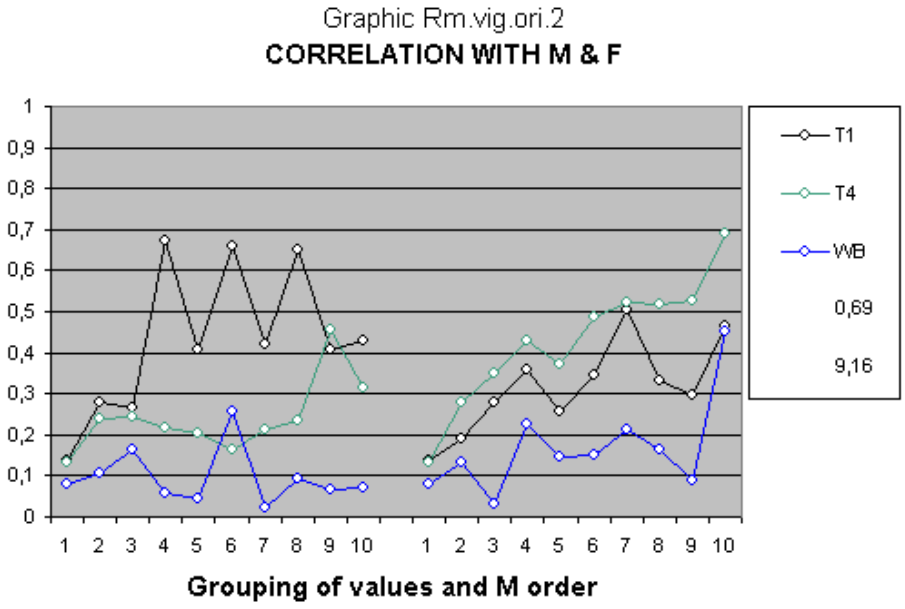
Order	Objective function					
	R			M & F		
	Graphs	GMCI	r^2 max.	Graphs	GMCI	r^2 max.
3 - Original variables T1, T4, and WB						
M	q031	8,48	0,61	q032	9,16	0,69
F	q033	9,44	0,59	q034	12,52	0,78
2F2M	q035	7,55	0,61	q036	10,25	0,73
4 - Centred variables T1-d, X3 and X6						
M	q041	11,79	0,67	q042	12,14	0,71
P	q043	12,28	0,69	q044	14,38	0,80
2F2M	q045	9,20	0,56	q046	12,39	0,70

Go to EDI Study

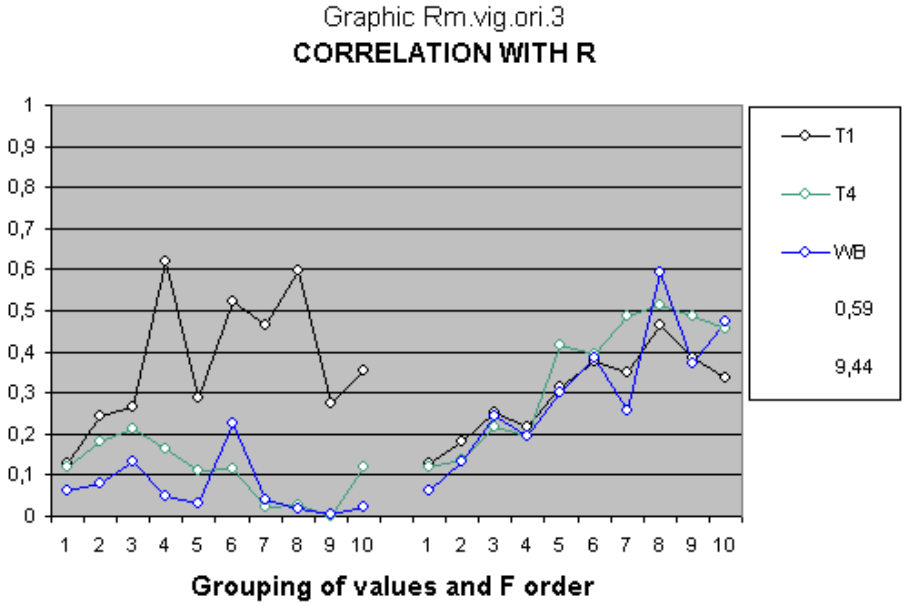
q031


Graphic Rm.vig.ori.1
CORRELATION CON R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M order
T1
T4
WB
0,61
8,48

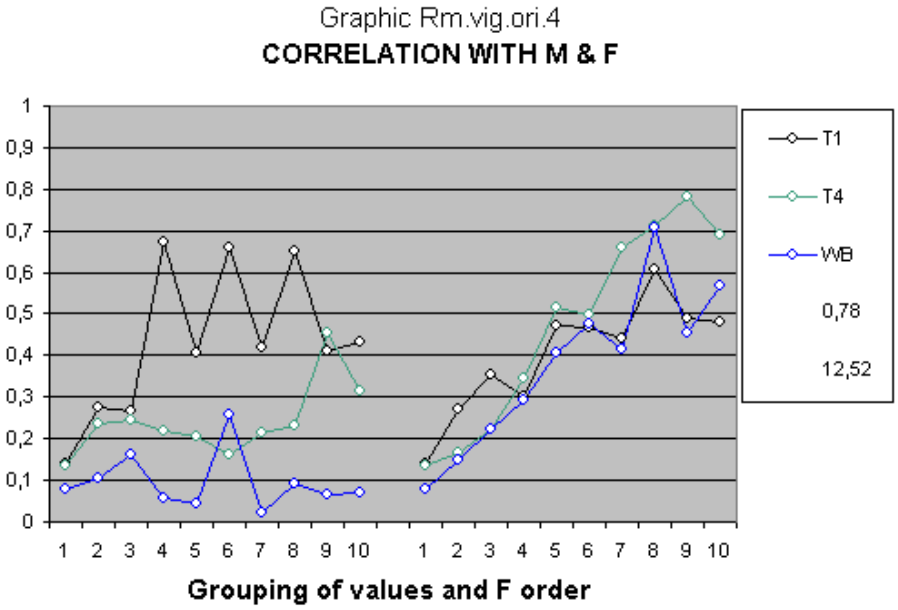
q032


Graphic Rm.vig.ori.2
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M order
T1
T4
WB
0,69
9,16

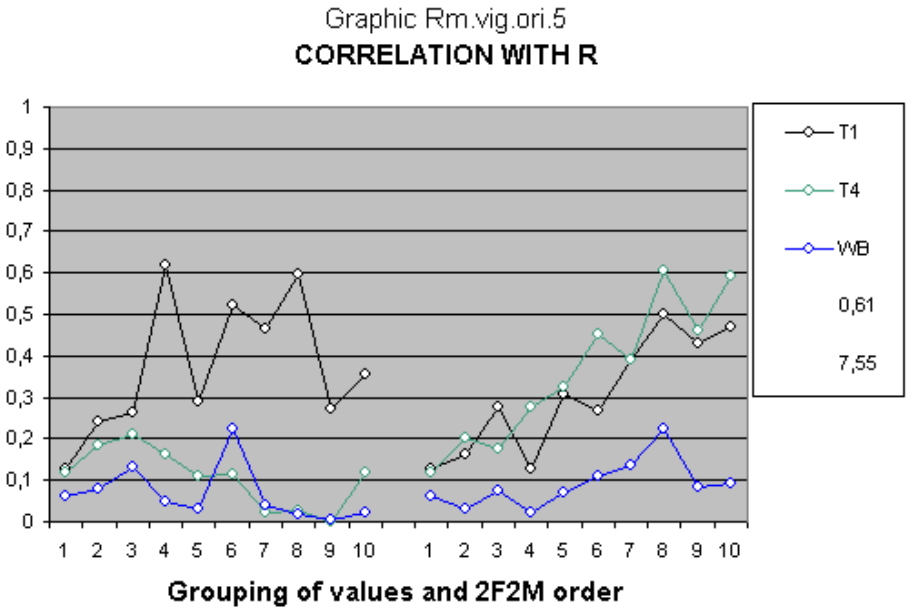
q033


Graphic Rm.vig.ori.3
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and F order
T1
T4
WB
0,59
9,44

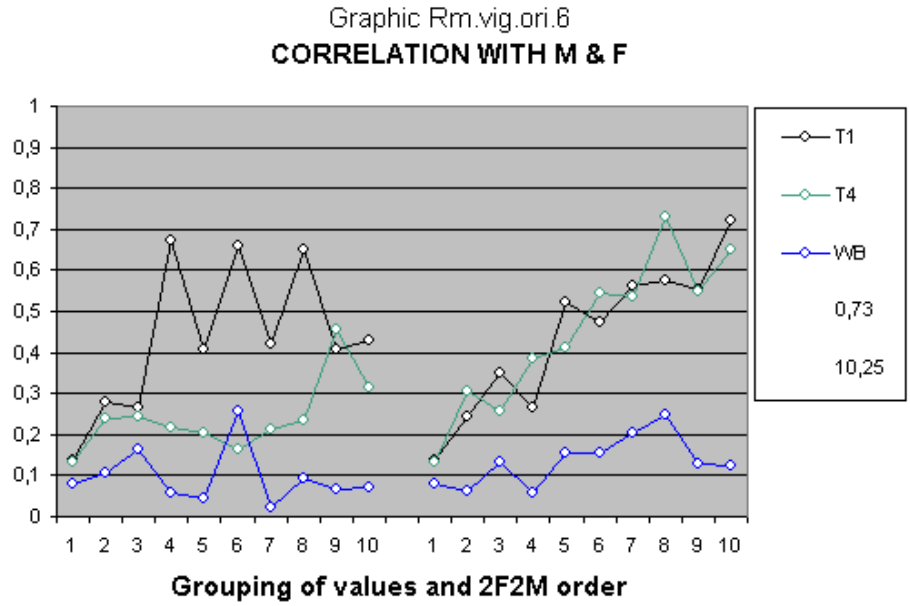
q034


Graphic Rm.vig.ori.4
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and F order
T1
T4
WB
0,78
12,52

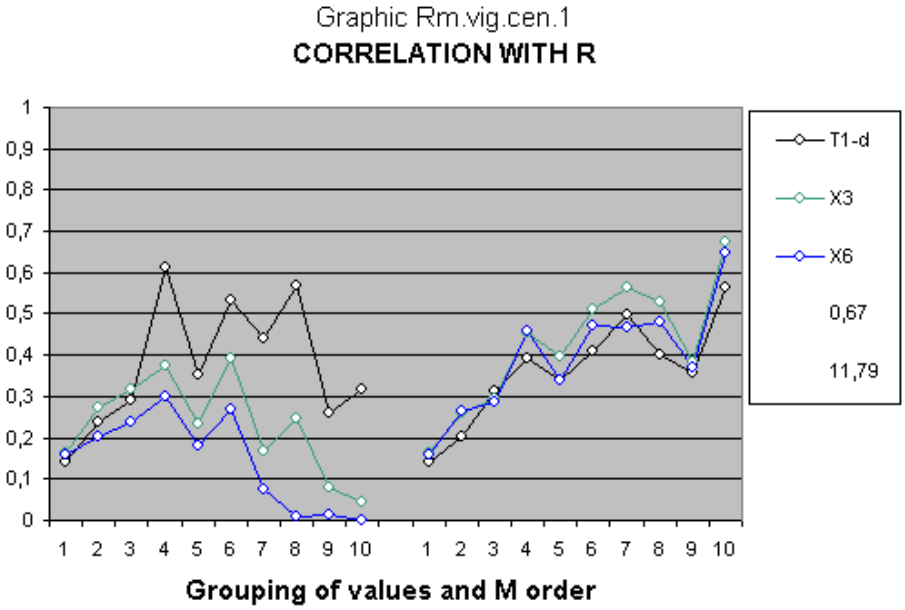
q035


Graphic Rm.vig.ori.5
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and 2F2M order
T1
T4
WB
0,61
7,55

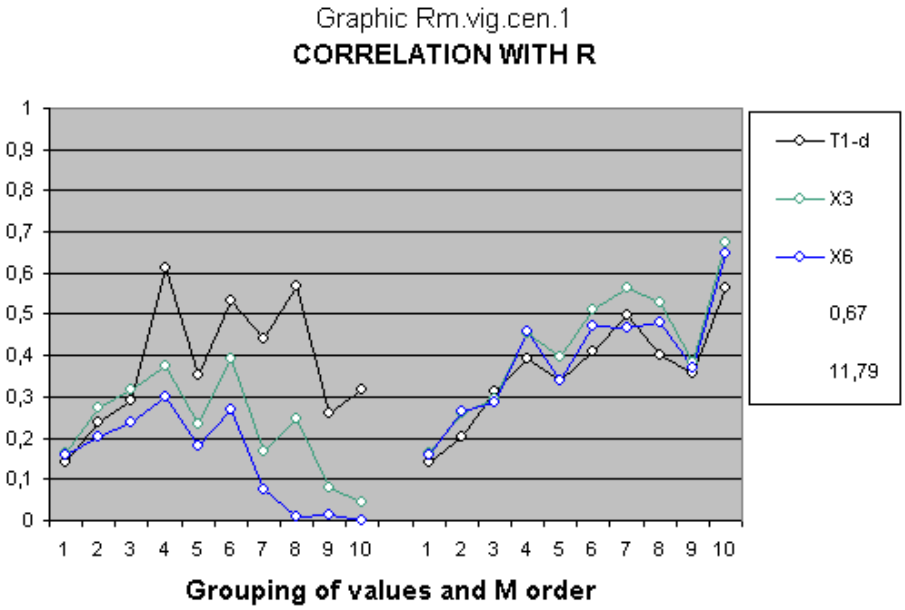
q036


Graphic Rm.vig.ori.6
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and 2F2M order
T1
T4
WB
0,73
10,25

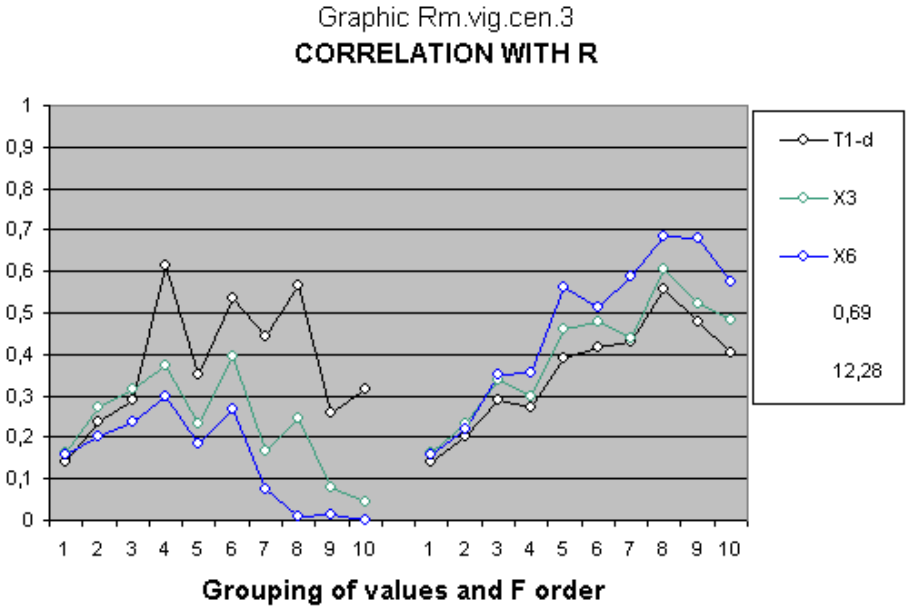
q041


Graphic Rm.vig.cen.1
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M order
T1-d
X3
X6
0,67
11,79

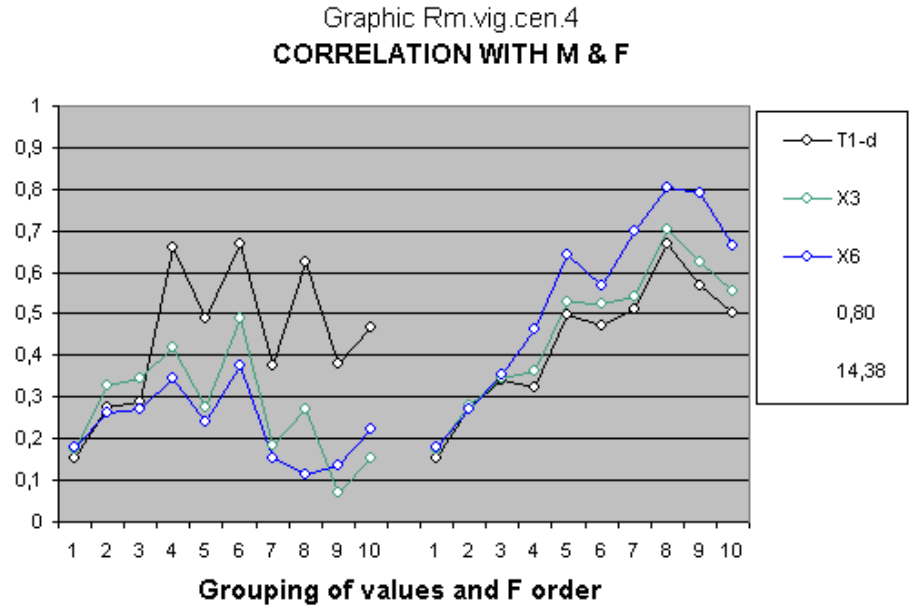
q042


Graphic Rm.vig.cen.1
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M order
T1-d
X3
X6
0,67
11,79

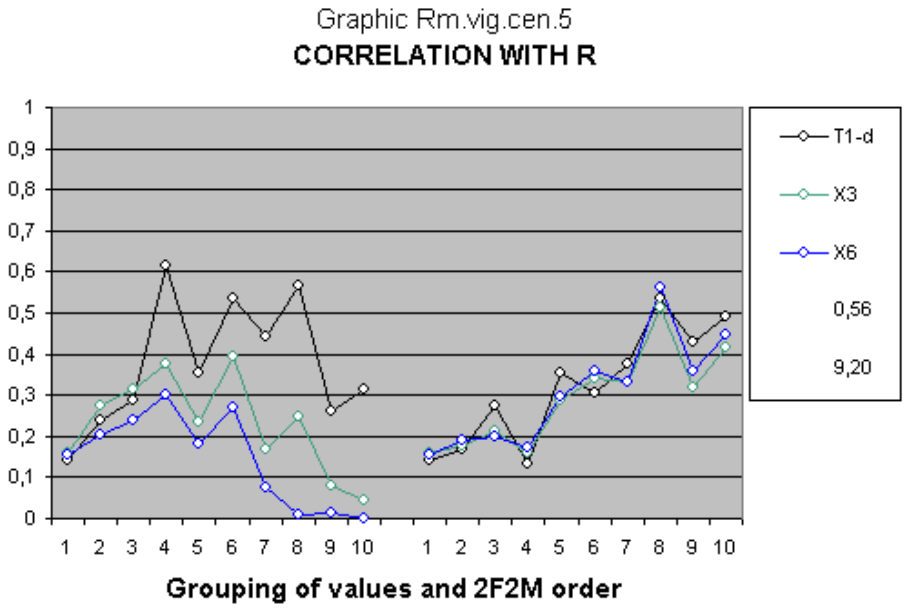
q043


Graphic Rm.vig.cen.3
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and F order
T1-d
X3
X6
0,69
12,28

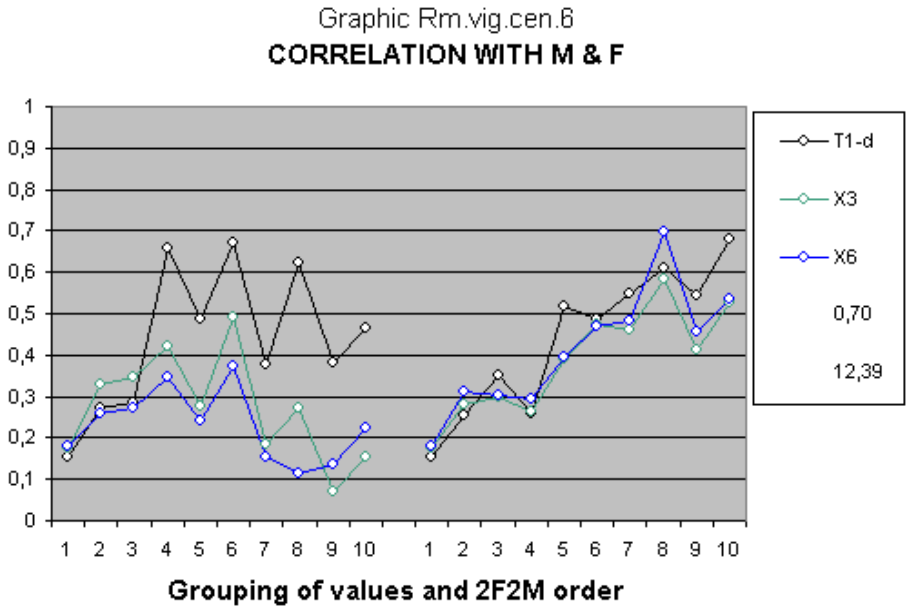
q044


Graphic Rm.vig.cen.4
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and F order
T1-d
X3
X6
0,80
14,38

q045


Graphic Rm.vig.cen.5
CORRELATION WITH R
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and 2F2M order
T1-d
X3
X6
0,56
9,20

q046

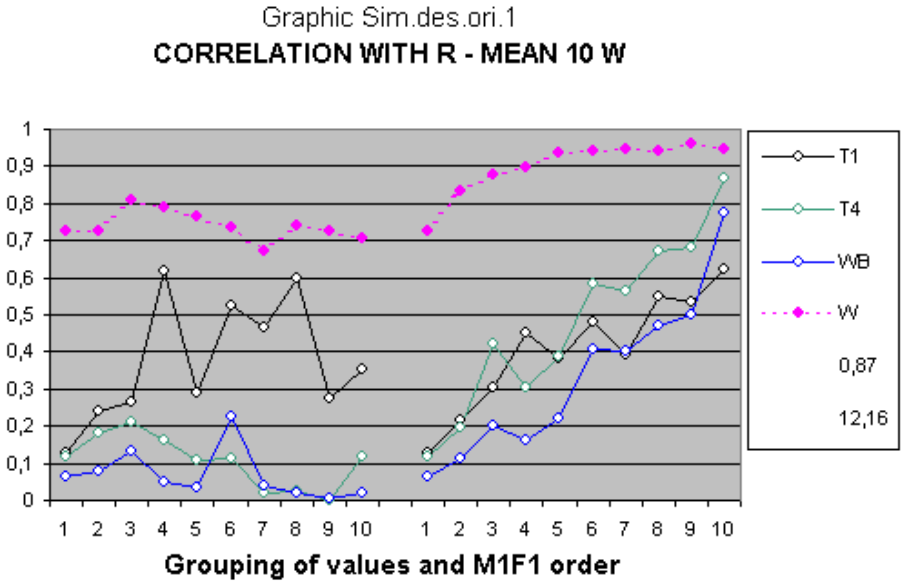

Graphic Rm.vig.cen.6
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and 2F2M order
T1-d
X3
X6
0,70
12,39

Computer simulation of evolution
Intelligence Artificial intelligence quotients

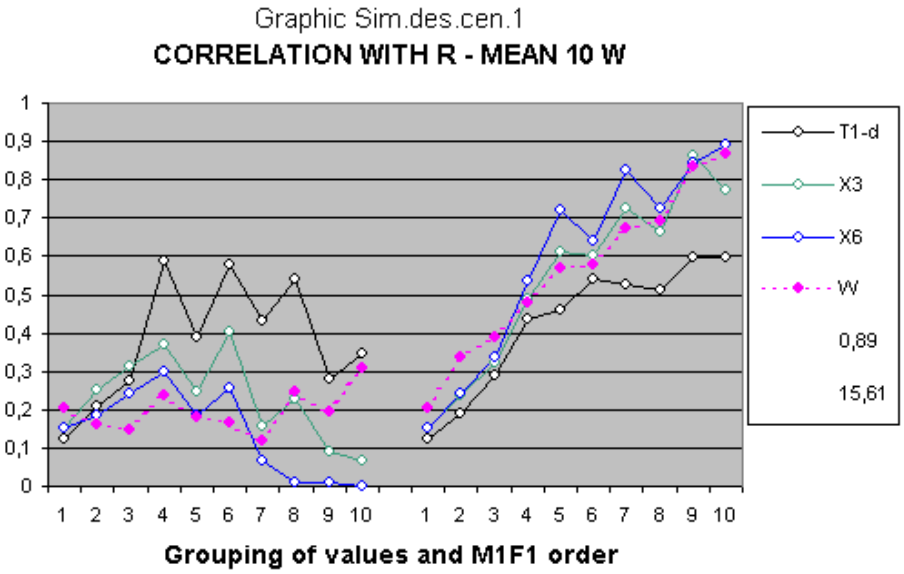
Graphics	Subject	Observations
q050	MCIW	Too high
q060	MCIW	Similar to GMCI

Go to EDI Study

q050


Graphic Sim.des.ori.1
CORRELATION WITH R - MEAN 10 W
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M1F1 order
T1
T4
WB
W
0,87
12,16

q060


Graphic Sim.des.cen.1
CORRELATION WITH R - MEAN 10 W
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M1F1 order
T1-d
X3
X6
W
0,89
15,61

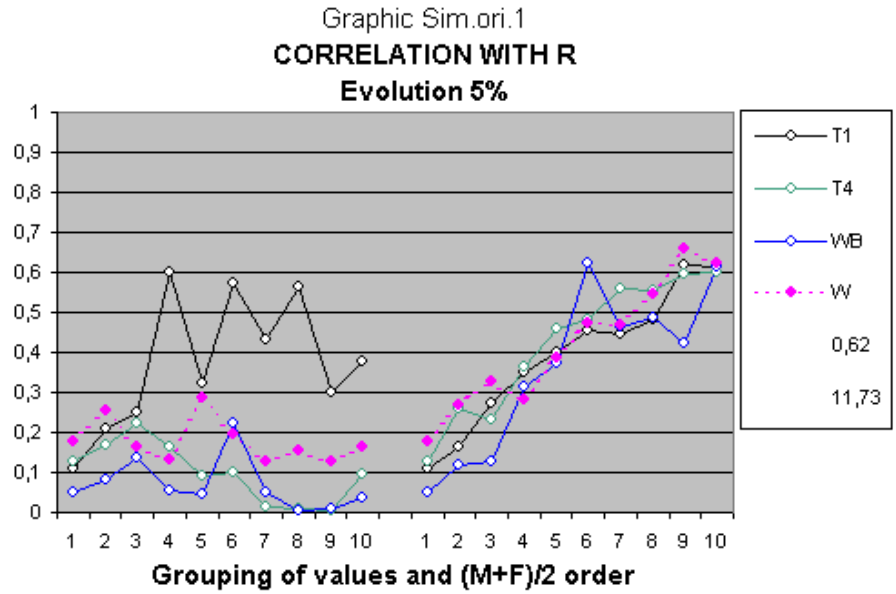
GLOBAL MODEL: T1, T4, and WB

Original variables - 5% internal evolution

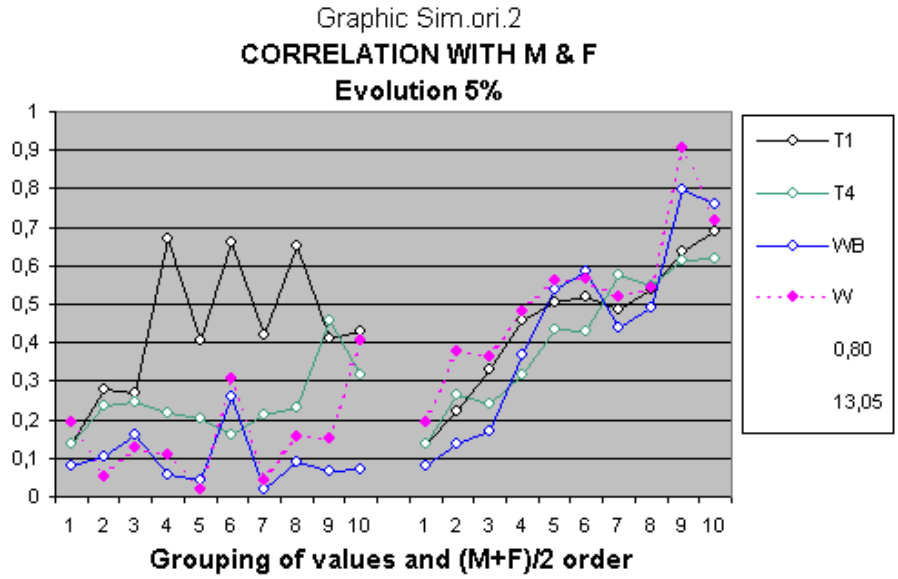
Order	Objective function					
	R°			M & F		
	Graphs	GMCI	r^2 max.	Graphs	GMCI	r^2 max.
(M+F)/2	q051°	11,73	0,62	q052	13,05	0,80
M1F1°	q053°	10,91	0,79	q054°	13,04	0,79
R°	q055°	10,83	0,73	q056°	12,63	0,94
WB	q057°	12,26	0,89	q058	14,68	0,99
° Internal evolution parameters affect the objective function R and M1F1 order						

Go to EDI Study

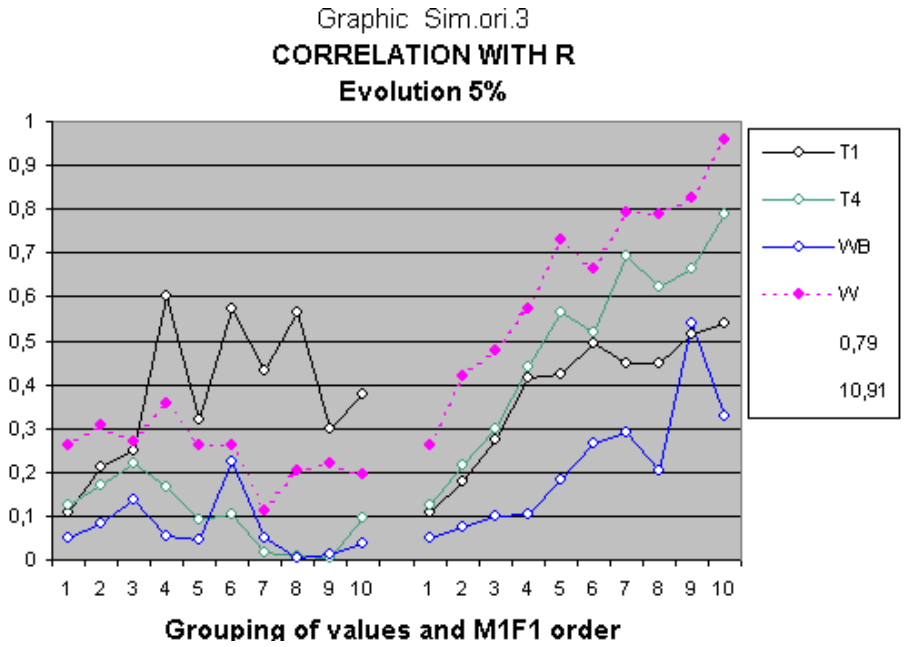
q051


Graphic Sim.ori.1
CORRELATION WITH R
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and (M+F)/2 order
T1
T4
WB
W
0,62
11,73

q052

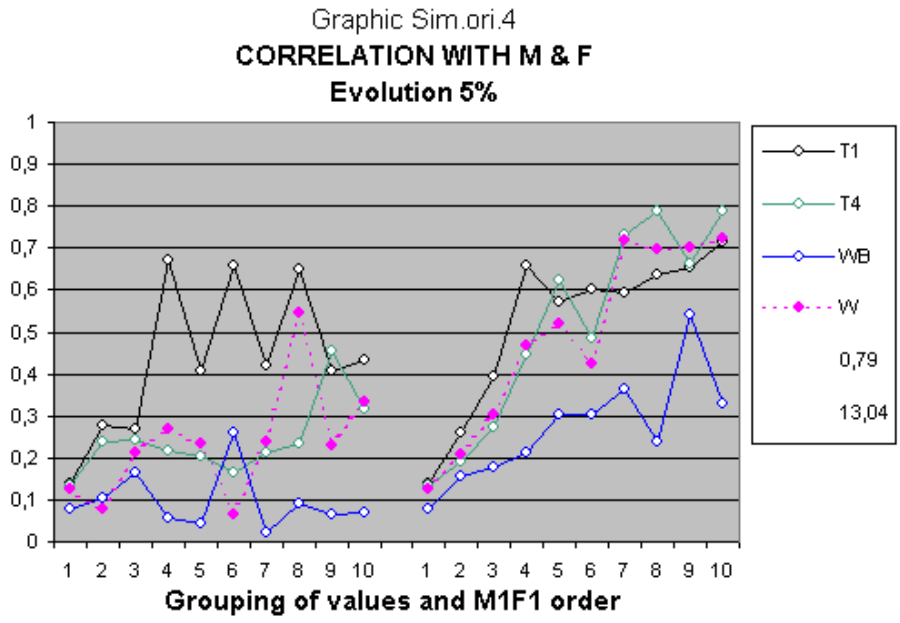

Graphic Sim.ori.2
CORRELATION WITH M & F
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and (M+F)/2 order
T1
T4
WB
W
0,80
13,05

q053

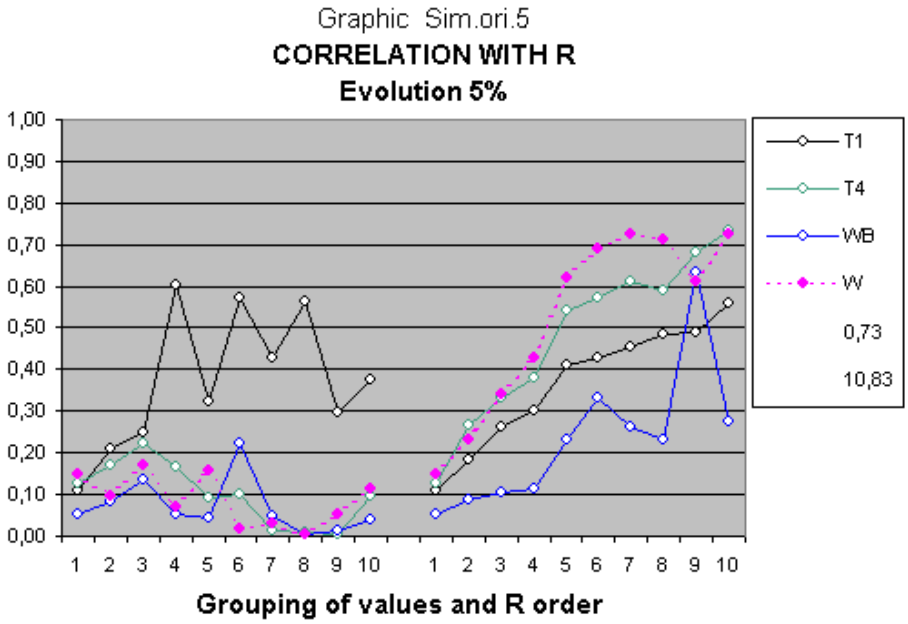


Back to family study

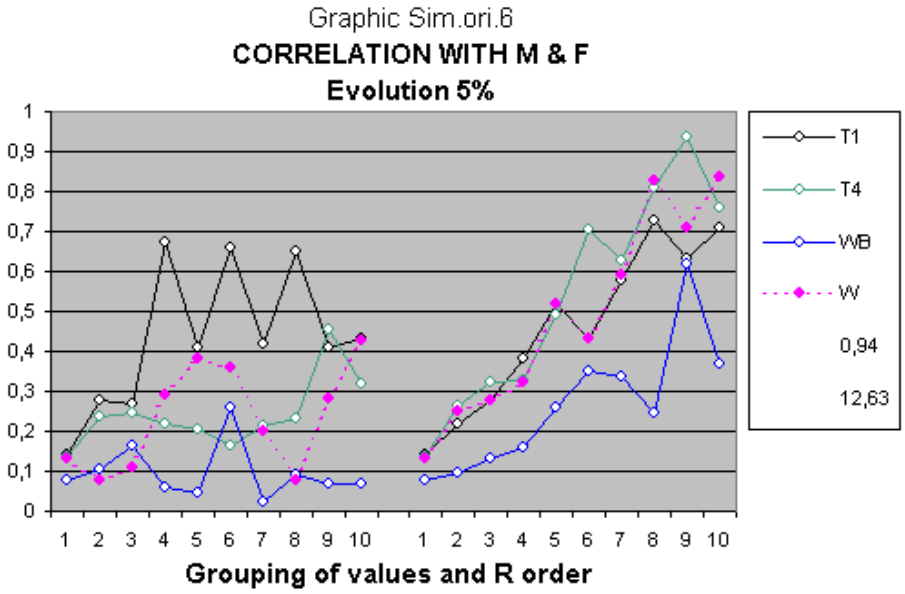
q054



q055

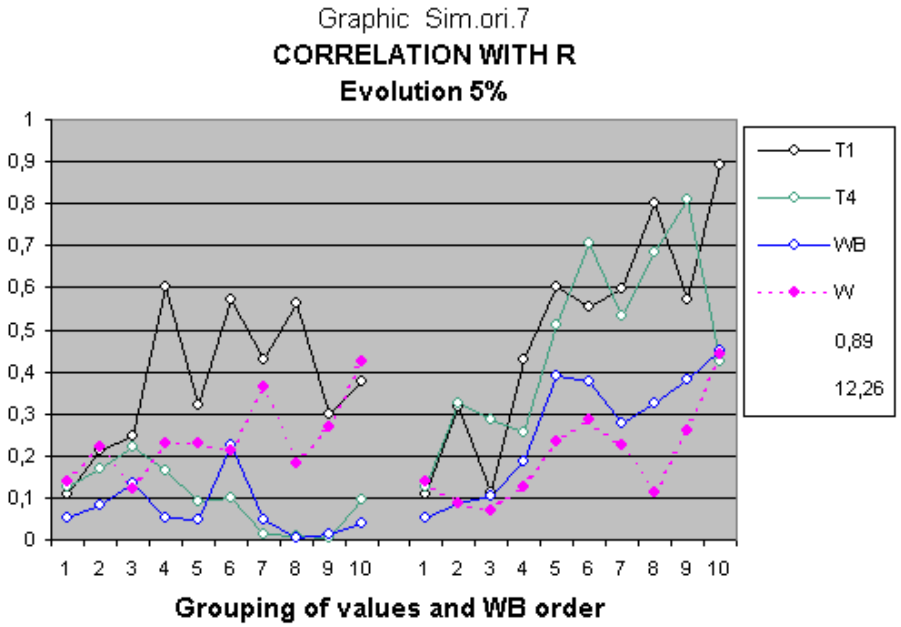


q056

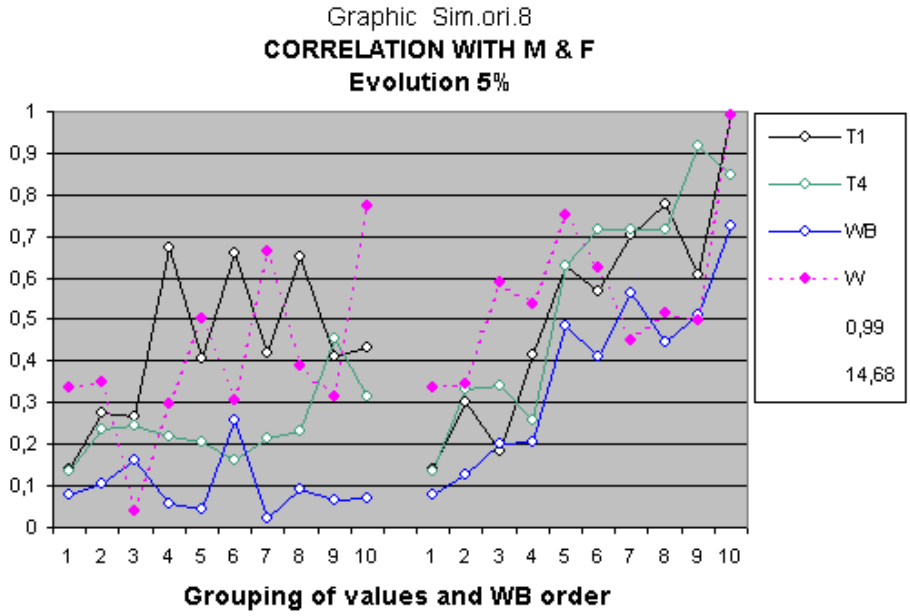


Back to family study

q057


Graphic Sim.ori.7
CORRELATION WITH R
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and WB order
T1
T4
WB
W
0,89
12,26

q058


Graphic Sim.ori.8
CORRELATION WITH M & F
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and WB order
T1
T4
WB
W
0,99
14,68

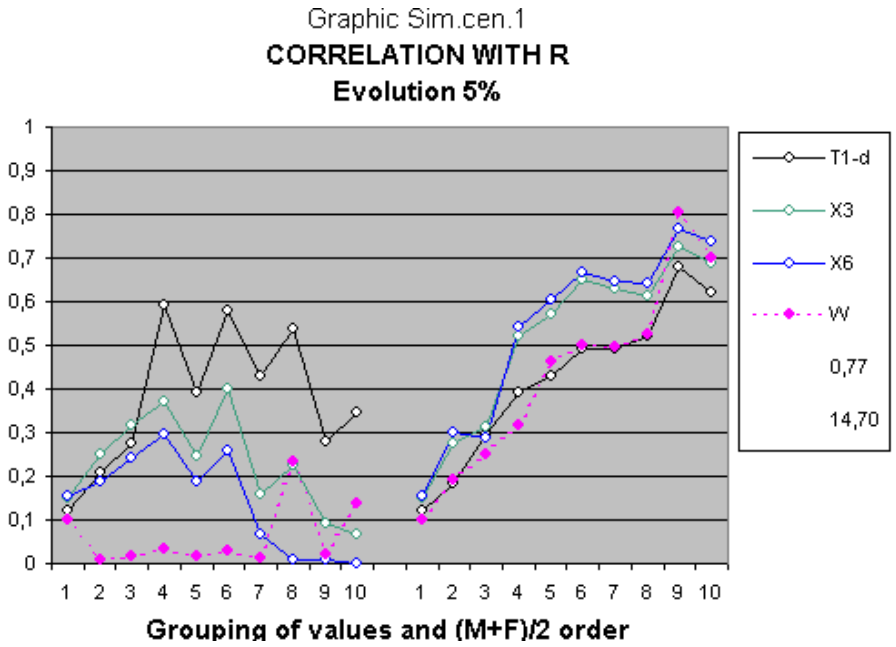
GLOBAL MODEL: T1-d, X3, and X6

Centered variables - 5% internal evolution

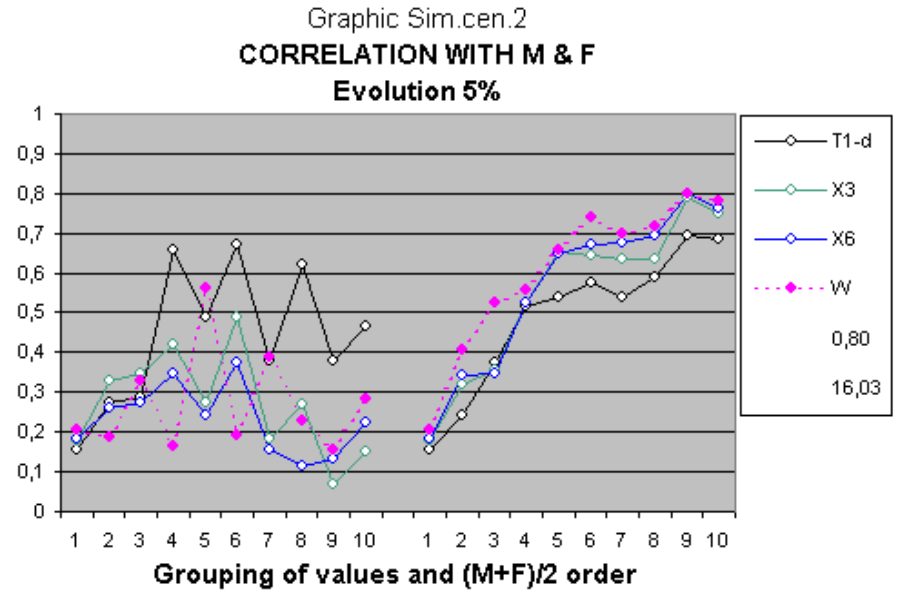
Order	Objective function					
	R°			M & F		
	Graphs	GMCI	r² max.	Graphs	GMCI	r² max.
(M+F)/2	q061°	14,70	0,77	q062	16,03	0,80
M1F1°	q063°	15,61	0,89	q064°	17,77	0,89
R°	q065°	15,55	0,84	q066°	17,40	0,97
X6	q067°	15,05	0,91	q068	17,20	0,88
° Internal evolution parameters affect the objective function R and M1F1 order						

Go to EDI Study

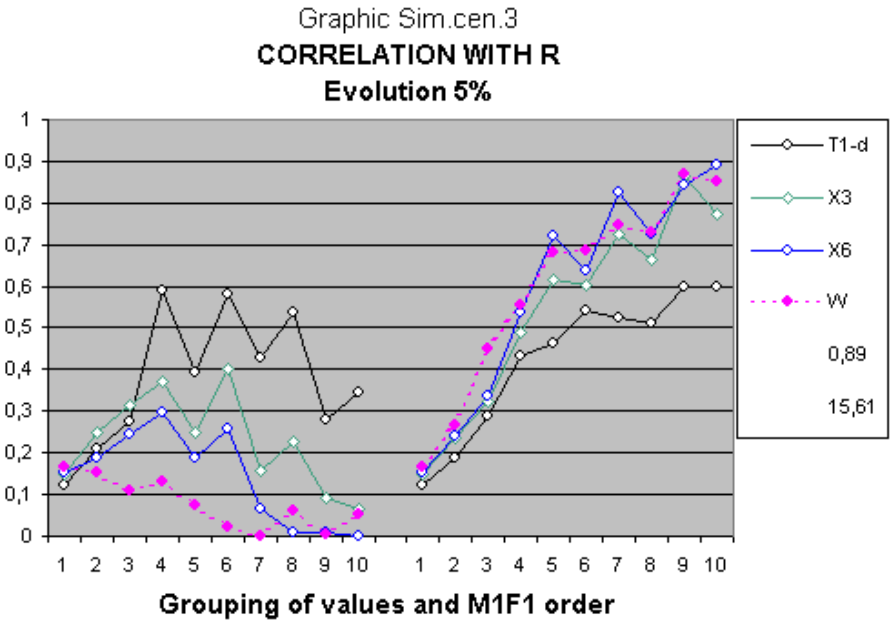
q061


Graphic Sim.cen.1
CORRELATION WITH R
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and (M+F)/2 order
T1-d
X3
X6
W
0,77
14,70

q062


Graphic Sim.cen.2
CORRELATION WITH M & F
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and (M+F)/2 order
T1-d
X3
X6
W
0,80
16,03

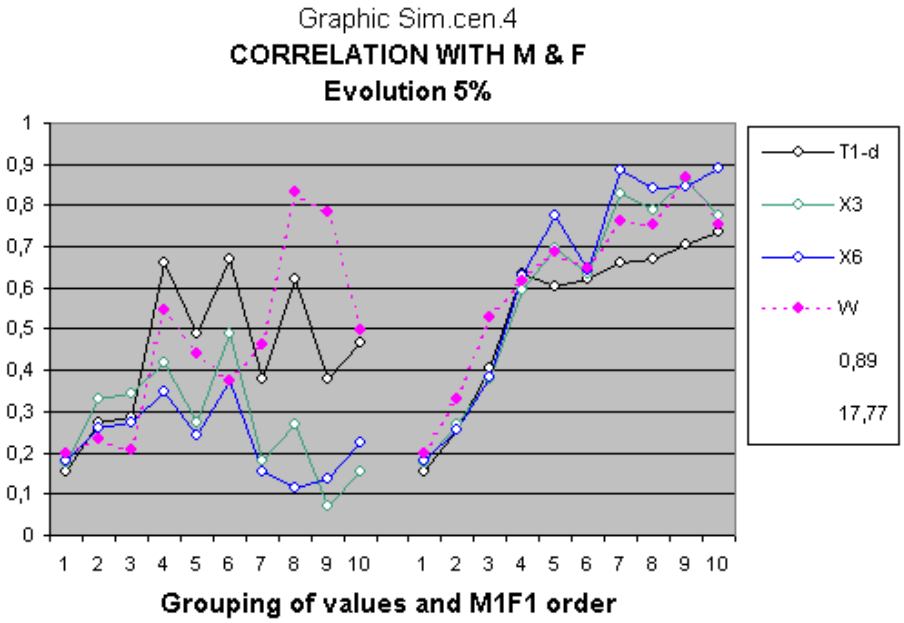
q063



Back to Globus Model

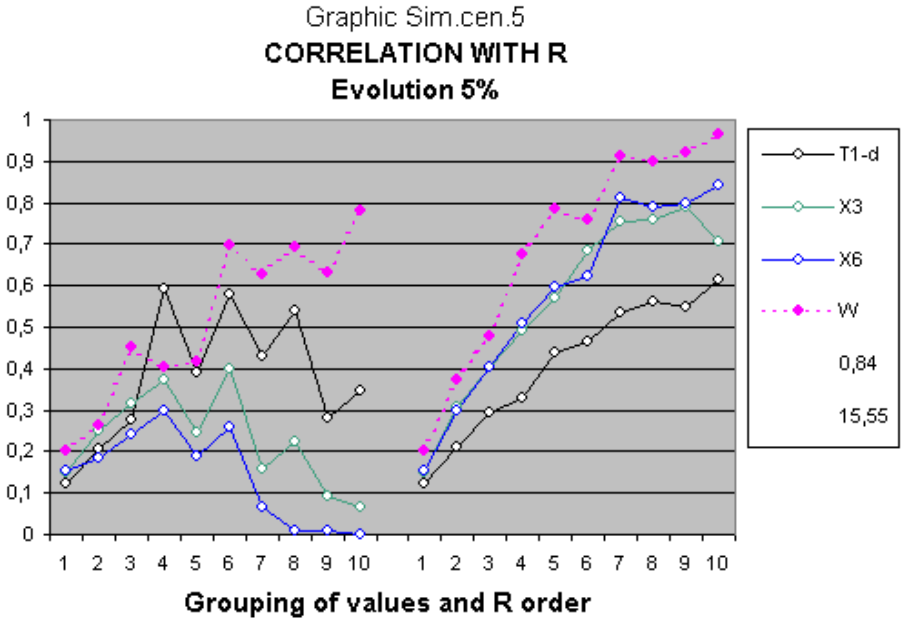
Back to family study

q064

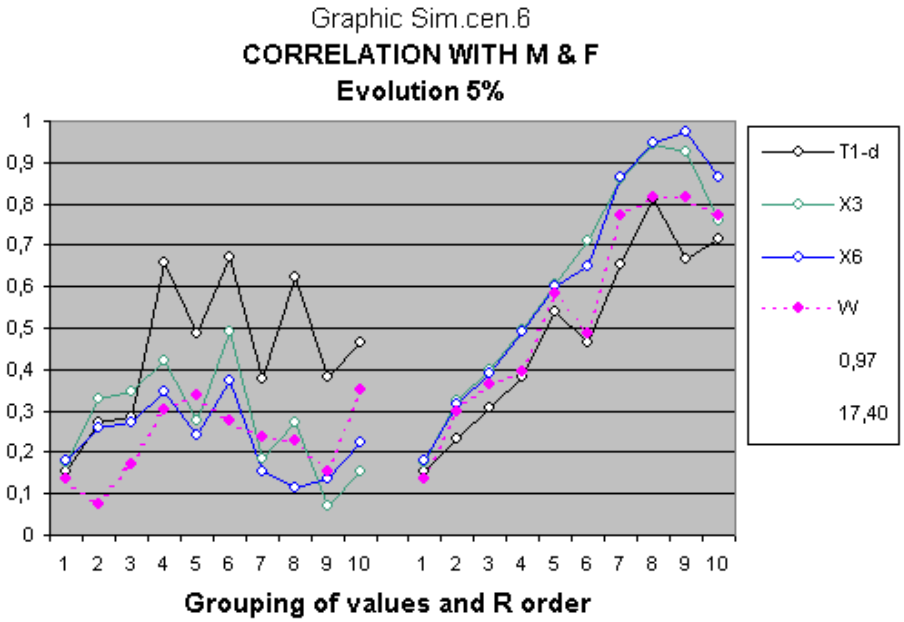


Back to Globus Model

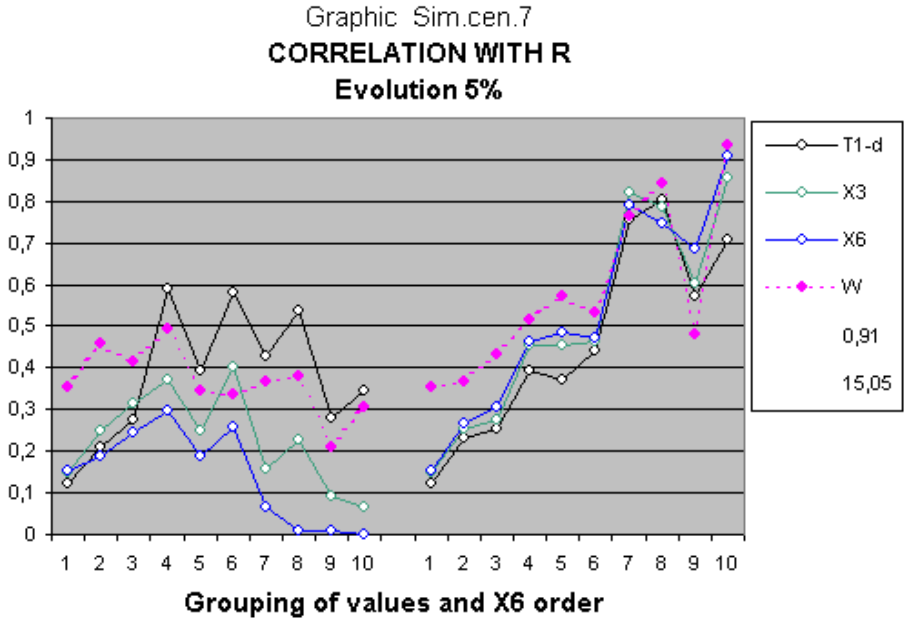
q065


Graphic Sim.cen.5
CORRELATION WITH R
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and R order
T1-d
X3
X6
W
0,84
15,55

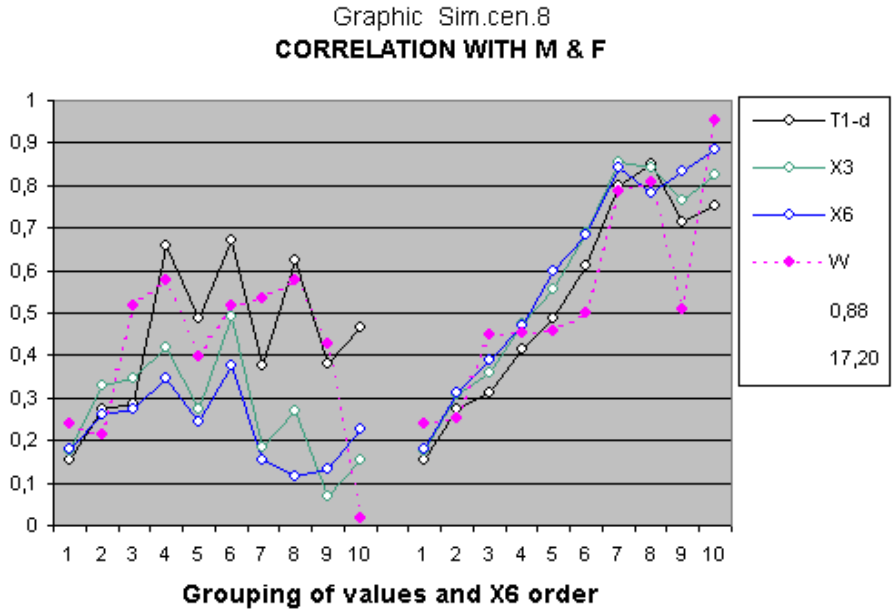
q066


Graphic Sim.cen.6
CORRELATION WITH M & F
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and R order
T1-d
X3
X6
W
0,97
17,40

q067


Graphic Sim.cen.7
CORRELATION WITH R
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and X6 order
T1-d
X3
X6
W
0,91
15,05

q068


Graphic Sim.cen.8
CORRELATION WITH M & F
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and X6 order
T1-d
X3
X6
W
0,88
17,20

GLOBUS MODEL

(Globus parametrized model)

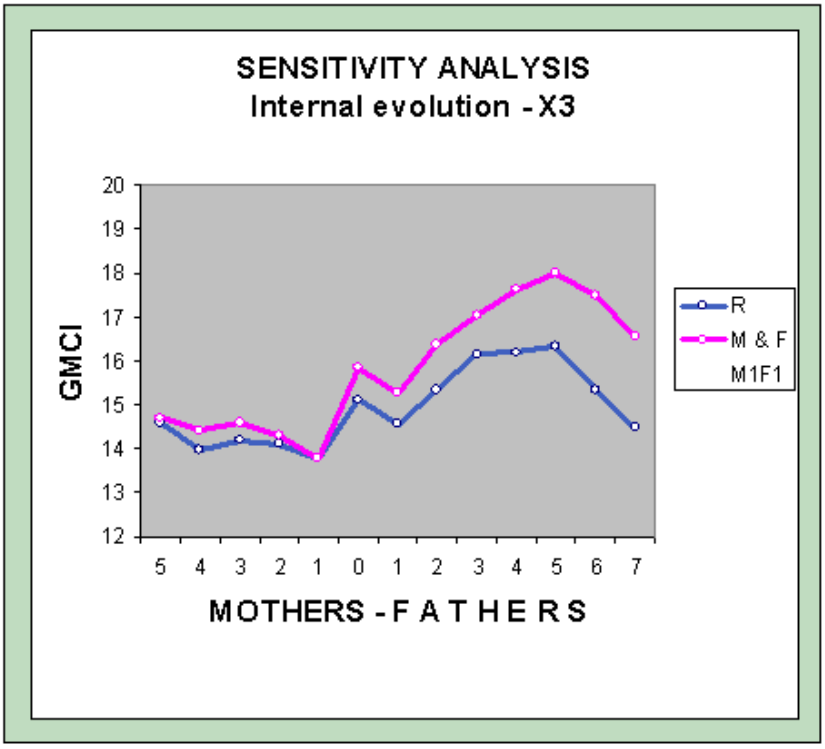
Variable X3 q073°	Variable X6 q076°	sexual selection & X6 q077°

INTERNAL EVOLUTION SENSITIVITY

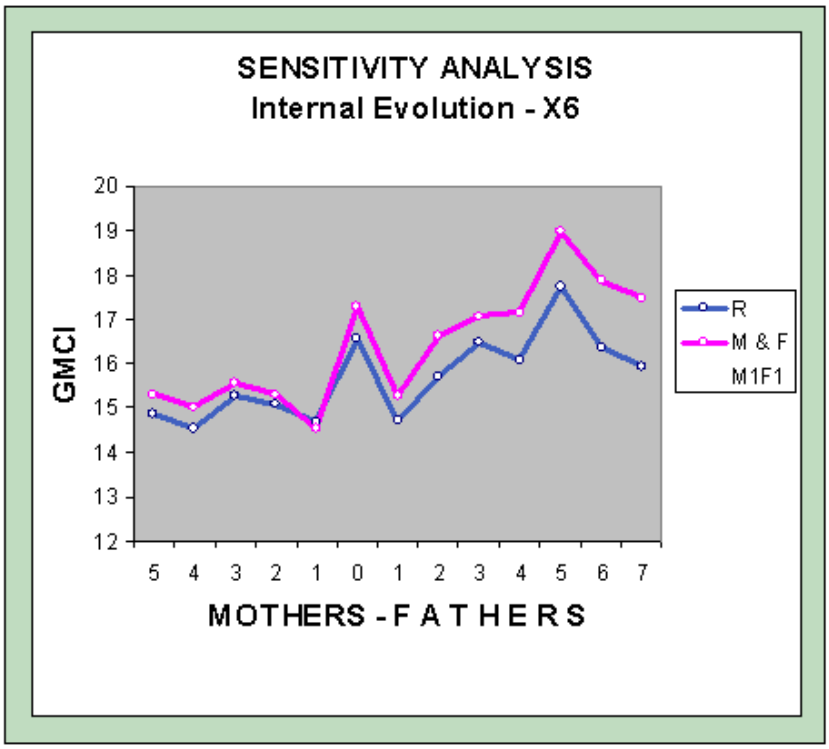
Parameters Internal Evo.°		T1-d, X3 y X6, and arrangement criterion M1F1°					
		Objective function					
Direct	Indirect	R°			M & F		
Mothers		Graphs	GMCI	r^2 max.	Graphs	GMCI	r^2 max.
5	5	q071°	14,14	0,72	q072°	14,46	0,72
3	3		14,21	0,82		14,81	0,82
1	1		13,49	0,80		13,89	0,80
Null							
0	0	q023	14,98	0,92	q024	16,07	0,92
Fathers							
1	1		14,06	0,83		16,10	0,87
2	3		14,79	0,87		16,10	0,87
3	3		15,33	0,84		16,47	0,84
4	4		15,09	0,84		16,73	0,84
5	5	q063°	15,61	0,89	q064°	17,77	0,89
6	6		14,30	0,95		16,74	0,95
7	7		13,25	0,83		15,56	0,83
° Internal evolution parameters affect the objective function R and M1F1 order							

Go to EDI Study

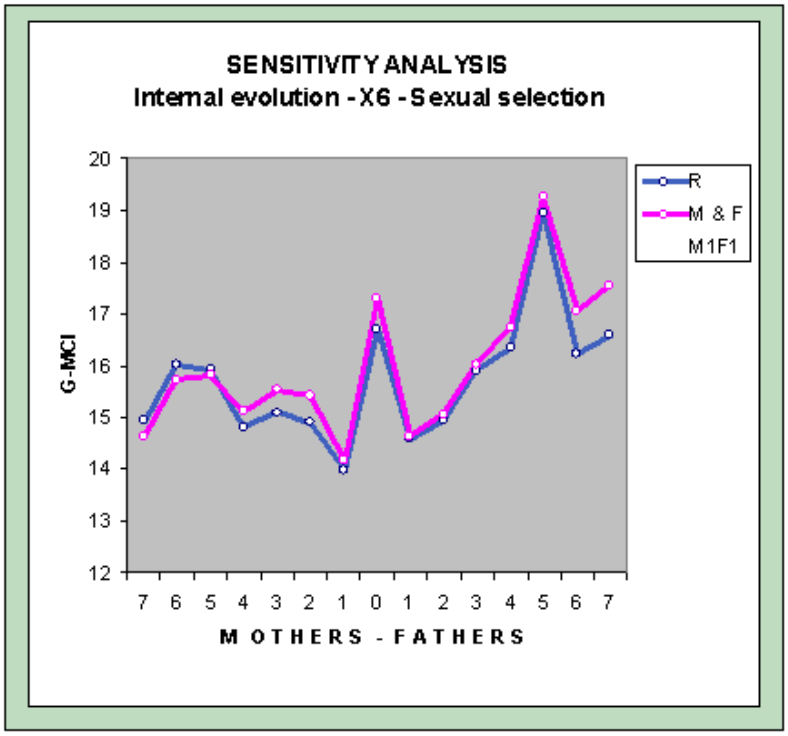
q073


SENSITIVITY ANALYSIS
Internal evolution - X3
GMCI
20
19
18
17
16
15
14
13
12
5 4 3 2 1 0 1 2 3 4 5 6 7
MOTHERS - F A T H E R S
R
M & F
M1F1

q076


SENSITIVITY ANALYSIS
Internal Evolution - X6
GMCI
20
19
18
17
16
15
14
13
12
5 4 3 2 1 0 1 2 3 4 5 6 7
MOTHERS - F A T H E R S
R
M & F
M1F1

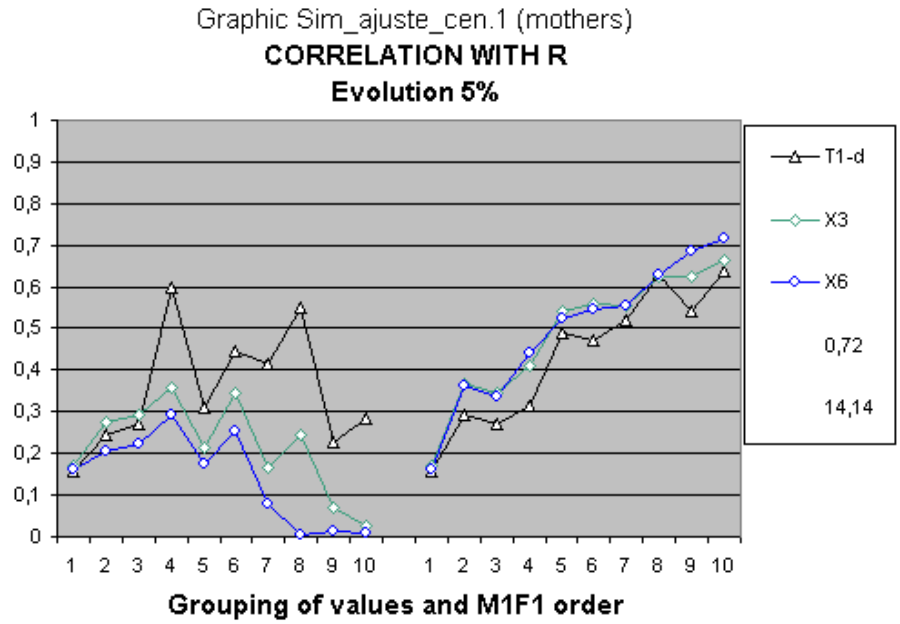
q077


SENSITIVITY ANALYSIS
Internal evolution - X6 - Sexual selection
G-MCI
20
19
18
17
16
15
14
13
12
7 6 5 4 3 2 1 0 1 2 3 4 5 6 7
MOTHERS - FATHERS
R
M & F
M1F1

Statistical study
8 - Family - Identical twin study

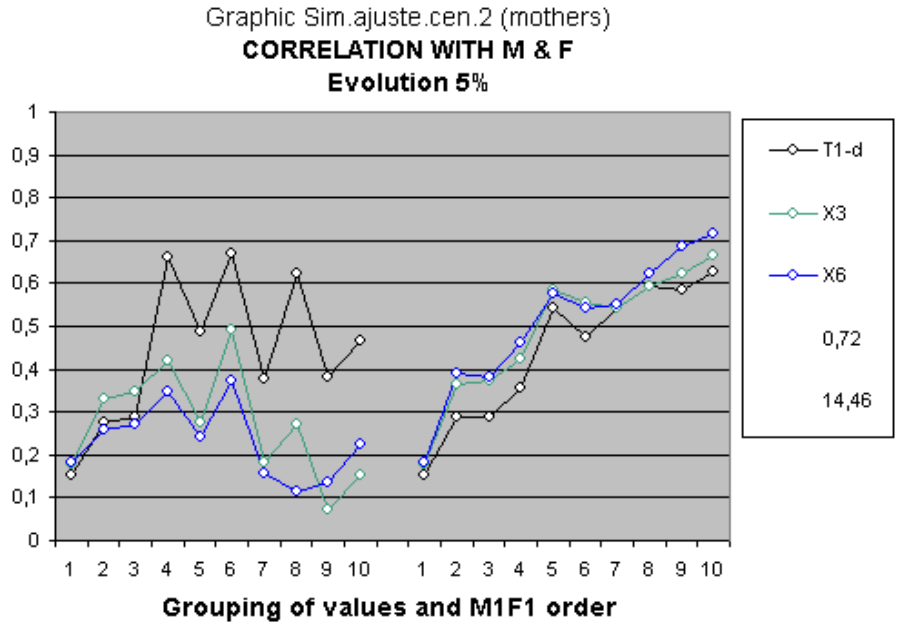
Graphics	Family relationships	Observations
q071° q072°	Evolution with IQ Mothers	Adjustment for Globus Model
q081	Relation between children **H**	Identical twins
q082°		Siblings or dizygotic twins
q083° q084°		Clons Replica q053° Clons Replica q056°
1 Mothers q085 2 Mothers q086°	Progenitors	Rearrangement criteria **M** and evolution
3 Fathers q087 4 Fathers q088°		Rearrangement criteria **F** and evolution
q089°	Sexual selection - Couples	Without sexual selection q063° With - Sexy Globus Model

q071



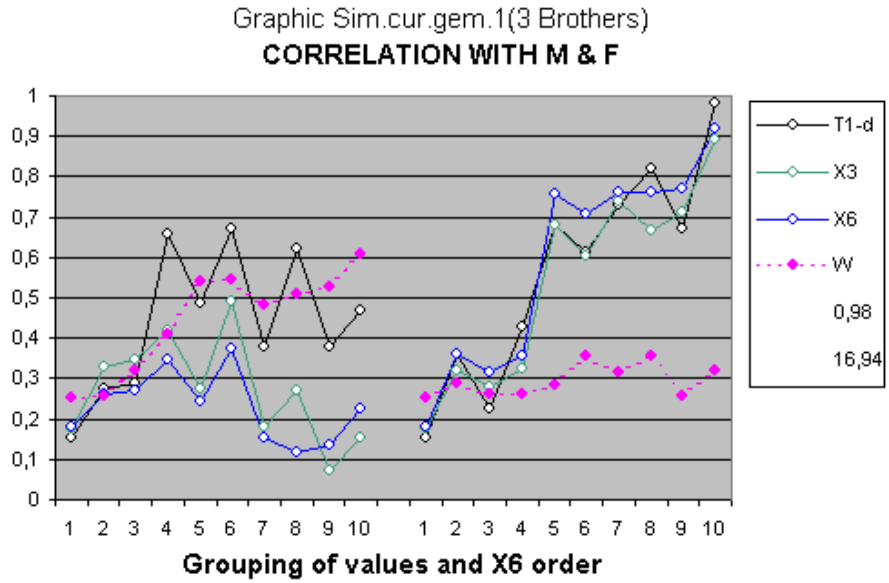
Back to family study

q072

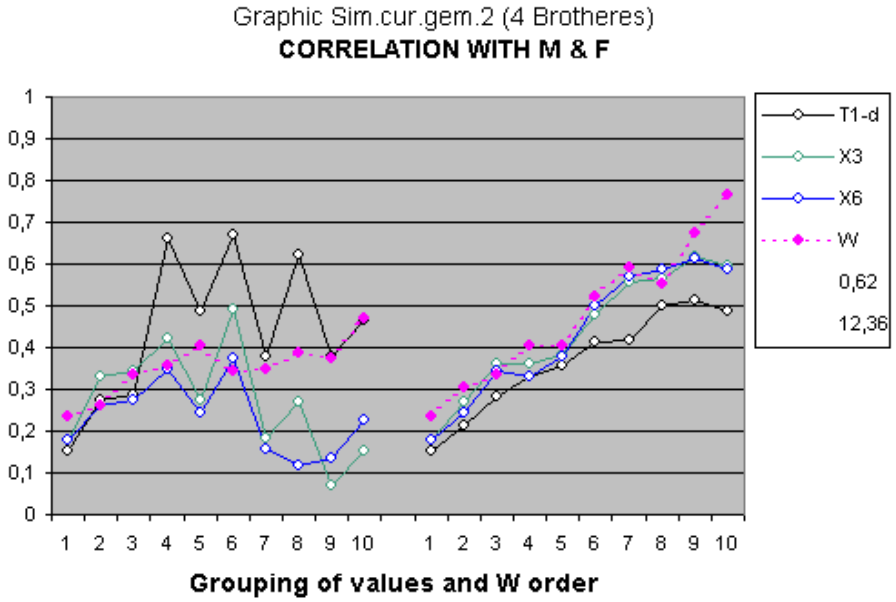


Back to family study

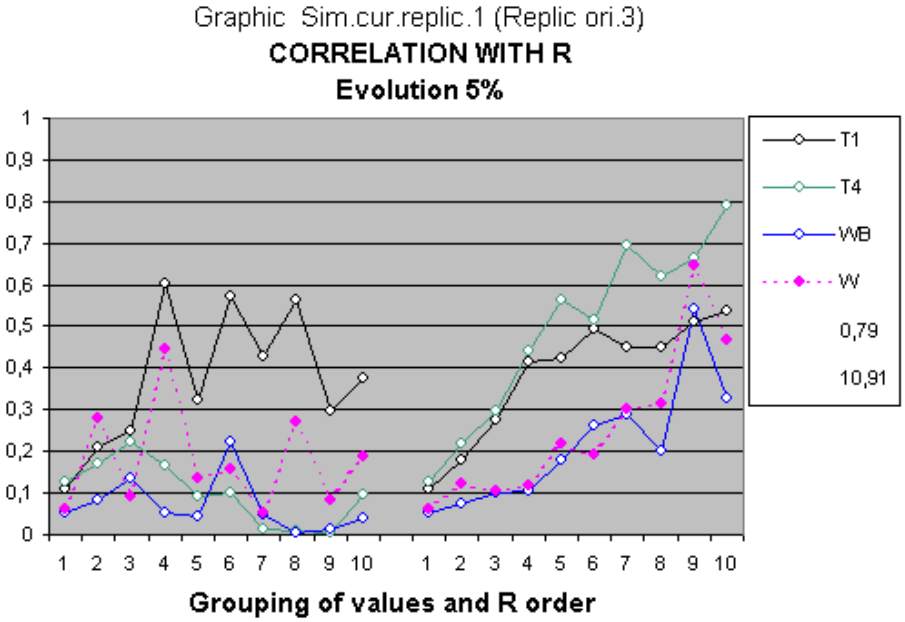
q081


Graphic Sim.cur.gem.1(3 Brothers)
CORRELATION WITH M & F
T1-d
X3
X6
W
0,98
16,94
Grouping of values and X6 order

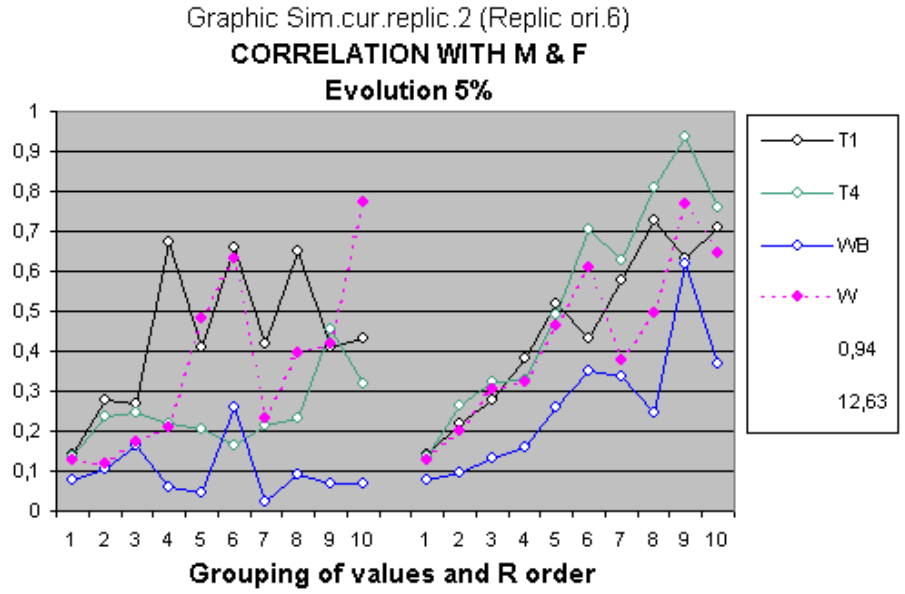
q082


Graphic Sim.cur.gem.2 (4 Brotheres)
CORRELATION WITH M & F
T1-d
X3
X6
W
0,62
12,36
Grouping of values and W order

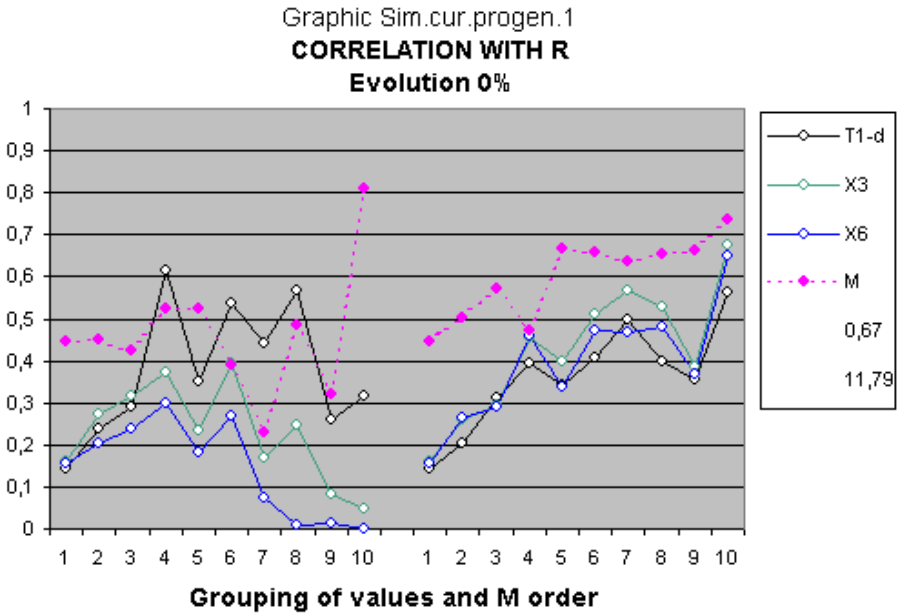
q083


Graphic Sim.cur.replic.1 (Replic ori.3)
CORRELATION WITH R
Evolution 5%
T1
T4
WB
W
0,79
10,91
Grouping of values and R order

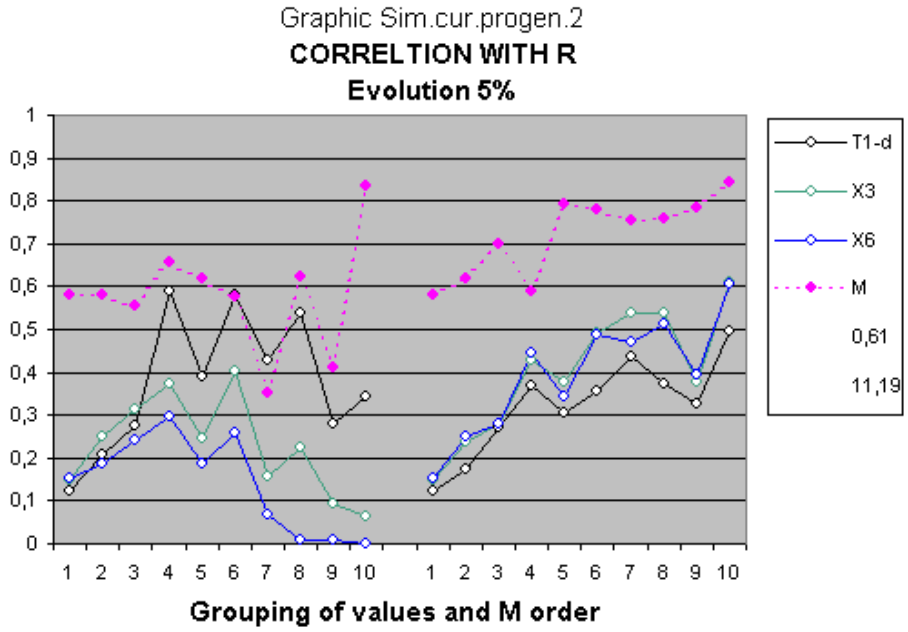
q084


Graphic Sim.cur.replic.2 (Replic ori.6)
CORRELATION WITH M & F
Evolution 5%
T1
T4
WB
W
0,94
12,63
Grouping of values and R order

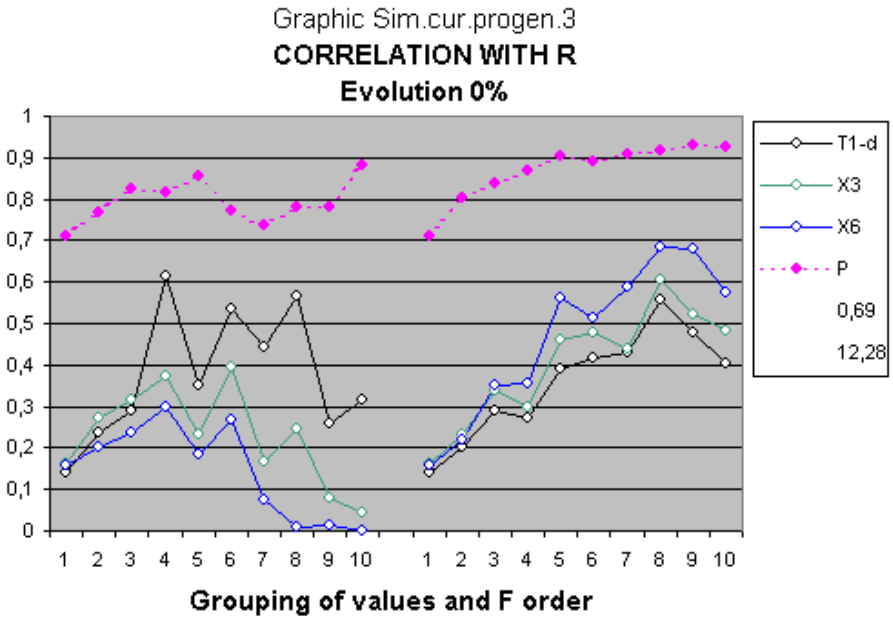
q085


Graphic Sim.cur.progen.1
CORRELATION WITH R
Evolution 0%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M order
T1-d
X3
X6
M
0,67
11,79

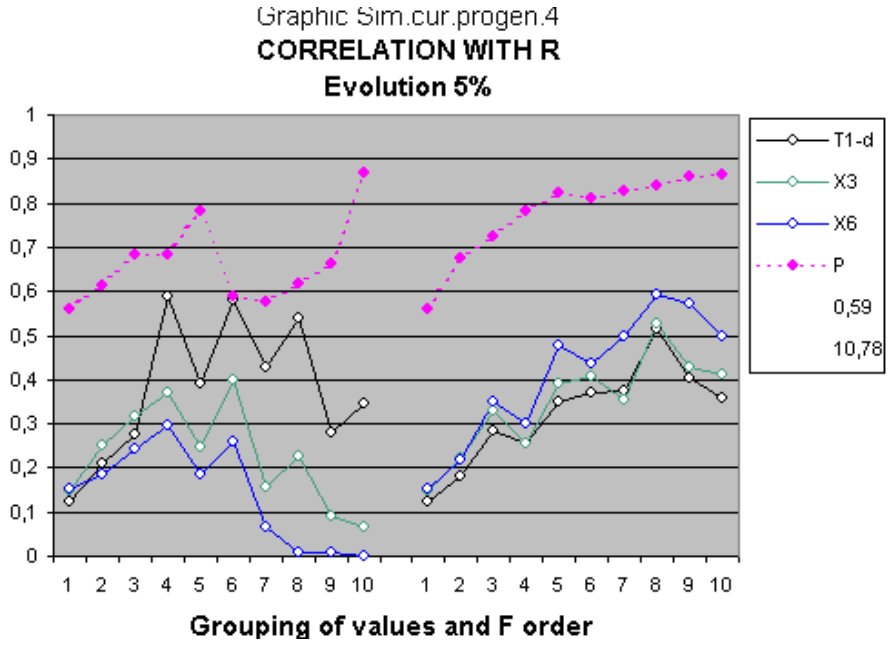
q086


Graphic Sim.cur.progen.2
CORRELTION WITH R
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and M order
T1-d
X3
X6
M
0,61
11,19

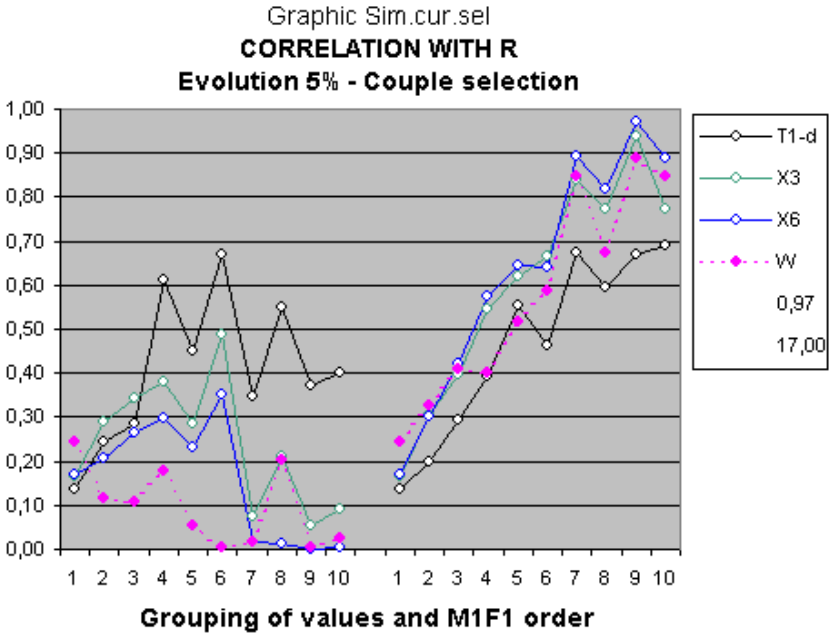
q087


Graphic Sim.cur.progen.3
CORRELATION WITH R
Evolution 0%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and F order
T1-d
X3
X6
P
0,69
12,28

q088


Graphic Sim.cur.progen.4
CORRELATION WITH R
Evolution 5%
1
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
1 2 3 4 5 6 7 8 9 10 1 2 3 4 5 6 7 8 9 10
Grouping of values and F order
T1-d
X3
X6
P
0,59
10,78

q089


Graphic Sim.cur.sel
CORRELATION WITH R
Evolution 5% - Couple selection
1,00
0,90
0,80
0,70
0,60
0,50
0,40
0,30
0,20
0,10
0,00
1 2 3 4 5 6 7 8 9 10
1 2 3 4 5 6 7 8 9 10
Grouping of values and M1F1 order
T1-d
X3
X6
W
0,97
17,00

* * *

♦

When Globus finished the book,

he happily called Mª José to tell it to her

and asked her:

–Do you think Goblin will like it?–

Mª José replied:

–Don't worry,

you already know his flashes of childlike paranoia!–