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THE EDI STUDY

EVOLUTION AND DESIGN OF INTELLIGENCE

Museum of the science of future

Mª José T. Molina

GLOBAL EDITION

Hobbies: chess, padel and philosophy among others

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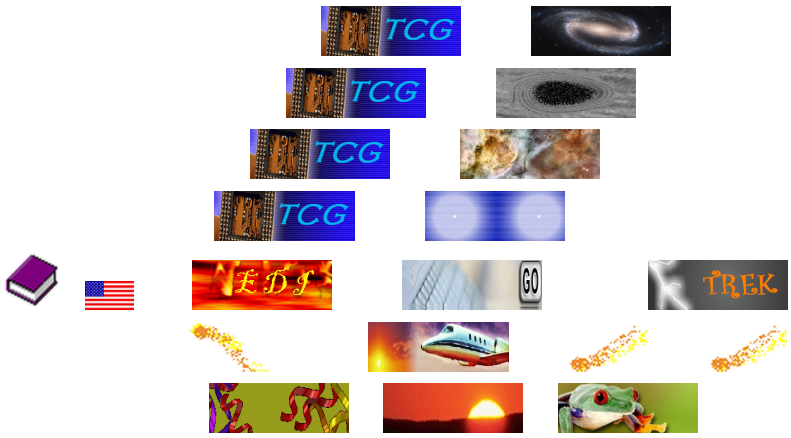
♦

The only antidote for the egocentrism
of pure reason is Love.



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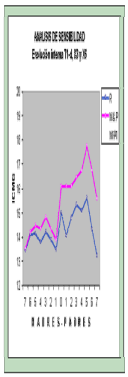

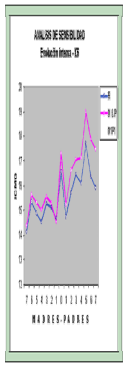

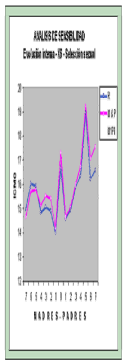

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THE EDI STUDY

EVOLUTION ADN DESIGN OF INTELLIGENCE

1. Cognitive psychology research

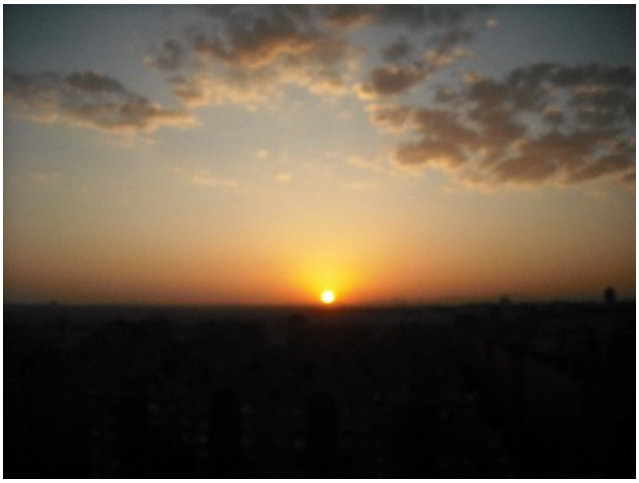
The purpose of this statistical research of cognitive psychology is to validate the model about the hereditary nature of **relational intelligence,** which has been developed to prove the GTCEL (*General Theory of Conditional Evolution of Life*) through the detection of the existence of the *genetic information verification method* (GIV)

The results of the cognitive psychology research have been totally satisfactory; not only does it show the hereditary nature of the scores obtained in the human intelligence quotient measurements (IQ) but also that the genetic information with less intellectual potential is the significant one, as the GTCEL states regarding the concept of **conditional intelligence.**

What better model of cognitive psychology to study the nature of elegant intelligence that the configuration of intelligence itself and its biological mechanisms?

Experimental Psychology

Psychology statistical survey



It is necessary to be aware that, a priori, there is not a direct link between the GTCEL and the hereditary nature of

intelligence like many other inherited characters. However, the fact that the *General Theory of Conditional Evolution of Life* contributes a logical base for this character to be inherited and that it has been contrasted, must suppose a significant impulse for the acceptance of the new theory or some of its proposals.

In any case, high correlations of more than 0,8 have been obtained in the cognitive psychology research, showing that the genetic component of relational intelligence is much greater than generally accepted until now. Considering the difficulties of intelligence measurement and the lack of constant intensity in its manifestation, it is possible to affirm that the genetic component is the only relevant or significant factor.

Another result, probably more important than the hereditary nature of relational intelligence and the existence of the *genetic information verification method* is the validation of the full model of the genetic evolution of intelligence. That is to say, according to what the *General Theory of Conditional Evolution of Life* 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.

It is important to emphasize that the genetic differences due to gender are essential in many areas because of the specialization they imply. Doubtlessly, the other ancestor contribution will be carried out by alternative ways, also included in the model.

This fact would imply the existence of a **teleological or finalist evolution** and, consequently, that theories of random mutations and natural selection would no longer constitute the main components of evolution.

However, the demonstration of a teleological evolution would

not imply that the aspects advocated by the movement of Intelligent Design are correct.

In the cognitive psychology research of the *EDI Study - Evolution and Design of intelligence* it has been validated an additional hypothesis of the *General Theory of Conditional Evolution of Life* on sexual differentiation and the influence in evolution of a certain 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 intelligence's heritability model under the new relation or condition relative to cognitive psychology; reaching correlations of the 0,97

On the other hand, 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 done and the formal acceptance of the results.

Finally, I am convinced similar studies on cognitive psychology, with longitudinal data of more extensive population samples, will offer similar results.

Given that the current results in this book suggest a fairly radical change from the common opinions held by the majority of the scientific community and society, the logical deduction is that more extensive studies, using the same methodology, need to be performed.

The table of related links, includes the four online books of the *Global Cognitive Theory: The brain and modern computers, Intelligence, intuition and creativity, Memory, language and other brain abilities and The will, decision making process and artificial intelligence.*

2. Flynn effect and other statistical studies

There many arguments that help us to understand the reasons why this subject remains controversial; they are derived from both the intrinsic complexity of intelligence and the different initial premises with which the studies are conducted.

In any case, the **Flynn effect** shows and increase in intelligent quotients in different countries. The results of the *Flynn effect* are accepted.

The problem is with the reasons, causes and interpretation of the facts presented by the *Flynn effect.*

Below, the most common views are mentioned.

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), cousin of **Charles Darwin,** indicated the necessity of using statistical methods to verify theories; thus, in his important work *Natural Inheritance* (1889) he introduced the concept of *line of regression* from a study comparing the statures of parents and children.

In the descriptive analysis of **Galton's data,** tall parents were observed to have tall children (but not so tall on average) and that short parents had short children (but not so short on average). This produced what he denominated *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** make many references to studies on human intelligence in their book *The Bell Curve* with different conclusions about the genetic influence in intelligence, including the famous *Flynn effect*. For the development of their ideas they assume an approximate correlation of 0,5 remaining in between those in favor of genetic influence and those in favor of environmental influence.

There is no general agreement on the stability of these capacities throughout life, although it seems that it is accepted that the average environmental influence is greater in early ages, followed by a decreasing influence until maturity. The latter is contrary to what would be expected.

2.d) High correlations in twin studies

In order to try to resolve the controversy on genetic and environmental influences in intelligence, numerous works have been performed, most of which they have been based on the study of identical twins.

The studies with identical twins have many advantages as they avoid some elements that could cause differences in intelligence. Even the *Flynn effect* is eliminated as the effect would operate in both identical twins.

Identical twins have a correlation of up to 0.87 as far as intelligence is concerned; in non-twin siblings correlation oscillates around 0.55. This data comprise of an experience of **Jensen** in 1972, which led to his basic 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 this conclusion were correct we would have to assume that intelligence has basically a hereditary nature,

although it is not predetermined because there are factors like genetic combination in accordance with the laws of Mendel.

At this point, it is worthwhile to remember the concept of **hereditariness in a strict sense** that is established by the relation between the observed and the expected correlations. In those cases in which the expected correlation is less than the unit, an upward correction of the observed correlation will be produced for the calculation of the degree of hereditariness.

2.e) Flynn effect and complex econometric models

Studies of great statistical complexity have also been made to try to resolve the controversy. Two of them drew my interest. I believe that one is eminently theoretical and the other practical.

The article *Heritability Estimates Versus Large Environmental Effects: The IQ Paradox Resolved* by **William T. Dickens** and **James R. Flynn** (Author of the Flynn effect), affirms to have solved the problem by means of the introduction of variables with temporary feedback. In my opinion, it is not surprising that, if we are already working with strongly correlated variables and we add a certain feedback, high *statistical* results can be reached.

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

The other study, discriminating pre- and postnatal factors, from the **Medical School of the University of Pittsburgh,** reaches the conclusion that the prenatal maternal environment exerts a powerful influence on intelligence.

3. IQ data set

3.a) Available statistical IQ data set

The current statistical research has been performed with the **IQ data set** contained in the *Young Adulthood Study: 1939-1967* [made accessible in 1979 on electronic files]. This *IQ data set* was 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]

This collection of longitudinal data contains the variables we are interested in: those relative to the intelligence quotients (IQ) of parents and their corresponding children. The statistical data reliability is assued.

After a preliminary analysis of the available statistical IQ data set, one variable for the mothers (M) (Otis intelligence test), fathers (F) (Otis test) and children (C4) was used with 70 corresponding values, two more from the children (C1 and C5) with 69 corresponding values, and another set of three variables of the children with less corresponding values (C2, C3, and C6 with values of 58, 42, and 64 respectively) that we will use only to create variable X6, the average of the children's six variables.

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

YOUNG ADULTHOOD STUDY
(Statistical IQ data set)

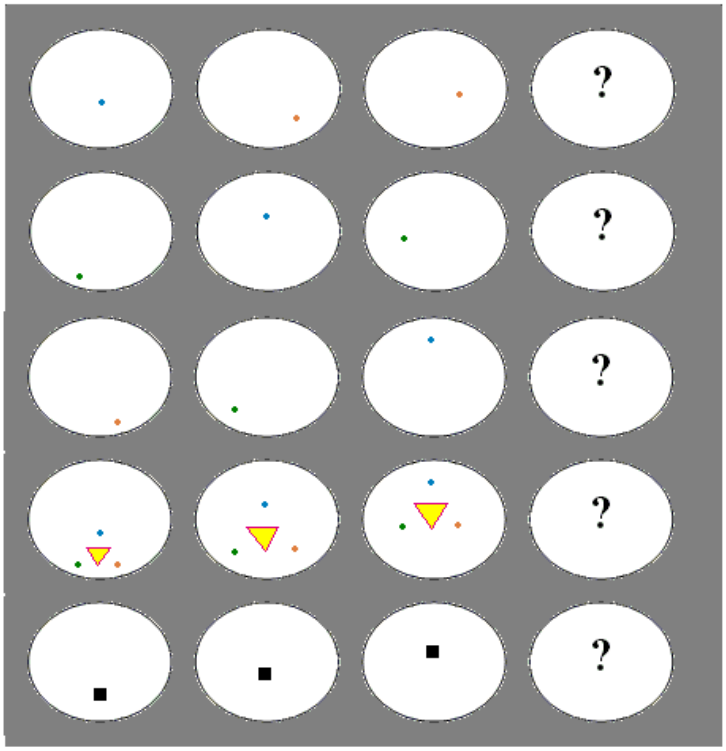
Variables	Name	Reference	Period and Statistical data set
Mothers	M	186 d12c66	T3 mothers IQ data (otis)
Fathers	F	187 d12c70	T3 fathers IQ data (otis)
Children	C1/T1	201 d13cl62	T1 Stanford-Binet IQ data, score at ages 3, 6, 10-old/10
	C2	217 d14cl62	T2 Stanford-Binet IQ data, score at ages 3, 6, 10-old/10
	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.b) Limitations of statistical data set

- **Sample size of statistical IQ data set**

This is a limitation that could become very serious, although the sample size is 70 (n=70) (Otis IQ test of mothers and fathers and one of the children), when we make the analysis by groups it is reduced to only 7 groups with a sample size of 10 in each one.

Intelligence test



Nevertheless, we do the mentioned grouping for values of 2, 3, 4, 5, 6, 7, 8, 9 and 10. In addition, different groupings are created depending on the order the 70 values can be rearranged.

In this way, as you will see in the following sections, we

multiplied the number of studied variables by more than 50. Consequently, the model becomes very sensitive to small *statistical data set* modifications in the different groupings.

The different variables suppose different views on the same **statistical data set**; in other words, they will simultaneously provide estimations of the existing correlations in different dimensions.

In my opinion, this **sensitivity** is the strongest point of the model: the good adjustments obtained are very significant regarding the goodness-of-fit of this model's structure, especially because they have been obtained without any modification of the original variables allowing a total *statistical data reliability*.

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

- **Statistical IQ Data set quality**

As shown in the previous table of the statistical data set and selected variables, it should be emphasized that the test types or methods of evaluation used were not the same.

Likewise, the existence of values considered extreme should be taken out when they are not reasonable.

There is only one statistical data set for the parents' IQ whereas for the children there are various IQ data set that, as we will see, are not highly correlated at all.

Even so, these limitations should reinforce the obtained results since, with a more precise global statistical data set, it would be expected that there would be a higher correlation between variables.

Anyway, the fact that this is a relatively homogenous sample will also work against the study's objective, because

it will be more difficult to discriminate between the study's values. Therefore, the results would be more relevant.

- **Temporary stability of intellectual ability**

The different IQ data set of children has been obtained for along different years. Without having reached a clear conclusion, it is fair to say that the temporary stability of the statistical IQ data set is compatible with the different observed values in the model's simulation.

3.b) Correlations between Wechsler and Stanford Binet scales

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

The first surprise is the observation of low correlations not only between the Mother (**M**) and Father (**F**) variables with **C** (Children) variables, but also among children variables (*Wechsler, Stanford Binet and others scales.*)

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 variables of the children like **Wechsler** intelligence test and **Stanford Binet scale** correspond to same children at different times. And not only the correlations between the scales of Wechsler and Stanford Binet are not high but even between two IQ vectors of the same children and the Stanford Binet test.

The coefficient $r^2 = 0.33$ is the largest one among the IQ variables of the children (*Wechsler, Stanford Binet* test and other

test). With this perspective, it seems to be difficult to imagine that high correlations can be obtained between children and their parents.

At the beginning, the previously mentioned grouping of values had still not been considered. Taking into account these correlations, I thought about substituting the values considered to be very disparate, by their averages, but the different variables continued to show a low correlation.

These assessments of the low or not very high correlation between the children variables **C** (*Wechsler, Stanford Binet* test and other test) make us think that the measurements are not very homogenous because it seems that it is generally accepted that people's IQ remains fairly stable after 6 years of age.

Given that the averages of the chosen variables were not equal, I decided to standardize them for a suitable calculation of the variables **X3** and **X6** (*Wechsler, Stanford Binet* test and other test). This way of calculating is necessary in order to avoid distortions and any additional problems, considering that we are not trying to study the evolution or generational increase in IQ. This fact has been proved and accepted, although different explanations on the matter have been proposed. In our case, the data produced an average, of the different IQ data set of the children, 10% above the average of IQ data set 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.

It is as if we had 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 that could contribute 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 when the latter is not entirely included in the greater one. This aspect will be discussed in more detail in other chapters.

As shown, this preliminary analysis has allowed us to recognize the difficulties in obtaining satisfactory results and that it is better to use original values since their manipulation, although objective, does not improve the results significantly.

Also, I have used centered variables, that is to say, one with smoothed tails due to a limitation of a 10% deviance from the average (**T1-d**) and variables **X3** (*Wechsler, Stanford Binet* test and other test) and **X6** (*Wechsler, Stanford Binet* test and other test), which are average values of three and six original variables respectively (observed variables)

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

4. MENDELIAN GENETICS AND GTCEL

4.a) Individual model of intelligence and method VGI

The scientific basis of this model of evolution of intelligence is explain in the title IV of the online book of the General Theory of Conditional Evolution of Life (GTCEL)

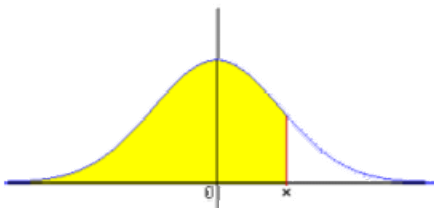
The full statistical model is presented in the title VI of the GTCEL book. The formulation of the empirical research model made in the GTCEL book is validated in this statistical study.

The proposed model for empirical research on the method of *Verification of Genetic Information* assumes the following hypotheses:

- Evolution with external verification of the genetic information transmitted for the studied capacity.
- Existence of a function **ξ** that measures the different potentials from this capacity.

The IQ refer to the relative position defined by means of a standardized function **ξ**(I) of the statistical distribution of the IQ studied for the validation process of this function.

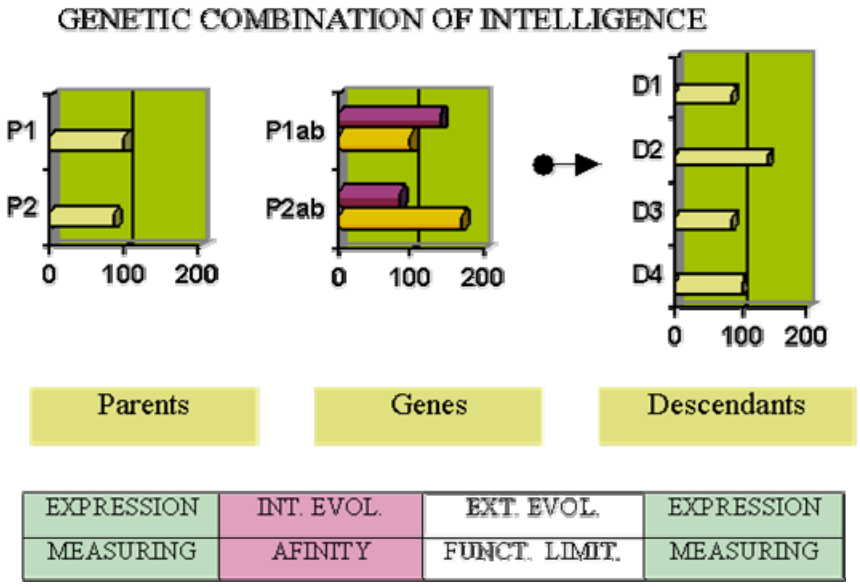
The statistical IQ data set includes de variables of Wechsler, Stanford Binet and Cattel scales that have Normal distribution with standard deviation of 15, 16 and 24 respectively.



The result of the combination of the four chromosomes in agreement with mendelian genetics significance will produce four different possibilities or cases. The mathematical

expected average of the capacity of the new individual in agreement with the GTCEL will be the sum of the expected averages of each one of the cases weighed by their probabilities.

Mendelian genetics
Evolution of intelligence



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

It will be necessary to complicate the genetic combination and GIV method Initial Model of evolution of intelligence to obtain better estimations, (although now I would dare to say, more impressive). For example, the confirmation of the increase of 10% in each generation will be confirmed, as we will see later.

4.b) Results of the model of intelligence

In the empirical research of mendelian genetics with method VGI, when estimating the model of intelligence with the method of the *ordinary least squares,* I am not interested in obtaining the value of the parameters; on the contrary, I am looking for the **goodness-of-fit** of the estimation, that is to say, its **correlation coefficient** (r) and its squared or **determination coefficient** (r^2); they represent the relation between the explained variance and the total variance.

The table shows the poor results of the *individual model* of intelligence of mendelian genetics and method of Verification of Genetic Information.

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).

Parents' variables are function **R, M1F1, (M+F)/2** and **M & F**; where **M1F1** is the vector produced by the smaller values of **M** or **F** for each family. The **M & F** correlations are attained using the ordinary square minimums method with **C** variables

(*Wechsler, Stanford Binet* test and other test) and with both ancestors simultaneously.

The best result is obtained when simultaneously using the variables **M** and **F.** Nevertheless it continues being very low and quite below the inferior level of generally accepted dependency, which is established within the range of 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 cannot be applied since the expected correlation between parents and children is unknown.

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

To explain these results, we can clearly deduce that there will be variations due to the mendelian inheritance. Also, from the low correlations between C children variables themselves, we realize that the IQ values incorporate great deviations due to their measurements, the particular intelligence test used, and the manifestation of the intellectual potential or brainpower due to fatigue.

At this stage, I decided to carry out the analysis in groups with the hope that these differences would be compensated and, consequently, increase the correlation of the model of intelligence.

5. Social model of intelligence

5.a) Statistical data of homogenous groups

The weak adjustment obtained in the previous section was foreseeable; I have already commented in the initial specifications of the model about the nature of intelligence, that the proposed estimator would be centered, but that its variance would be very large due to the random character of the Mendelian inheritance.

Also we have indicated the impossibility of correcting this 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 deviations of the intelligence expression due to its nature are the main causes. The problem with the statistical data and the correlational study regarding the nature of intelligence is greater than expected.

To avoid this tendency of the statistical data in this correlational study, different groups are obtained depending on the various orders into which the initial seventy values can be arranged. Consequently, the analysis by groups seemed the only way to surpass the mentioned limitations of the available statistical data.

The aggregation, by itself, would not be satisfactory since the values of all the variables would tend to equal the average as the group's elements increase.

If we rearrange the initial sample with criteria such as **M1F1** or **(M+F)/2** in order to design new correlational study, it will be possible to achieve **homogenous groups** in which:

- The effectiveness of the previously mentioned compensations will be optimum.

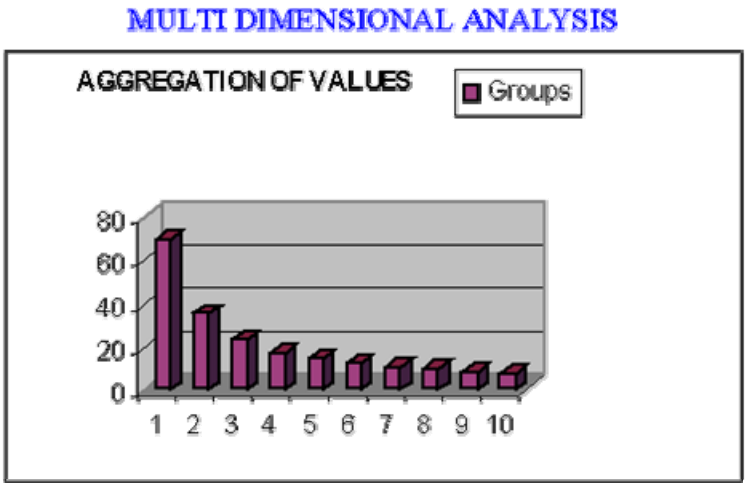
- The groups divided in stratums will allow for a suitable adjustment of the tendency or relation between the variables of the model.

For each variable, a hundred and ten different variables have been generated based on the diverse number of elements and criterion to rearrangement of the groups; I have used ten group sizes and eleven criteria of arrangement, including the initial order (unknown).

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

The model about the nature of intelligence has been examined in its double formulation, on one hand, calculating the correlation with respect to the objective function **R,** determined in accordance with the *General Theory of Conditional Evolution of Life* (GTCEL). On the other hand with respect directly to the variables of the statistical data **M** and **F,** it allows for a comparative analysis between the two formulations.

Correlational research



The variables used in the correlational study to rearranged the groups were **M, F, R, M1F1, (M+F)/2, 2F2M, C1, C2, C3** and **W.** Variable **2F2M** will be opposed conceptually to **M1F1**; **C** variables correspond to those children who have been studied in a particular analysis and **W** variables are generated artificially in the model simulation.

The final effect is that the statistical data evaluated by the model about the nature of intelligence has been **multiplied several times** over and random variations have been 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

Due to the great amount of data generated with the *quantitative approach to the nature of intelligence,* and to facilitate its analysis, in addition to the results in tables, it appears in graphs. (See statistical annex).

Indeed, an almost instantaneous perception of the exactitude of the particular specification is obtained with the quantitative approach; sixty coefficients of determination ($\mathbf{r^2}$) are shown in a way that highlights the global and underlying relations of the involved statistical data.

The results of the quantitative approach 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 especially allow us to reach some important conclusions is the model sensitivity of the arrangement criterion.

The great increase of the correlation for the estimation of homogenous groups of the statistical data cannot be imputed to the reduction of 68 to 5 or 4 degrees of freedom, since the estimation with non-homogenous groups, without previous rearrangement, has the same degrees of freedom and the correlation even lowers with respect to the sample without grouping.

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

The model on *evolution of intelligence* adjusts perfectly, showing a determination coefficient $\mathbf{r^2}$ superior to 0.9 in several cases.

Also, it is interesting to verify the fact that the objective function **R** is almost as powerful as mothers' variables **M** and fathers **F** together.

If we estimate with respect to mothers' variables **M** and **F,** we obtain an r^2 of 0.99 for variable **WB** (*Wechsler intelligence test*) when the rearrangement variable is the same **WB** variable. This good adjustment 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 GTCEL.

Statistical study

1 - Social Model: T1, T4 and WB

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

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 definitely 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** and the maximum $\mathbf{r^2}$ of the correlations between the IQ of the **parents** or the objective function **R,** and the children's IQ, rearranged in four criteria. The **C** variables are original ones and no change has been made in any of their values.

In addition, when the model has more freedom with the two variables, **M** and **F,** it definitely adjusts better by statistical effect, or, the data we have available are a particular case.

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

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

Now, if we paid attention to the graphs of the centered variables, **T1-d, X3** and **X6,** in the first place, we would be able to see that the **z23** graph has a singular beauty because of its shape and content

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

Statistical study
2 - Social Model: T1-d, X3 and X6

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

After all, the variables are not as off as they seemed in the beginning. In particular, the result of the *quantitative approach* is coherent with the supposition that these centered variables should have less problems with the variability in the expression of the intellectual ability and in the measurement of the intelligence quotients, since, by their definition, they imply a compensation of those deviations.

On other hand, bearing in mind the parallelism between the

variables **T1-d, X3** and **X6** and the good correlations that they provide, we may conclude that it was a reasonable assumption to generate variable **T1-d** with a 10% maximum margin of variation with respect to the average in variable **T1 (***Stanford Binet IQ test***) .** It does, however, make sense that the results are not as good as the **X3** and **X6** variables.

Another element to point out is the design effectiveness of the multidimensional analysis that we are employing. It allows us to easily draw some conclusions while maintaining a high degree of coherence and security in the reasoning.

Actually, it seems that there is not much margin left to deny the *hereditary nature of intelligence,* not even to try to reduce it to less than 80%. You have to consider that we are referring to groups with a maximum of ten elements and that, due to the observed tendency; the correlation should be greater with groups of 20 elements.

It is a good idea to point out that objective function **R** with criterion **X6** achieves a greater determination coefficient $\mathbf{r^2}$ than variables **M & F** together. The same objective function R is also superior when using **M1F1** instead of **X6** as rearrangement criterion.

♦

When **Globus** finished the book,
he happily calls **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 glimpses of *children paranoia!*–

♦

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