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Research Article

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On Measurement Assessment and Division Matrices

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Abstract In this study, the matrix division that I described in 2010, is brought on developments in measurement and evaluation. Mathematics education takes the goals the development of thought and finalization. Therefore; the role multiple division (division of matrix) is very important. Today, there are one 1st, one 2nd and 3the,… in the scoring system of the Group. This operation explains $n-times$ 1^{st}, $n-times$ 2^{nd} and $n-times$ 3^{the} ,… in the scoring system of the group. Thus avoided fragility of success. This process reveals the diversity of different individuals. If considering the growing population and its functions then solidarity and improving their success soul in society, by destroying the vicious bickering, continues integrity and continuity in education.

Keywords matrix, division, measuring, assessment, education.

1. Introduction

We describe the number of variables $n \in \mathrm{N}$ with qualifying each student, and $m \in \mathrm{N}$ is the number of students in one class. The set

$$\left\{ d\left(x_{ij}\right) \middle| m_{\min} \le d\left(x_{ij}\right) \le M_{\max} \right\}$$

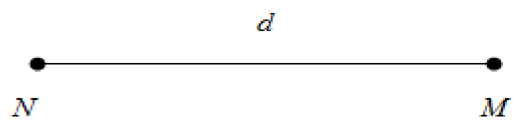
defines the grades for these students. Let $\mathrm{A} = \left[d\left(x_{ij}\right)_{ij} \right]_n$ and $\mathrm{B} = \left[l\left(x_{ij}\right)_{ij} \right]_n$ be n^{th} order square matrices. Here for $1 \le k \le n$, ${}^{\mathrm{A}}_{\mathrm{B}}i_j$ are a real number obtained by the determinants of writing i^{th} column of A matrix in j^{th} column B matrix. This real number is called *(ij)th columnar co-divider* on B matrix of A matrix. If the same processes are done for the rows then it is called *(ij)th rownar co-divider* on B matrix of A matrix. The number each of them is n^2. Division of matrices first time by Keleş [3]. Then the division was obtained by using the reduced row echolan form for regular square matrices by Keleş [4]. He also generalized the Cramer's Rule with this method. Beside, this method gives other interesting results. Our aim in this article is to give the measurement of the education system.

2. Measurement Assessment and Division Matrices

Let N be the set of variables, D be the set of students and L_n be the set of grading scale. G = (N, D, L_n) symbolized the triple.

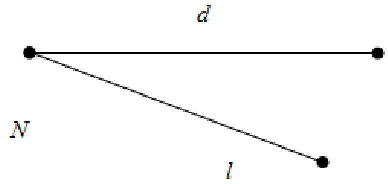
i. At least one line passes from the two points.

$$\forall N \ne M \text{ for } N, M \in \mathrm{N} \;\; \exists d \in \mathrm{D} : d\left(N\right), d\left(M\right) \in L_n \setminus \left\{ m_{\min} \right\}.$$



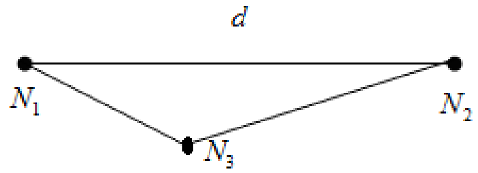
ii. Two lines intersect at least one point.

$\forall d \neq l$ for $d, l \in \mathrm{D}$ $\exists N : d(N), l(N) \in L_n$.



iii. At least three points are on the same line.

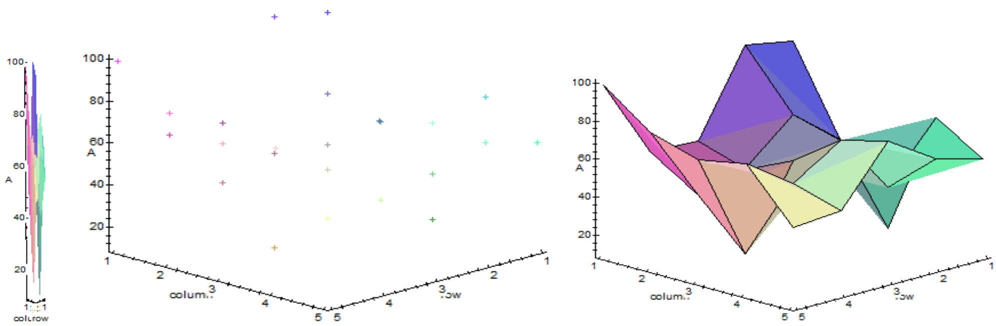
$i = 1, 2, 3;$ $\forall N_i \in \mathrm{N}$ and one $d \in \mathrm{D}$: for $i = 1, 2$, $d(N_i) \neq m_{\min}$.

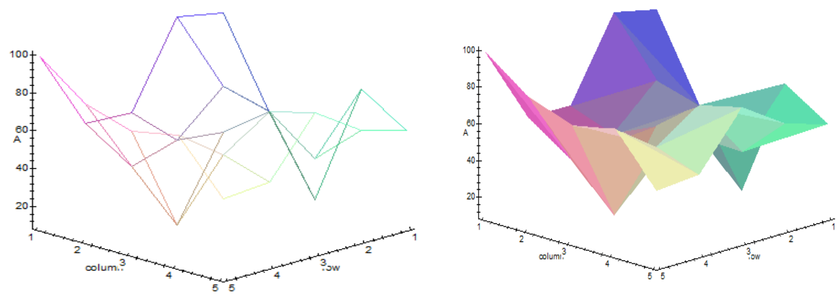


The method is applied for five variables with five students. Let A, B, C, D, E represent the students grades in the class A and let F, G, H, I, J represent the students grades in the class B with respect to the variables x_1, x_2, x_3, x_4, x_5 .

$$\mathrm{A} = \begin{array}{c} \\ x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \end{array} \begin{array}{c} \begin{array}{ccccc} A & B & C & D & E \end{array} \\ \begin{bmatrix} 95 & 50 & 10 & 75 & 60 \\ 100 & 70 & 63 & 45 & 67 \\ 56 & 48 & 59 & 77 & 83 \\ 57 & 41 & 17 & 61 & 53 \\ 99 & 81 & 73 & 78 & 51 \end{bmatrix}_5 \end{array} = -102649860 .$$

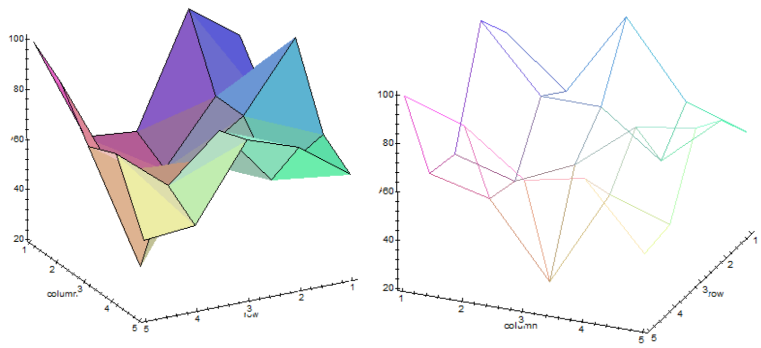
Graphs of matrix A





$$\mathrm{B}=\begin{array}{c} \\ x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \end{array}\begin{array}{c} \begin{array}{ccccc} F & G & H & I & J \end{array} \\ \begin{bmatrix} 85 & 65 & 100 & 69 & 61 \\ 100 & 73 & 73 & 55 & 76 \\ 55 & 48 & 59 & 79 & 83 \\ 57 & 51 & 21 & 61 & 53 \\ 99 & 91 & 73 & 78 & 51 \end{bmatrix}_5 \end{array} = -62864472\,.$$

Graphs of matrix B=

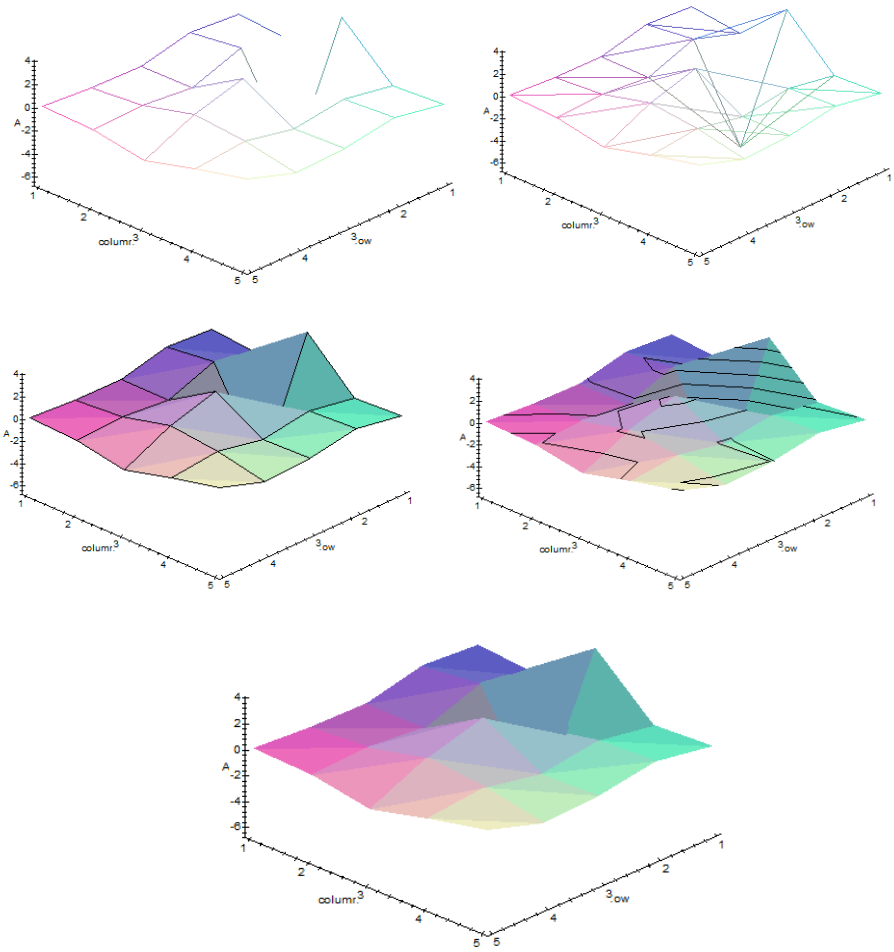


$$\left[\mathrm{A}|\mathrm{B}\right]=\left[\begin{array}{ccccc|ccccc} 95 & 50 & 10 & 75 & 60 & 85 & 65 & 100 & 69 & 61 \\ 100 & 70 & 63 & 45 & 67 & 100 & 73 & 73 & 55 & 76 \\ 56 & 48 & 59 & 77 & 83 & 55 & 48 & 59 & 79 & 83 \\ 57 & 41 & 17 & 61 & 53 & 57 & 51 & 21 & 61 & 53 \\ 99 & 81 & 73 & 78 & 51 & 99 & 91 & 73 & 78 & 51 \end{array}\right]_{5\times 10}$$

$$\sim\left[\begin{array}{ccccc|ccccc} 1 & 0 & 0 & 0 & 0 & 0,55 & -0,02 & 3,92 & -0,22 & 0,05 \\ 0 & 1 & 0 & 0 & 0 & 0,80 & 1,34 & -6,60 & 0,52 & 0,77 \\ 0 & 0 & 1 & 0 & 0 & -0,18 & -0,26 & 2,39 & -0,09 & -0,02 \\ 0 & 0 & 0 & 1 & 0 & -0,17 & 0,12 & 1,16 & 0,66 & -0,22 \\ 0 & 0 & 0 & 0 & 1 & 0,11 & -0,10 & -0,89 & 0,24 & 1,13 \end{array}\right]$$

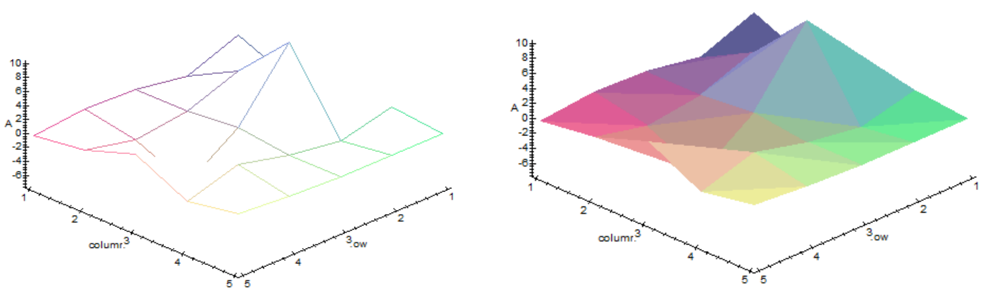
$$\frac{\mathrm{B}}{\mathrm{A}}=\begin{bmatrix} 0,55 & -0,02 & 3,92 & -0,22 & 0,05 \\ 0,80 & 1,34 & -6,60 & 0,52 & 0,77 \\ -0,18 & -0,26 & 2,39 & -0,09 & -0,02 \\ -0,17 & 0,12 & 1,16 & 0,66 & -0,22 \\ 0,11 & -0,10 & -0,89 & 0,24 & 1,13 \end{bmatrix}$$

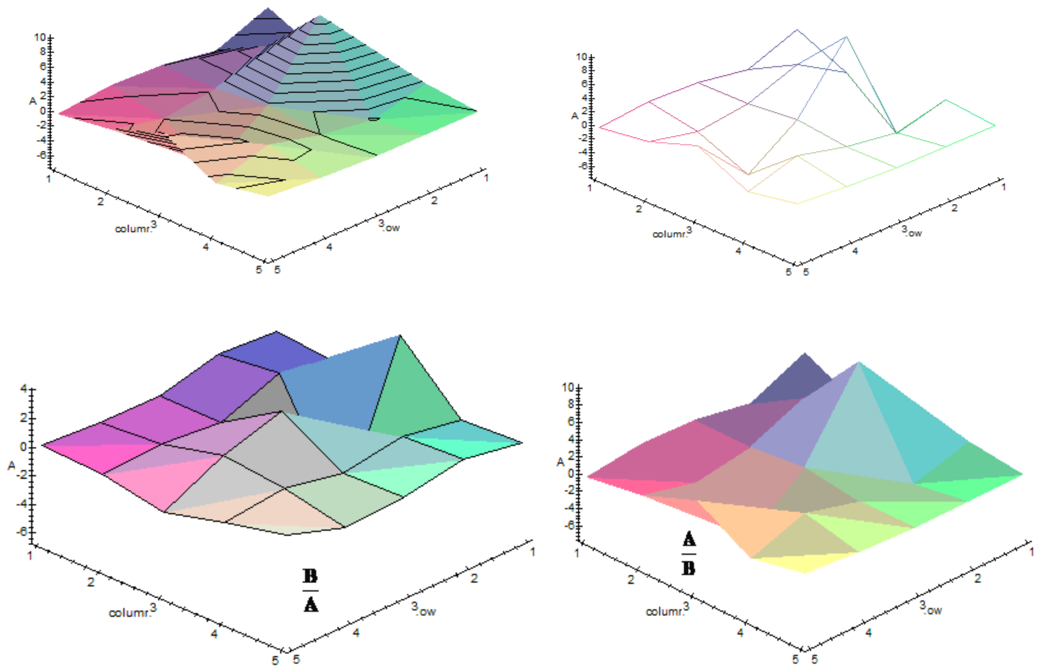
Graphs of matrix $\dfrac{B}{A}$



$$\frac{A}{B}=\begin{bmatrix} 1,75 & -1,51 & -7,42 & 0,71 & -0,02 \\ -1,06 & 2,80 & 9,97 & -1,07 & -0,10 \\ 0,03 & 0,16 & 0,82 & -0,002 & 0,006 \\ 0,47 & -0,95 & -4,16 & 1,70 & 0,27 \\ -0,35 & 0,75 & 3,24 & -0,54 & 0,81 \end{bmatrix}$$

Graphs of matrix $\dfrac{A}{B}$





3. Results and Discussion

The matrix division supports insistence of the way and carries to multiple systems. It increases the ability of thinking creatively. In addition to this, educated individuals thinks independently and freely. Due to the power arising in the intersection of the multi-results, success rapidly increase. The result of assumptions is observed within the integrity. More than one different result is achieved to the same subject. Thus, social development and success are dominated. The result is again the same type. Therefore, the movement and the influence of the individual within the group is observed. It presents multiple plans for the next development. The language of the numbers is expressed with the numbers. Relations between one class and another class are checked with the same scale.

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