adolescent, but at the last moment, his hand shrugs from his mouth and another gesture-to-nose is born. This means that the information provided is not reliable and you need to think about verifying it, whether you believe in this person or not. 2. If you tell a blatant lie, and your palms are open at the same time, you can still seem insincere to your interlocutors, because you will lack other gestures that characterize the person who speaks the truth, but negative gestures are typical for those who say lies; and all of it will not be combined with your open palms. Putting out thumbs speaks about the power, superiority and even aggression of a person. 3. Rubbing the Century. This gesture is caused by the desire in the brain to escape from the deceit, suspicion or lies with which he encounters, or the desire to avoid eye contact with the person to whom he is telling untruth. 4. Men usually rub the eyelid in a very energetic way, and if the lie is very serious, then they turn their gaze to the side, usually to the floor.In the study of the gestures of people accompanying their lies, Desmond Morris noticed that the lie causes an itchy sensation in the tender muscular tissues of the face and neck, and scratching is required to soothe these sensations. 5. Fixing Hands for the Head. If a person puts his hands behind his head, this indicates his confidence and persistence. And also that a person skillfully and competently issues false facts for reality, thereby deceiving you, turning his scam.

So, having analyzed the behavior of Sergei Mavrodi, the founder of MMM, which is considered to be the classic and largest financial pyramid in the history of the country, one can observe a certain pattern in his behavior, one of which is the casting of a hand for a head. After all, this testifies to the fact that he manipulates people, throws aggressive views in their direction. Casting his leg on the leg testifies to what he regards above all. He answered quickly on every question specifically relating to his financial pyramid, telling a person the wrong facts while correcting the tie.

These signals could prevent the spread of manipulations over large masses of people. Mastering these techniques requires a lot of time and practice, but thanks to them you can prevent cheating.

Scientific supervisor: Davydenko T.A.,
PhD, Senior Lecturer

UDC 004:681.5 (043.2)

Tereshchuk Ya.Ye.
National Aviation University, Kyiv

GAME OF LIFE AS A MATHEMATICAL MODEL

The Game of Life is a cellular automaton, which was created in 1970 by the English mathematician John Horton Conway. This was a manifestation of interest in the problem of John von Neumann, which was invented in the 1940s, and was to develop a hypothetical machine that would have the ability to make copies of itself. For the first time, the description of this game was published in Scientific American magazine in the category of Martin Gardner "Mathematical games".

The action of the game unfolds on a plane, infinite on both sides and divided into cells, which is called the universe. Each cell has eight neighbors: on the sides, top, bottom and on the diagonal. Also, each cell can be in two states: live (inhabited), non-living (not inhabited). The initial distribution of cells that are in a state of living

(inhabited), is called the first generation. Depending on the placement of cells in the first generation, the placement of living (populated) cells of subsequent generations is calculated, following the rules that are given below:

• If the living cell has two or three neighbors – then it remains to live further;

• If the living cell has one neighbor or no one at all – then it goes into a state of inferiority, or, in other words, dies of loneliness;

• If the living cell has four or more neighbors – then it dies from overpopulation;

• If the dead cell has exactly three neighbors – then it goes into the state of the living cell.

The rules are applied repeatedly and simultaneously, to create further generations. These rules are called the Conway genetic laws and satisfy the following conditions:

• there should not be any initial configuration, for which there would simply be a possibility to prove the possibility of unrestricted population growth;

• there must be such initial configurations that have the ability to grow infinitely in advance;

• there should be simple initial configurations that grow over a significant period of time, undergo various changes, and end their evolution in one of three following ways: completely disappear, switch to stable configuration and cease to change at all or go to the oscillatory regime with a certain period.

At the beginning of the game there is a placement of living cells, the player, who then acts without any further participation in accordance with the rules described above. In this game there is a huge number of different shapes that are formed due to simple rules. All figures, at the moment, are divided into the following classifications:

• Stable – shapes, placement of cells, which remain unchanged after each generation.

• Periodic (oscillator) – figures, placement of cells, which are repeated in a certain number of generations.

• Moving figures (spaceships, gladiators or gliders) – figures, placement of cells that are repeated, but with some shift in space.

• Guns – figures, placement of cells, which are repeated, but each cycle, they additionally create new moving figures.

• Steamboats are mobile shapes that leave track behind in the form of stable or periodic shapes.

• Eaters – stable (or periodic) shapes that can, when collided with some moving figures, keep their cells in place, destroying the moving figure.

• Long-livers – figures that for a long time change the location of their cells before stabilizing.

In the computer realization of the game, the universe is limited and the upper part is connected to the lower, and the left with the right, which is the simulation of the surface of the torus (a geometric body formed by rotating a circle around an axis that lies in one plane with a circle, but does not cross it. The shape of the torus looks like a bagel outside), but the field is displayed on the screen in the form of a uniformly distributed grid. The algorithm for generation change consistently checks all cells, which calculates the number of neighbors, then checks them with the rules and assigns the cell's status. For full-fledged operation of this algorithm it is necessary to use two two-dimensional arrays.

Scientific supervisor: Tereminko L.H.,
Senior Lecturer