~~~~Istoria Informaticii Curs 2~~~~

Recap:

CMB – energy + information in a state of entropy

Appearance of light

Manea about gravitational waves

Some of the stars bursted/exploded (as einstein said, bends the space-time continuoum around it)

Some of the explosion debris swells around healthy stars, forms an own gravitational field and become planets, others remain at the form of asteroids, comets. “cosmos rocks”

How does a planet increase their mass? By pumping asteroids

As we are life forms on terra, evolved life forms, we came to a crossroad in our philosophy regarding the topic of “how life came to this planet”. One theory is that one of such rocks hit the earth, but if we look at terra, we can see it is composed of 2 main parts: land and sea. What state of matter is our planetary environment (the biosphere)? Liquid? Only Liquid? It’s a mixture of Gas and Liquid. Gas OR Liquid = Fluid. If the ocean is a mixture of water and gas, so is the atmosphere => the atmosphere and the planetary ocean are one thing (we are swimming rn). All the weather-related phenomenons are done by this atmosphere. We as humans have fluids, gasses and “hail” (grindina). The collatz rules mimic what happens to the hail stones in the clouds up until they drop.

Going back to the topic, the hypothesis came to the idea that life began in the sea. We do not know it for certain, but there are many scientific proofs, even though “there is no substantiative evidence” that life did not lie elsewhere before water, as there are limitations in our science.

This fucking college is FOR FUN HAHAHAHAHAHAHAHAHAHAHAHAHAH. THERE IS NO KNOWLEDGE IJN THE END =)))))))))))))))))))))))).

This game of “History” is because IT’S FUN HAHAHAHAHAHHAHAAHGAHAHUAHAHAHAHGHA

Aristotle said on a rock that we do history because we get kicks.

Thank you Aristotle.

**Debate break**

A cool trick about history is to remember it’s patterns and not repeat them. One hypothesis about the appearance of life on this blue ball is that life appeared from an asteroid that crashed into the sea and making the building blocks of life. How can we know from earth the chemical composition of the stars from the earth (WE TALKED ABOUT IT?????)

Pink Floyd pyramid. What…

What newton proved to everyone is that white light is just a mixture of spectrum of colored lights. If I look at the stars, do I see the lgbtq flag complete or is there something missing? What is light? It is made out of photos. These photons meet obstacles in their way. If these photons do not meet any obstacles, until us, we see the light, which “excites our eyes”. The light is not complete as some photons are blocked by the composition of the stars. There is an experiment that can be made which shows that at some exact positions, depending on which element you have put, you can see how the light is blocked by that element’s existence. At some points, a star emits nuclei of the star itself, which can intercept the photons coming to the earth.

A lot of ladies mapped the stars on the sky

Radio astronomy was founded I the early 1930s with the work of Karl Jan…

Using this type of analysis, scientists can look from the earth and get the composition of any stars in the cosmos. Therefore, they noticed that these stars have some compositions that would mark the beginning steps of life.

**Miller–Urey experiment**

* What these guys did was a hypothesis, a play with the unknown. If an asteroid would fall, as we claim it did, and there was a mixture of some chemicals and we put it in a controlled environment, we cool/heat(?) it and then we hit it with a lot of electricity, would that lead to the building blocks of the building blocks of the building blocks of life?
* Did they succeed? They got the nobel prize, so I guess. They zapped it with electricity until they formed aminoacids. Why do we need aminoacids? They create the building blocks of life, which are macromolecules such as RNA (ribo nucleic acids). What is ribo? The ribozone. What is a ribozone? It is an information system. What is the input and what is the output? The input: Energy and the output: RNA, information. Where does energy come from? The powerhouse of the cell, mitochondria. Everything is thermodynamics. How does mitochondria work? Takes sugar (crap), chemicals from the surrounding and creates a exothermic chemical reaction. Did you know the mitochondria is kinda a cell? It has almos everything a cell has, it’s a proto cell.
* Who appeared first, the virus or the mitochondria. We do not know. Why is this relevant to CS? Do we know who was asking these questions? John von Newmann.
* Viruses are not considered by us, “life” as “being life”. What is life? The problem comes from self observation. Life is life observing itself, or else it would not be life.

**Debate break**

* The idea of John von Newmann’s head was not really about RNA, but about replication of RNA. What is replication? To make something identical. What is a replica? A copy, also known as a clone. The ability of information to clone itself. What is fighting agains replication? Entropy

GATTACA (cica va aparea la examen) – this is how the human genome starts. What data type would you use to hold in the memory of the computer DNA? Linked Lists, but why? What is the operation of an array that are very bad? Insert and remove.

When trying to replicate GATTACA, a lot of things can happen, the addition, deletion, mutation of something caused by entropy. Claude shannone. Who helped us do it? Why is it called ethernet? Why is it called “ether”? what was ether? A substance that people up until the late 19s some people thought that permeated outer cosmos. Why did they need something to be there in their minds?. Because everything we knew about mechanics and physics was Newtonian mechanics. Since light was moving, it had to latch on to something for it to make sense in Newtonian mechanics. The “culprit” was thought to be this ether. There is no ether in the cosmos, only after Boltzmann and his ideas appeared did people start looking at some other aspect and turned away from the idea ot “ether”. Once we dropped this hypothesis and we contemplated the idea that nothing was there, only then did we stsart working with our collective minds throughout the years and get hypothesis such as einsteins “that you have a time-space continuum and stars bend this time-space”. However, the universe is booming with radioactive crap

Do we know about error detection mechanisms?

The birth of modern computers

Somehow, nature founda way to perfectly replicate RNA. You can see it happening, by a way of cloning genetic information in an almost perfect manner. If you put a proteic epsilon on top of it, you get a virus. The only flaw a virus has is that it has no metabolism. The goal of a virus is such to insert it’s own code as an input to the ribozone, such that it recreates the input of the virus and not that of the ribozone.

What was first, the creation of RNA or metabolism? In order to have life you need both.

Newmann replicated a cell and called it “software”, and then called “hardware” chloroplast.

The touring machine. What was wrong with it/. It was slow. Why? Because most of the energy was lost as mechanical work force. It was not effective from an energy point of view. What happened to john von newmann. He created a computer to mimic the cell based on the questions he was asking itself.

His analysis of the structure of self replication preceeded the discovery of the structure of DNA. While thinking about the beginning of life, he implemented his thoughts in the computing machine. What is a computing machine. A machine that performs computations on what? Arithmetical and logical operations. What is the smallest form of operation? A bit. Addition gives us an extra bit, multiplication doubles the amount of bits

0 + 0 = 0 (and) 0 (xor)

0 + 1 = 01

1 + 0 = 10

1 + 1 = 11

What is xor? Can it be written in a disjunctive normal form? Xor is the bad boy of ai?

A and NOT B or NOT A and B

With these 3 operations, not, and, or, we can build a machine.

What do we need to achieve these 3 operations? Semiconductors

**How transistors run code? – core dumped**

Who came up with the notion of logic gates being able to do computation? Claude Chenn. Who invented the notion of logics? Aristotle. What is the principle that logics is based upon? The law of the excluded middle. In the beginning there was one.

2001 SPACE ODYSEY

Someone(?) invisione a machine with an infinite amount of bits. What is a bit? Is it a state or does it have a state? A bit is an entity that can have exactly 2 states that you move from one to another by “not”. What you cannot do in a bit is to be stuck in between the 2 states. Who decided that? Aristotle. He wrote the book on logic called Logica (comes from logos which means word). What was the best outcome to come out of this? Contradiction. You could have not contradicted a mf before Aristotle, People could say that P could be true and then say not P be true and nobody could catch that bulshit. Why is Aristotle considered the best philosopher in ancient times? Because he took his newfound tool which is Logica, took all the wisdom coming dfrom the predecesors, Socrates, Platos, etc. and put them through this newfound weapon and thus eliminated all contradictions which lead to him understanding the surrounding of the universe. As sherlock holmes said, once you leave the impossible, whatever remains has to be the truth.

The notion of a bit stands from the idea of Aristotle that there are no more than 2 states. Principiul tertului exclus. George Boole comes up (mathematicion from the Victorian period of Britain).

Why the first computers were made out of light bulbs – veritasium

\*\*\*discussion about cpu and memory = ram(done by magnets) + storage(done by electrons)

This model was proposed in the 50s. What is the computer von newmann and turring worked on and was used during the ww2? ENIAC. ENIAC was a couple of rooms filled with electronic devices that ran on machine code (byte code). You had a room in which you flipped switches or gave perforations on a carton card (as input), and then a room in which the input was being processed and then another room that returned an output as a punch card or (?). Where have we seen this? In the beginning of the flinstones.