

# About the origin of the universe

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*Abstract - This consideration argues that the universe must be infinite in time and volume and that most likely already an infinite number of big-bangs must have taken place.*

## Introduction

Philosophizing is playing with words.

On the one hand a philosophical consideration is senseless if the applied essential words are not defined unambiguously.

On the other hand such a consideration is superfluous as soon as that restriction has been fulfilled.

## I Definitions

|          |  |
|----------|--|
| Universe | The earth and the matter around it.  |
| Cosmos   | Imaginary universe, being without matter.  |
| Matter   | The collection of all protons, neutrons and electrons, shortly: particles.   |
| Neutron  | An electron orbiting a proton at extremely small distances, compared to the smallest radius of an orbiting electron around an atomic nucleus. See reference. |

## II Axioms

- 1 Matter cannot be generated out of nothing
- 2 Matter cannot be transformed to nothing
- 3 Universe contains a limited amount of energy

## III Hypotheses and the argumentations for their validity

### 1 The cosmos has an infinite volume

If the volume would not be infinite, there has to be a border somewhere. But a border would be a separation between, in this case, two volumes. So outside that border must again be a volume. This can be repeated endlessly.

### 2 The matter in universe exists (already) infinitely long

If this would not be the case, there would have been a period during which there was no matter at all. This period would then have been infinite long, because a finite period during which there was nothing must have been preceded by a period during which there was matter. Such a model would imply that an endless repetition would go on of 'something posterior to nothing' and 'nothing posterior to something', showing a sequence of events in contradiction with axiom 1 and 2.

### 3 The quantity of matter in universe does not change

If the quantity of matter, to be read as the total number of particles, would in- or decrease, something created out of nothing, respectively nothing created out of something would show up. Both are in contradiction with axiom 1 and 2.

### 4 The quantity of matter in universe is finite

An infinite number of particles means an infinite number of atoms, each representing a certain amount of energy, generated by the orbiting electrons. An infinite amount of energy is in contradiction with axiom 3.

### 5 The volume in which the matter is concentrated is finite

If this volume would be infinite the density of the *restricted* amount of matter would be zero. This contradicts with our observation.

## **6 The volume of the matter changes periodically with time**

If the meant volume would be of the same size for an endless long time, the matter at the outside of this volume would never have changed position relative to the centre of this volume. This is contradictive with the character of gravity.

This character means that, whatever the distance between two masses might be, there is always a gravity force. Due to that, whatever small, force these masses will unavoidably come closer to each other in vacuum, because in vacuum is no force to prevent that, except the force created by explosion.

So as long as these explosion-forces are stronger than gravity-forces the volume of the matter will extend until both forces are equal. At that moment the process of shrinking starts.

In principle it is possible that the matter in universe is composed like an atom in which all masses orbit around a central mass. Such a system would have existed and maintained forever. However the sun for example would in the mean time have emitted all her energy. This contradicts with the present situation.

The end result of the process of shrinking is that all the matter is concentrated in one volume, resulting in an explosion of the matter. If it would not explode, the universe like it is now, would not exist.

So the hypothesis under consideration is correct.

## **IV Big-bangs**

Based on the axioms and the hypotheses in this consideration the conclusion must be that already an infinite number of big-bangs have been taken place.

## **Reference**

<https://vixra.org/abs/1803.0036> Atomic Nuclei Modelled Without Exotic Particles and Magic Forces