

Philosophical Essay of Models of Universe

Galaxies and Explosions in Eternal Universe

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1. Introduction

This philosophical essay and a proposition for model of the universe is developed in the Internet forums¹ in dialog with other interested scholars and amateurs. Beginning of the initial invention that the accelerating going away of the galaxies from the eyes of the observer happens because of the infinite – no edge – property of the universe². It does not follow from the expansion of the space itself as the *Big Bang- theory* (BB)³ concludes and supposes. No one has been able to deny this proposal; only when based on the BB itself. No outside proof exists to refute the idea, so the idea might be the right one.

After that we have got in the discussions many other philosophical ideas. This was only the beginning. Also, the concepts of the eternity and infinity were handled thoroughly (in my books anyway). Most important is to make a strict difference between the local universe and the whole universe and handle them separately first. And think again the concept of an observable universe. The observable universe is nothing that exists in the reality, it depends mainly of our capacities of observation, and only the limits of the velocity of the movement of light and other radiations and observations are exact limits in the reality. And we can know more than we observe, because we can make same conclusions from all that we already know to the local universe and to the whole universe.

Local universe and whole universe are theoretically exact things, which exist in the reality.

It is a fallacy, that we can form a theory primarily or only from the observations. That kind of erroneous thinking comes from the empirical and naturalistic philosophy, which prevails in the academies. The science is not empirical or rational but both. Models and observations in the science go after each other eternally until the truth - the best possible map of the facts in the scientific community⁴ - is achieved some future day in the extremely far future, if ever. And it might be a fallacy that the limits of the observable university are the same as the limits of the whole universe. In BB it is supposed that the observable universe and the whole universe are the same because the philosophy there is, that we cannot know anything more than what we observe. Well, they are not quite sure what they think here, but they do not see this.

We know from the astronomy, that the galaxies form groups and chains, and this is how the universe looks like in a noticeably big area.⁵ How long, we do not know. What is farther away is

¹ <https://www.tiede.fi/keskustelu/77392/filosofiaa-mitka-ovat-kosmologian-ikuiset-kysymykset> and Suomi24 filosofia and tähtitiede (astronomy). <https://keskustelu.suomi24.fi> and in some international forums. Also, in the ACG, A Cosmology Group, <http://cosmology.info> or <http://a.cosmology.info>

² OS: Filosofia, 1986. OS: Maailmankatsomusta etsimässä. 1994. www.santavuori.com

³ Big Bang means that the universe can have a beginning and it can expand. And does so.

⁴ *Stephen Toulmin* uses this map- analog in his philosophy of science, which professor *Oiva Ketonen* recommended to me in studies in the University of Helsinki of the Philosophy of Science. “An Introduction to the Philosophy of Science” (1953)

⁵ The latest map: https://www.forbes.com/sites/startswithabang/2020/07/21/how-our-record-breaking-3d-galaxy-map-reveals-the-universe-as-never-before/?fbclid=IwAR1CwxvIKspFzk_FPeN1fPL0M0bjmcPSdPsKMKS LamSONUQzG6FXjZFojg#5dc505a62f1d

only a hypothesis, and it is different in *Steady State theory* (QSSC), in *Multiverse- theories* (LMXT), in *Dynamic Universe- theory* (DU), in this theory (M-34DU), and in other theories⁶. And besides galaxies and stars there are almost void areas too. And black holes in the galaxies.

The whole universe might be like this: ***galaxies in chains in an eternal universe***. This is one way of interpreting the data we have. We can really say that the modern astronomy has already solved the main problem of the cosmology: which kind of universe we have there in the space?⁷ This is one way to think how things are there.

This proposed model now states differently as others, that *this situation prevails eternally and everywhere*. This is the Steady State of the universe: ***galaxies everywhere***.

There is always some ultimate basic way how the things are, an ultimate reality. This might be so that in the case of the universe we do not have to go and seek farther than the chains of the galaxies. (And in the case of matter and energy it may be so, that they too have always existed, we do not have to seek any beginning of the matter and energy.)

The Multiverse theory normally states that our universe of galaxies is only one of many similar universes in the infinite multiverse and may be so on and so on still farther. But it is also possible that it stops here, that this situation of chains of galaxies is already the ultimate Steady State. And it has not any beginning as in BB. This situation has always been like this and is everywhere like this.

This way of thinking is possible only if there are also eternally sometimes somewhere big and small ***explosions***. Local Bangs, ***Multi Bangs***. This is a simple solution to all the main problems of the cosmology, even when this is only a theory in the philosophical level, and it is not sure that this is the right one. Some other theory might of course be still better. And this is not a thoroughly formulated physical- mathematical theory, which needs time (movement) and space and matter and energy and forces all together in an exact form. And as has been said, differently for the whole and for local universes. This philosophical theory can be put in mathematical form, as any other philosophical, cognitive, verbal theory of the physics of the universe.

But it can be said, and this is amazing, that the whole philosophy and theology is ready as far as it can be understood nowadays. One can disagree, but this is the best of the alternatives. And from this philosophical theory follows some hypothesis that can be tested in astronomy. In normal Multiverse- theory it is not possible. The other “universes”, in fact only part- universes, are not visible there. Some of the local universes are visible if this theory is near the right one.

Big explosions will be seen in the astronomy in the very moment an astronomer starts to think that way. Or this model is wrong. But the truth is that every star and celestial body is from some explosion. So, the *LambdaCDM- model*, the prevailing BB- model, is going still more to wrong direction when it abandons the explosion⁸.

⁶ <https://cosmology.info/resources/models.html> or http://cosmology.info/essays/models_marmet.html

⁷ Nobody has not yet realized this important fact. It is my invention that the whole thing seems to be so simple now because of the developments of the astronomy. The scientists continue with their calculations, but the whole problem is already resolved.

⁸ https://en.wikipedia.org/wiki/Lambda-CDM_model

And there is no need for the beginning of the universe because it can be eternal. The beginning comes because there is supposed time for the universe; time, that is not eternal.

And there is no need for the expansion of the space, because it is possible that it has always been as big as now. The expansion comes because of one interpretation of the redshift, by the expansion of the space. Circular interpretation if used to prove the BB. There is a better interpretation by the other properties of the space. And interpretations by different understanding of the redshift.

In the Appendixes A-I is collected all the other achieved thoughts of the cosmology, answers to some critics and some profounder understandings.

2. Philosophical background

Philosophical thinking in the academies is normally naturalistic⁹ in this day. This is not the only and the only right way to think in philosophy. It is based on empiricism and on a very atheistic thinking. It is possible to think more rationally and more dialectically¹⁰ and more holistically. Here we do not go more deeply in these matters. Anyway:

No scientism

Which kind of universe we have? The cosmology is all the answers to that question. This question is not only scientific, it is philosophical and religious too. It has meaning for the whole understanding of the truth, of the reality, it is a world view, not only science. To handle it only as a scientific question is scientism, not science, not sound philosophy.

There is only one whole universe, and it is not known, which kind of the universe we have here. We do not know whether there is a God or not, and what is the relation of the God to the universe. We do not know whether materialism is right, or whether idealism is right. We cannot ask just when and how the universe has begun because it can be eternal without any beginning and end. We can only make clear the alternatives, and only one of them supports BB. And that one is not a good one, anyway not the best of them.

What we know? What we do not know? What are the alternatives to the not known things? This is how we must think these things in philosophy.

No physicalism

Cosmology is not only physics. To think so is bad philosophy, physicalism, not science. The earth is in the universe, and to handle things in the earth we need all the sciences, physics, biology, psychology, sociology, and theology. Unfortunately, we do not know the things in other habitable planets. But we can make some philosophy of them. Philosophy is the science to handle not known things in the best available way.

⁹ [https://en.wikipedia.org/wiki/Naturalism_\(philosophy\)](https://en.wikipedia.org/wiki/Naturalism_(philosophy))

¹⁰ <https://en.wikipedia.org/wiki/Dialectic>

We can make the alternatives visible and only one of them supports BB and it is the worse of them. Alternatives to the biology, to psychology, to sociology and history, to theology, in the astronomy of the universe, all this can be made in philosophy.

BB is not the only and right theory in cosmology

In physics the BB- theory is only one theory, not the only one. Not the right one. Even when the mainstream says so. It is only their opinion, other scientists disagree.

Alternatives to the physics of the universe: BB- models, Steady State models, Multiverse models, Cyclic models.

3. The local universe

The local universe is all the galaxies that stem from the same beginning as the Milky Way. It expands only so long as the explosion expands. *General Relativity theory*, GR¹¹ handles all the happenings there in an enough manner, when all the forces are included that there really are: the gravity, the electromagnetic forces and all forces what there happen to be, gravitation first as always. (Gravity can be a real force; this is one thing where GR maybe thinks wrongly.)

Without study we cannot know which galaxies belong to the local universe. They are not necessarily all from the same beginning. This is only the position of the BB. We should know the age of every galaxy, and the distribution of the galaxies, and we do not yet know these things exactly enough, and not independently of BB.

Time of the galaxies, stars and planets depends of the velocities of their movements. GR states that. Local universe, and every other local universe, begins in an explosion, then there is a big cloud, then the stars and planets form themselves, then the galaxies and groups of galaxies and chains of galaxies. Someday the galaxies and the black holes and quasars explode in some area, and everything begins again. (The quasars might be these explosions, at least some of them.)

This explains the *entropy*¹². Everything begins again in this area. And the universe is different entity as a closed or open system.

The Bang points can be calculated to the place and time where the galaxies go younger and younger. This locality of our galaxies explains the *spectrum* of most of the galaxies (from which the amounts of the matters in the galaxies and the ages of galaxies are estimated with other means), because we mainly see the local galaxies. Only them, says the BB and the Multiverse theory. But nobody has studied all the galaxies, and the ages must be studied again. They cannot be evaluated rightly by the BB only.

¹¹ https://en.wikipedia.org/wiki/Theory_of_relativity

¹² Some people say that everything in the world goes to worse because of the entropy, or that entropy has some meaning for the model of the universe anyway.

4. Other local universes

When we know which galaxies belong to which population, we can have some idea of which kind of different populations there is in the visible universe and farther away.

5. The whole universe

If this theory is right, the whole universe can be modelled as a **4D universe without time**. Space dimensions all four. The 4th is the infinite – no edge - property of the space¹³. And the all- property of the space of the whole might mean that it has a fixed size.

This again:

The universe has no beginning and not outside. It is infinite in the sense that there is no outside space and no edge, and finite because there is all the space.

This verbal expression is an exact formulation of this whole thing: the space and time of the universe. Logically it cannot be in any other way. At least rationally this is sound thinking. Better than any other way of thinking. GR does not think like this, but here it can be wrong. *Albert Einstein* did insist that his theory must be of the whole universe too. But this point is wrong and leads to the beginning and expanding of the universe, to BB. Which things are absurd, at least it is not a rational way of thinking about the whole universe.

This verbal expression can be put in mathematics in various ways.

4D is one possibility to say this mathematically. If we choose this mathematics, the space of the whole universe is not 3D, not 5D¹⁴, but exactly 4D. The 4th space- dimension is the fact that there is not outside, but there is all the existing space. It is infinite, but it is in the same time finite, because there is *all* the existing space.

It is not easy to understand how the time must be handled, but one possibility is that there is no time for the whole. Just an eternal Steady State. The time is not eternal for the parts of the universe - they are moving, dynamic, have time, evolution, and development – but it is eternal for some static properties of it as a whole.

The universe consists of innumerable local universes and we have no clue how big it is. We do not see the whole universe, but we might see some of the local universes. They merge with our local universe. There are whole the time clashes, merging of local universes, but the prevailing theory hinders us to see this, to understand what there happens. The chains of the galaxies fill whole the

¹³ The Kaluza- Klein theory and other 4D theories have been criticized of not having any reality in the 4th dimension, but this no edge property is in the reality, and it can be put in the theory by the 4th dimension. This is my invention, that the 4th dimension is in the reality in this way. That it is in the reality.

¹¹ The Kaluza- Klein- theory is a 4+1 theory, in fact a 5D theory: https://en.wikipedia.org/wiki/Kaluza-Klein_theory

area of the whole universe, but all the galaxies are not from the same beginning, and the local universes merge with each other without so much trouble in doing so. Or some bangs are from the clashes.

When we think of the whole universe, the philosophical tools¹⁵ are better than the mere physical tools. Part of the philosophy of the cosmology is the same as theoretical physics of the cosmology. Philosophers have left the cosmology to the cosmologists, so now the cosmologists must handle the philosophical problems themselves, they should think like philosophers here in the philosophical problems of the cosmology. Are they ready for that? (No, they are not ready.)

In philosophical cosmology we do not have to turn whole time to the mathematics. This is totally or mostly a philosophical thing to understand which kind of the universe we have in the sky. It can be formulated in a verbal scientific language. Mathematics is not a mystical matter; it is only the language that is needed here, in physics. Whenever we have a verbal theory of the universe, a philosophical theory, we can make a mathematical model of it. And then test it in the astronomy.

And cosmologists deal too much with their observable universe, which is not so good concept as they think. The local and the whole are better.

And everything in the cosmology is not physics. It has its philosophical, biological, theological, astronomical, geological, and other scientific aspects too. Everything that exists in the earth, exists in the universe whole time, because it exists in the earth, and the earth is part of the universe.

Mathematics must be applied rationally, physically, and empirically in the right way, that is the main thing in sciences, not the mathematics *per se*.

Cosmologists should read this essay of *Louis Marmet*: "Criteria for a Scientific Cosmological Model" in ACG.¹⁶ It also handles the relation of mathematics to physics.

This rational thinking of the universe might be a revolution in philosophy too: something can be said of the universe from the logical point of view already. Normally nothing follows from the logic to the reality. Logic is only tautologies and concepts, nothing more. Logic says if the conclusions follow from the axioms, the premises; but the premises themselves must be concluded from the sciences and other concepts of the human understanding of the truth.

From the universe we know that it has all the space without outside, there is all the matter and energy, there is only one total, whole universe and it is eternal. Is it so? If it is, then something in the reality comes straight from logic. And there might be still some more logically fixed things.

6. Entropy, spectrum of the galaxies, microwave radiation, red shift, fine tuning, extrapolation

¹⁵ Look the tools in my book of philosophy in the home page <http://www.santavuori.com/Filosofia2019.html> p. 8-12 in the pdf- form of the Epistemology (Tietoteoria).

¹⁶ Luis Marmet: https://cosmology.info/essays/criteria-for-a-scientific-model_marmet.html The distinction between physics and mathematics.

Some things are considered as proofs for the BB. But in fact, every theory has its own explanations for these matters. The explanations for entropy and the spectrum of the galaxies are already handled here before. These physical matters will not be discussed here more deeply. Others can handle them much better in ACG. Only the red shift, fine tuning and extrapolation are also philosophically important matters.

In this theory the Multi Bangs everywhere eternally explains the *microwave radiation*. After this invention this too goes from philosophy to physics, as entropy, and spectrum of the galaxies, from which the amounts of different matters in the galaxies are evaluated.

This radiation is not a proof for BB. Every cosmological theory has its own explanation for it.

The infinity – no edge – explains the *redshift*, the observable movements of the galaxies. *Expansion* is not real, it is theoretical, it comes *from the theory*, and from interpretation of redshift by the Doppler phenomenon; the *observation is exactly and only the redshift*. The observed, concluded, *movements* of the galaxies are to some extent real. They depend mainly of other properties of the space of the whole universe, not from the expansion of the space.

The movements tell us which kind of the space of the universe we have there. (This is my big invention, but nobody ever understands this simple thing. That the no- edge- property of the space already explains the redshift, the movements. Maybe it is not so simple to everybody. Maybe we need to make a 4D animation of this, and this is missing, and this is what the people need.) You cannot go out of the space of the universe; everything just goes round and round and round each other's. The space of everything is different of the space of a ball for example. But this is a ball-like entity. It maybe has a fixed radius. And the time in the distant galaxies goes differently as we think when we look them from here in an infinite universe.

Fine tuning is a question of the philosophy of science. We do not chance the reality; we chance the theories to fit the reality. The reality must be studied as such as it is, without any foreign presuppositions of the reality. This is the first principle of the science, *philosophical materialism*, and so is the *epistemological realism* and the *correspondence theory of the truth*¹⁷. In philosophy they can be argued, but in the sciences, these are supposed always. Otherwise it is not possible to make science. The other theories of truth are also important in the sciences, but the basic supposition is the correspondence theory.

And of course, the *Quantum Theory*¹⁸ has made the whole *concept of reality* different as before, but anyway these principles are true and right and necessary in making science.

In the universe there is not anybody to fine tune the universe. Because there is not any outside to the universe. At least there is not any beginning from the void to existing. In the earth there can be a Creator who has finetuned the things in the prevailing order of the globe. Because the earth has the whole universe outside of it. (Whole the material reality of our human world might have an outside spiritual and divine reality too, but not the whole universe.) This is a religious question and not possible to solve in science now or never. Its solution goes to the realm of religion.

¹⁷ These terms can be looked in the books of philosophy.

¹⁸ https://en.wikipedia.org/wiki/Quantum_mechanics

Extrapolation is handled in Appendix I.

7. Biology of the universe

Cosmology, at least astronomy is not only physics and geology, there are beings also in the stars and planets, humans, and *flora et fauna*. And there might be gods, angels, and aliens. If they have something to do with the cosmology, it depends of how much powers they have. We have no clue; this goes again to philosophy and now also to theology.

8. Theology of the universe

We have no scientific knowledge of the gods.

But one thing is important to note. The theory of *creatio ex nihilo* (creating from nothing) is logically impossible; there has always been something, the whole universe is not created, has no beginning. Beginning and creating are same as organizing the existing things and elements, not creating them from nothing. Nobody comes from the outside of the universe to create the universe, because the universe has not outside. This needs not any other proof: the universe simply has not outside, nothing can be created from void and there has never been and will never be such situation that anything at all does exist. Something is now, you cannot deny that¹⁹. (Now is only time the universe has (this can be doubted)). You can speculate otherwise, but it is nonsense.

If there is the spirit world, then something can come from there, but that is a different question.

In the physics too, the singularity, whatever it is, is not a beginning of the whole universe. Only the local universes can have their beginnings.

The eternal and infinite – no edge - universe is a materialistic and not an idealistic theory. It has nothing to do with religion, as so often has been said erroneously in discussions. The theology comes to cosmology only when we start thinking what the relation of God and Universe is, and when we speculate of the question of beings in the universe. These questions are not normally considered scientific, but in fact they are. We just do not know how they are. It is pure philosophy to handle them, but philosophy can handle them. And philosophy is a science. Atheists think otherwise, but atheism is a world view, not science. Atheists leaves the gods away of reality, but the agnostics and theists leave them not. So, in the pure science you can do both ways. This is only my personal view, and I know that the scientists and philosophers normally are nearer atheism.

In cosmology it is best to ignore whole the question of theology. But this here is my view of the matter and this is my article and essay.

¹⁹ This is the answer to Jim Holts question in his book: “Why does the world exist?”, 2012: Descartes’ *cogito, ergo sum*. The question: why there is something, why it is not so that there is nothing. Answer: There is something, that’s it.

9. What is wrong in the BB?

Rationally it is clear that the universe is not expanding, and it has not a beginning, it is much better understood as infinite and eternal. BB gives a wrong view of the universe, even when it is very well in the calculations of the astronomers, so they love it and are not willing to change the theory, to abandon it. This was the situation with the Ptolemaian view of the solar system too. But in the long run the theory became too complicated and some observations were against it. And finally, there came a better theory, which was bitterly opposed by the scientific community and church authorities. And everybody could see this in the sky too, after making a little thinking.

This is the situation today also. BB is wrong and it is already proved by science, but the truth is bitterly opposed by the scientific community and church authorities. Supporters of the BB say that there are no observations against it, it can explain all the facts, and there is not any better theory. But this just is not true, the models and facts of observations which ACG has collected proves it²⁰. And today everybody can understand that BB is wrong. Everybody, but not the fine scientists.

Contracting observations are better explained in the pages of ACG, but these things can be said here: there are too many galaxies in a too big area, so that it is impossible that they all are from the same Bang. This is the thing that everybody can and should understand. And the ages of the individual galaxies, when valued independently, will eventually show this, there is too old galaxies too far away to fit with the BB.

BB can explain all the things, but to do it, it includes many odd and some impossible things, singularity, inflation, expansion of the space faster than light and others.

And as stated already, it is rationally wrong anyway if not experimentally in the minds of mainstream scientists. It is true that the macrocosmos and the theory of it might include peculiar things, but not all these together. Much easier is to change the whole theory.

Better theory is maybe missing, but as you see, there are already many candidates, so it is not true that these are not existing. And they are not all refuted as it is often said. They are refuted only because they are valued by the BB. Independently valued they are not all refuted.

The most important thing is, that BB thinking is logically circular thinking whole the time in many ways. All the observations do prove the theory in the mind of the proponents. But this is circular because they can be explained by other theories too.

Circular means that the BB theory proves the BB theory. To some extent this is normal in science because we do compare theories with all the achieved knowledge. But this way can also be just circular thinking.

BB forces the facts to the theory, changes reality, when true science changes the theory, tries to find such a theory that fits the facts in the best available way. To form and find a better theory is to make science, to be solely a proponent of the BB, is dogmatism, it is right only if this theory is the best and only, and there are no better ones. BB- thinkers think so, others do not.

²⁰ List of models here and other articles in ACG, A Cosmology Group

Second reason for the opinion of the scientific community is that nature of the universe has only philosophical meaning. The astronomers are not really interested of that. For the philosophy it is important whether the universe is eternal or not, infinite or something else, and in which way infinite and eternal. For the astronomer only their calculations of the galaxies and stars matter. They take such a theory that is most practical and developed for their uses. With a wrong theory, in the long run they will get wrong results of the stars and galaxies too, and this has happened already in the study of the galaxies. When the hypothesis, axiom in BB, is that there is always an “young universe” far away, the results of the galaxies are erroneous.

Third reason is money. Money does not come to the hands of the dissidents. Nor the offices in the academies. This is an awfully bad thing and not good for the science and the fame of it.

10. Summary

In this proposition for model, the whole universe is chains of galaxies, and explosions in an eternal universe. This wholeness of all has no time in any normal sense, it is static. Its space has two contradictory properties, it is infinite in some respects and finite in the same time from other angle. It has all the infinite space, but no outside place exists, so it is not absolutely, mathematically infinite. This situation can be handled by various ways, but the BB- way is absurd, wrong, and old fashioned.

Something of the universe can be concluded from the philosophical ground, rationally, and this must be taken in account in the empirical studies. It is imperative to differentiate between the local and the whole universe. We do not have observations of the whole universe; we can only make models and test them. From the other local universes, we might have observations, because we see already billions of the galaxies.

It is possible to make a theory on the eternal and infinite ground. The whole universe is like that, not the local universe or the observable universe. These terms, “eternal” and “infinite” just must be understood better and more profoundly, as has been tried to do here. The analysis of concepts is the task of philosophy always. And the analysis of the premises of every theory.

Models for example: GR with the cosmological constant, Steady State²¹, when modernized, or Multiverse²², or Dynamic Universe, (T. Suntola)²³, or MultiBang²⁴ there we have similar and almost ready physical- mathematical theories for this frame too. This essay is not so much a ready model as a program to make one, and a way to make comparisons between theories. To make physical

²¹ QSSC, HyC for example in the list of models.

²² LMXT for example in the list.

²³ DU in the list.

²⁴ Book

https://books.google.fi/books?id=JlpkCwAAQBAJ&pg=PP13&lpg=PP13&dq=MultiBang+kosmology&source=bl&ots=repqJLP3OG&sig=ACfU3U2HBYot7aY4FwAbEaIpVt51ESWv2Q&hl=fi&sa=X&ved=2ahUK Ewi8_ZmWqerpAhWKs4sKHUmYAIYQ6AEwAHoECAgQAQ#v=onepage&q=MultiBang%20kosmology&f=false and in the list LMXT A. Trépanier.

models, as a philosopher, without physical- mathematical competence is impossible. This is only thinking of the possible models in the philosophical level.

But of every philosophical model can be made a mathematical model. The physicists cannot any more intimidate the philosophers by their higher mathematics, as the BB- thinkers have tried to do always.

More sources and thanks:

Thanks to *Louis Marmet* for critic to make my thoughts and arguments more clearly understandable.

All the arguments are in my homepage in books and articles in a more detailed way, but this is more developed. My philosophy is epistemological realism. The philosophy of BB- thinkers is philosophical naturalism and empiricism, which are basically near epistemological idealism.

Other sources are the other theories mentioned here and the normal textbooks of astronomy.

Homepage: www.santavuori.com

Moses 2:1. In the Book: Pearl of Great Price. Utah. (The creation story is from this earth and this haven (not from the universe.))

To refute *creatio ex nihilo* is not my own invention but the specific arguments here are. It is one classic Christian tradition, also in:

Joseph Fielding Smith: Teachings of the Prophet Joseph Smith. Utah 1976 (p. 348 for example in the Finnish edition)

Appendixes

Appendix A. Entropy

Entropy is something that has more meaning with the question of evolution and creation than with cosmology. But some people make a big story of the entropy in cosmology and say that it proves this or that theory as a wrong theory.

When we think of our somewhat infinite universe, the entropy is totally different as in a closed or open system. It is only the fundamentalists who insist that the entropy ruins the evolution theory. In cosmology it is like I said here before, that

1. everything locally sometimes begins again, so the development of entropy begins again, and
2. the entropy is different in this kind of entity, which the universe is, as in any other kind of entity.

Appendix B. Why it is not so that there is nothing?

Why there is something and why it is not so that there is nothing? The answer is *Descartes' Cogito*. *Descartes' Cogito, ergo sum* (I think, so I am) means that there is something now. When this is an indisputable fact, then there is no need for the opposite, that there is nothing. The situation that there is nothing, does not exist. Also, the wholeness of everything does exist, and it eventually has no other time as now. Eternal *now* might be the time of the universe.

The existence (existing) of the whole universe is little different as the existing of all the other things. It does not exist in some bigger space, and its time is different; eternal time or no time at all. It is not in the space and time. But it exists; differently, but it exists.

Jim Holt (Note 19) has made a whole book of this speculation, but the answer is this. "Hard fact" as he says as one of the answers. But it *is* the answer, solution to the whole problem. "Hard fact", that there is now something, is the solution to this problem.

Appendix C. Redshift and 4D and time and space

(My good friend Dipl.ins. Tekn.lis. *Kari Saarikoski* - with whom I have pondered these things from the beginning, he opened my eyes to see how impossible the Big Bang- theory is - said that he does not understand the 4th dimension. So many other people too in discussions.)

So, that 4D- infinity must be made clearer here.

The point is that the *space* of the universe has this *property*, that it is *infinite*, but there is *all* the space, so it is not infinite mathematically, absolutely, but physically, in the way *really*, it has these two properties and they are not clearly understandable, infinite in some way, finite in some other way, but both are facts of the reality.

How we make a mathematical model of that is philosophically secondary thing. The 4th dimension is only one way to put this property in mathematical form. In fact, it is not exactly a dimension, but it can be handled as a dimension much more naturally than the time, as is made in GR.

Same thing is with the *time*, the universe has some not- known eternal time, and when it ultimately is static, formed for example by chains of galaxies eternally, we can think that it has not any time at all, any way in the normal sense. (Tough the beginning can be understood so, that starting from any moment and place, in the past there comes a point and moment when the beginning and eternity are the same thing. But that is not a beginning in any normal meaning.) This problem with time means too that the movements (times) of faraway galaxies are not easy to understand.

In both cases, in time and space, normal concepts of them do not fit the reality of the universe. So, we just must think again the time and space of the universe and look where we end. And the whole totality of time and space and matter (matter and energy) and forces. The solution in sciences is always the same: we must make different models and look which of them fits best the observations. 4D is better than any previous understanding. However we think the space of the whole, it is not 3D anyway as the space normally is.

So, I just propose, I *postulate* in a specific philosophy, for the whole universe:

- 4D,
- no time,
- includes all matter, all kinds of matters and energy, all forces, also unknown forces,
- *and* big explosions.

Unknown matters and forces we must sometimes postulate to explain the observations; as the mainstream now postulates the dark matter, without direct evidence. Unknown forces are the other possibility. Maybe there are both. Or something that we do not yet understand.

For local universes, and for galaxies and stars, GR and standard theory is good enough, but one just cannot generalize it to the whole universe. The theory of the whole universe can handle the parts too. The theory of the parts cannot wholly handle the whole universe.

In other way:

Redshift measures both distance and going away of galaxies from the observer. When we think this movement of the galaxies in the 3D space, it clearly is movement away from us. But when we think this movement in the 4D, it has a totally different interpretation. Some galaxies are going nearer, some going farther. And the movements must be valued differently in every given distance. Nothing can go out of the universe, all movements are rounded, circular.

There are not direct observations in the cosmology, only interpretations of the measurements and observations. As in science generally, but in the case of the universe especially because we look universe from inside, not from outside, and we cannot compare the universe to other universes, because there is only one total universe. Just many local universes, but only one whole universe. The redshift is the measurement, the observation, but its meaning depends of the theory. The expansion of the space is an absurd, impossible explanation. The space cannot expand, it expands only in the BB- theory, only to form that theory, only to save that theory. The right explanation is in one other property of the space, the no edge- infinity. That property is in the reality, the expansion of the space is not a good possibility compared to that. And the redshift clearly measures mainly the distance of the galaxies from some reason, not only the movement away. And physically the red shift can have other explanations.

In still other way:

We cannot put the universe to 3D model. The total, the whole universe is not such a space, it has the property of being infinite and having all the space without outside.

And this can be *modelled* by 4D. The 4th dimension, 4th vector in vector mathematics, dimension of the space of the universe is one possible mathematical model for this property.

How can we express this thing so that people understand? We must make an animation someday. How can we make a 4D animation? A ball that is rolling, and the farthest galaxies moving from the front to the back?

And once more, by the history of the cosmology:

Einstein put to his theory the cosmological constant to conserve the infinite and eternal, static universe. But when he realized that without the constant it was good with the BB theorists, he abandoned the constant. This was where the cosmology went to the wrong direction. The right and scientific way should have been to think in which kind of the space the galaxies move like observed by the redshift and its Doppler interpretation.

The right way should have been to abandon the beginning of the universe and the expansion of the space, to preserve the constant and abandon BB, to take an extra space- dimension. Finnish

astronomer *Gunnar Nordström*²⁵ suggested something like that. This was not done, and even *Fred Hoyle* did think that the space was expanding, and *Halton Arp*'s comments were not accepted. Fortunately, these lines, The Steady State and Electric Universe have continued. Also, the lines of Nordström (DU) and *Kaluza- Klein*²⁶ have followers with the 4D universe.²⁷

And about GR:

Here can be stated also the four problems with the GR: (1) Time is not a dimension, but the 3+1 (4D space- time), the fact that GR- theory has four dimensions, is the reason for the success and apparent rightness of the theory, (2) the space of the whole universe is not 3D, as it still is in the GR, (3) Gravity is a real force and not so as in the GR, and (4) it is wrong to generalize GR to the whole universe, it fits only with the local universe, the whole universe must be handled otherwise. If we generalize it, it follows that the whole universe has a beginning, which is absurd. The total universe needs different kind of theory.

²⁵ https://en.wikipedia.org/wiki/Gunnar_Nordström

²⁶ https://en.wikipedia.org/wiki/Kaluza-Klein_theory

²⁷ Look the list of the models

Appendix D. Ultimate reality

Where stops the going farther and farther, having a bigger, deeper reality of things? It can go ever and ever or stop somewhere. Best way is just to think in cosmology, that there somewhere is an ultimate reality. This cannot be proved in any direction, but we can think that there is an ultimate *Steady State*. We do not know which kind it is, but it is there. Seems to be the chains of the galaxies, but it can be still bigger thing as the Multiverse theory seems to think. The part- universes can also be separate bubbles in the greater universe.

Appendix E. What follows from logic?

The universe is a totally different entity of all the other entities and things²⁸, so we must thoroughly analyze it before making dogmatic proposals or thinking it only on the observational base, we do not have direct observations of it.

The whole universe already logically:

- Eternal, static time
- Infinite in one sense, not outside, no edge, finite in other sense, all space
- At least somehow static size (big, never small, always big), even if in the model the space and fields are somehow interconnected, if there is some kind of “ether”
- Only one total, whole universe
- Ball- like, not a ball
- Parts dynamic, static whole in some respect
- The total amount of the matter and energy is not changing, because there is no outside
- What else, what from indisputable observations?
- All these terms must be analyzed to their right and profound meaning
- Logical connections and summary of these all
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²⁸ <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.694.576&rep=rep1&type=pdf> for example, *Georg Ellis*

Appendix F. Biology

The relation of living organisms to material reality. It is maybe not so clear, when we come to the highest living forms. In my books of philosophy (now only in finish language) I have not considered this aspect. Only that there is four levels, matter, life, humans, and gods. What if the universe is a living organism too? And mother earth :) ?

But I have speculated of the life in the space. In my mind it exists, and it is *knowledge*, not only a hypothesis, it has been knowledge since we understood that the stars are suns, since the great philosopher *Giordano Bruno*²⁹. We can rationally reason it from the facts we already know, how *much stars and galaxies* there are, from the *evolution* theory and from the fact that *life and humans* exist in the earth. From these tree things it follows almost logically.

²⁹ https://it.wikipedia.org/wiki/De_1%27infinito,_universo_e_mondi There is many worlds, because stars are suns.

Appendix G. Theology

In my books of philosophy.

Here have been stated already, that the *creatio ex nihilo* is not a good idea logically and rationally, and that the infinite and eternal universe is not a religious statement, it is a totally materialist statement, not an idealistic one.

And theology in this case, in cosmology, is answer to the question: what is the relation of God to Universe? This is a scientific question in philosophy and does not matter what you think of God and his existence. Only an atheist thinks that there are not any gods. The science does not yet know how this is.

And of course, in philosophy we need to say which kind of gods we are talking about. There are gods that do not exist and gods that might exist. The existence of God is a big philosophical question always.

Appendix H. Cosmology, Creation and Evolution

Evolution has something to do with universe. The solution to the problem of creation and evolution in the cosmological level is an eternal circle. This is the same question as the question of materialism and idealism. Which is first, the spirit or the matter? The answer is an eternal circle.

Or the universe goes materialistically and the earth idealistically. I have made an longer article of the evolution in the universe too: <http://www.santavuori.com/Evoluutio2.htm>

Appendix I. Extrapolation

The conclusions of the past of the universe in BB- theory are based on an extrapolation of the now prevailing situation to the past by that theory. The reliability and validity of the conclusions depend of the reliability and validity of two things.

- a. The view of the prevailing situation in the universe, by that theory, and
- b. The view of the history of the universe by that theory.

The first is that now the universe is about 93 billion light years (I am not sure what they now say) wide and is expanding in an accelerating velocity. It consists of galaxies that are all from the same beginning. What we see in the sky is a younger and younger universe everywhere.

In fact, we do not know, what there is farther than observed by telescopes, but we do know, that we see the galaxies and everything only in the form they have had in the past. We do not see how the things are now. We just estimate it by theory.

The history is that it has been smaller and now is expanding. This also is known only by theory, not by observation. The observation is redshift, the size and luminosity of the galaxies, supernovas, radiation and so on.

How can anybody from these observations and this theory extrapolate the past exactly? How can anybody have such firm believe in any theory? The mathematics can be exact, but the reliability and validity of this theory are not exact.

From the theory, supposing that it is right, its mathematics and physics all can be calculated exactly from the beginning to the situation now. There are also animations of that:

<https://www.youtube.com/watch?v=74IsySs3RGU&fbclid=IwAR2yqU7STwuUHAR02e6FEAgBYp48B2rLdwZ0zB2C8mu0E1Mm6hmxT01E6JE>

When you look these animations, you can very well think, that they are from the whole universe, but as well they can be interpreted as happenings in the local universe, and the whole universe is just galaxies everywhere. The animation is good, but it tells of the happenings in the local universe. The history is right, but the prevailing situation is different, it is not expanding any more, and the history is not from the whole universe.

Or you can interpret the facts by some other way. And make different animations. But to interpret the animation by Steady State for the whole universe and expansion for the local universe is really tempting. The astronomy has resolved for us which kind of universe we have there! Also, the new map proves that:

https://www.forbes.com/sites/startswithabang/2020/07/21/how-our-record-breaking-3d-galaxy-map-reveals-the-universe-as-never-before/?fbclid=IwAR1CwxvIKspFzk_FPeN1fPL0M0bjmcPSdPsKMKSLamSONUQzG6FXjZFojg#733361542f1d

when interpreted by infinite and eternal universe.

