



Answers 4 Seekers, Session #11B

TOPIC: Distant Starlight Travel Models

(semi-technical)

- 1) Overview
- 2) Review - Starting With a Solid Perspective.
- 3) Speed of Light Overview
- 4) Current Methods for Calculating Starlight “Distances”
- 5) Starlight-Travel Models by Cosmogonies
- 6) Bonus Info
- 7) Summary & Ending Thoughts
- 8) Additional Resources

1) Overview

- a. We will explore different starlight travel models, ones that support an old universe and ones that support a young universe (where light from distant galaxies can reach earth within the biblical timescale). Biblically, the universe was created mature (Genesis 1:1-4), but we all need to be able to explain distant starlight.
- b. The universe is [extremely large](#) in size—billions of light-years to the most distant observable galaxies. The universe is currently thought to be 93 billion light-years in



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diameter. A “Light-year” is not a “measurement of time” but of distance: a [light-year](#) is a distance of about 6 trillion miles.

- c. The Creator God of the Bible is powerful and glorious, especially since He states in 2 Peter 3:12-13 that at the time of full redemption, He will again create a new heaven and earth: one where righteousness dwells forever (Daniel 7:14).
- d. Additionally, all three main [cosmogony](#) models (young earth/universe, big-bang universe, and eternal universe) have equally significant starlight travel-time challenges, so criticisms just against a biblical “young universe” model are unfounded. We will explore these models and their challenges below.

2) Starting with a Solid Perspective (Review from 11A)

a. Summary from Session 11A (section-1):

- i. Man is finite in intelligence and temporal in earthy duration.
- ii. All recorded History only goes back 5100 years (and only 3900 with calendric accuracy). Recorded history is the gold standard of evidence.
- iii. Of the three main cosmogeny models (2 of materialistic origin, 1 of Supernatural origin) each requires at least 3 miracles (ie, events beyond physics).
- iv. ***Please review Session-Topic#11A (Age of the Universe), section-1, for more information.***



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b. Main “Origin of the Universe” Models Require at least Three Super-Natural Miracles:

Age Models	The Model Requires These Miracles to operate:
The Eternal Universe	<ol style="list-style-type: none"> 1. Since the Universe is viewed as eternal, it would have already run out of all useful order and energy based on the “Law of Entropy,” and so life could NOT exist now. <i>Miracle: Entropy overruled.</i> 2. Life from non-life. <i>Miracle: Life from non-life.</i> 3. Mankind possesses (and demands) free-will. There is no place in a purely materialistic universe for chemical reactions to possess the attribute of “free-will.” <i>Miracle: Materialist determinism and probabilities overruled.</i>
The Big-Bang Universe (old universe)	<ol style="list-style-type: none"> 1. This model says the Universe (Time, Space, Matter/Energy) all popped into existence out of “nothing,” and so violates the “Law of Conservation of Energy/Matter.” <i>Miracle: Law of Conservation of Energy overruled. Note: Big-Bang’s proposed “singularity” was either already in existence and therefore was eternal, (and so had an Entropy problem), or popped into existence out of nothing, and so had the conservation of energy problem.</i> 2. Life from non-life. <i>Miracle: Life from non-life.</i> 3. Mankind possesses (and demands) free-will. There is no place in a purely materialistic universe for chemical reactions to possess the attribute of “free-will.” <i>Miracle: Materialist determinism and probabilities overruled.</i>
The Created and Young Earth/Universe	<ol style="list-style-type: none"> 1. An All-powerful, eternal Creator created the universe out of nothing, directly by His desire and power. (Revelation 4:11, Hebrews 11:3). <i>This Model overrules the natural “Law of Conservation of Energy.”</i> 2. Life from non-life. <i>Miracle: Life from non-life.</i> 3. Each person was created in God’s image, possessing a spirit, soul, and body (Genesis 1:26; 2 Thessalonians 5:23), and free-will (Genesis 2:16,17). <i>Miracle: This special creation overrules the domain of purely materialistic matter and determined forces.</i>



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c. Our Held Worldview affects our Cosmogony Perspective:

- i. Materialistic-Only Worldview Model: Space, Time, Matter, Energy, and the laws of physics are all that ever existed or could ever exist. No super-natural element to reality is allowed.

This view rejects any super-natural (non-material) aspect of reality. When a violation of a laws of physics occurs, it must be limited to some yet unknown property of matter. This Model restricts each person to being only an accidental & temporal chemically-determined machine, ultimately destined for extinction.

- ii. Composite Worldview Model: Both super-natural (spirit and soul) and natural (matter/energy) aspects exists within reality.

In this view, the physical realm (matter/energy) has its source from a super-natural origin. “Super-natural” means something operating above and beyond the laws of nature. This Model shows each person as being planned, created in the image of God, having a purpose and an eternal future.



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d. Review Assumptions on the Hubble Constant/Redshift:

#	Required Assumptions	Is Absolute Certainty Possible?	Example Question
1	Is this phenomenon and its process rate presently completely and accurately understood?	???	Is it possible to know that “redshifted” starlight is <u>only due</u> to the cosmic expansion of the fabric of space? Even in 1947, Edwin Hubble was still unsure that the H_0 Constant was actually (or purely) due to an expansion of space.
2	Has the process rate of this phenomena been uniform and fixed throughout all history?	No	With the short period of time of the use of H_0 (Hubble Constant) and the understanding of the speed of light, it is not possible to state that neither of these rates changed throughout time. (Note: Big Bang’s proposed “Inflation Period” was to have operated many times the speed of light.) (even some current scientists think that the speed of light may have been different in the past).
3	Have all other phenomenon and processes that could affect this phenomenon’s rate have been identified, understood, and eliminated?	No	Is it possible to know that we have identified all the phenomena and forces that affect our understanding of H_0 , the speed of light, and the past age of the universe?
4	Has the universe always operated in a completely closed-system?	No	Is it possible to know that throughout history has the universe always been a closed-system (that is, nothing has ever left the universe or acted upon the universe from the outside?)
5	No super-natural (that is, beyond physics) powers or forces were ever employed or involved?	No	We cannot prove that supernatural forces were never involved.



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3. The Speed of Light -- Overview:

- a. Today the speed of light is 299,792,458 meters per second (approximately 186,000 miles per second).
- b. The speed of light is typically believed to be a fixed constant value (within its General Relativity frame of reference). ([*but there is a little dispute on its fixity*](#))
- c. Light is an electromagnetic wave, and all electromagnetic waves travel at the same speed (the speed of light).
- d. [James C. Maxwell](#) developed his “Maxwell equations” around the 1860’s, which [theoretically calculated the speed](#) of light to be around 300,000,000 meters per second. [Equation: $c = 1/(e_0m_0)^{1/2}$]
- e. [Hippolyte Fizeau](#) performed a physical [speed of light experiment](#) in 1850 using a light source, mirrors, and his apparatus. His experiment yielded a speed of light that was 313,274,304 m/s, which was within 5% of the correct value.
- f. Note: Light follows the rules and effects of “[general relativity](#).”

Note: For the Age of the Universe Models, please see previous Topic-Session-#11A.



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4. Current Methods for Calculating Starlight “Distances”

#	Technique	Technique’s Range	Limitations	More Info on Method
1	Parallax (triangulation method)	<u>Maximum</u> range, between 6000 to <u>30000</u> light-years distance	<ol style="list-style-type: none"> 1. Measures light received in the present. 2. Typically, assumes strict naturalism and historically-fixed uniformitarian processes. 3. Typically, assumes closed systems with no historic super-natural involvement. 	Click Link for More Info
2	Cepheid Variation (Star brightness oscillations)	<u>Maximum</u> range, up to around 50 million light-years distance	<ol style="list-style-type: none"> 1. Measures light received in the present. 2. Typically, assumes strict naturalism and historically-fixed uniformitarian processes. Typically, assumes closed systems with no historic super-natural involvement. 	Click Link for More Info
3	Hubble Constant (H_0), Redshift	<u>Maximum</u> range, between 2 billion to 18 billion light-years distance	<ol style="list-style-type: none"> 1. Measures light received in the present. 2. Typically, assumes strict naturalism and historically-fixed uniformitarian processes. 3. Typically, assumes closed systems with no historic super-natural involvement. 	Click Link for More Info

Note: See Topic-Session #11A for more information on the “Hubble Constant.”



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5. Starlight-Travel Models by Cosmogonies

a. Challenges by Cosmogony Categories:

#	Cosmogony Category	The Category's Challenges with Starlight Travel Time
1	Eternal Universe	1) Why has not all the starlight in the universe reached us by now (since it is believed that not all starlight has reached us yet)? 2) Additionally, why has not the "eternal universe" run completely down according to the Law of Entropy to a non-life, heat-death universe?
2	Big Bang (& the Old Universe)	1) How can the Cosmic Microwave Background Radiation (CMBR) be so uniform (within 1 part in 10,000), if light from one side of the universe has not had enough time to reach and interact with the other side of the universe? <i>Note: This is called the "Horizon Problem," Please see details in the previous Session-Topic #11A.</i>
3	Young Earth/Universe	1) How has light from great distances in the universe already reached a young earth? 2) How can we know that a super-natural event or Being was involved in creating the universe and influenced light's travel time so mankind could see stars by the end of the creation week? <i>Note: Three possible young universe/earth cosmogony models are presented below.</i>



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b. Summary of Cosmogony Models & Their View on Distant Starlight:

#	Model's Name	Age	Brief Summary of Cosmogony	View of Starlight's speed & Travel Time	Challenges to Model	Video Links
1	Eternal Universe	Old Universe	The universe is eternal; has always been. Uncreated, and never non-existent.	Speed of Light constant with a uniform rate of speed in both directions. <i>The oldest light received on earth is around 14 Billion light-years (using H_0).</i>	Assumes current speed of light uniform in each direction. Model's Cosmogony violates physics (see above), and model allows no super-natural effects.	N/A
2	Big-Bang	Old Universe	The universe is the result of a quantum-fluctuation within a singularity, and has rapidly expanded since then.	Speed of Light constant with a uniform rate of speed in both directions. <i>The oldest light received on earth is around 14 Billion light-years. (using H_0).</i>	Assumes current speed of light uniform in each direction. Model's Cosmogony violates physics (see above), and model allows no super-natural effects.	N/A
4	Special Creation with Anisotropic Speed of Light (ASC)	Young Earth/ Universe	God created the universe in 6 days, with mankind able to see most stars by day-6 thru ASC.	Due to effects of General Relativity (ASC), Distant Star light is received instantaneously, and returns back around $\frac{1}{2} c$ speed. <i>The oldest light received on earth is less than 10K years.</i>	While allowed in General Relativity, how do we know the back-and-forth rate of light is different?	Link #1 Link #2 Link #3
5	Special Creation with White-Hole General Relativity	Young Earth	God created the universe via a white-hole through General Relativity effects	Due to effects of General Relativity, Distant Star light ran at different clock rates than earth clocks, so this allowed much time to elapse in the universe, with little time on earth. <i>The oldest light received on earth is less than 10K years.</i>	While allowed in General Relativity, how do we know this was the actual process God used?	Link #1 Link #2
6	Special Creation with Dasha-Theory	Young Earth/ Universe	God created the universe in 6 days, with mankind able to see most stars by day-6 thru supernaturally hyper-accelerated "brought forth" processes.	With supernatural hyper-accelerated processes during the 6-day creation week , distant Star light could reach earth (based on earth time clocks) Part of the creation weeks' miraculous hyper-accelerated processes. (Dasha). <i>The oldest light received on earth is less than 10K years.</i>	While God is all powerful, how do we know this was the actual process God used, apart from scripture?	Link #1 Link #2



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6. Bonus Info:

a. The Big-Bang model's "[Inflation Epoch](#)" proposes a miraculous Speed-of-light:

- 1) According to the [Wikipedia's article](#), the proposed Big-Bang had an "Inflationary Epoch", where the universe expanded many times the current rate of the speed of light.
See: https://en.wikipedia.org/wiki/Inflationary_epoch
- 2) Based on Wikipedia's "Inflationary Epoch" article, Inflation's proposed expansion rate was 10^{+26} and occurred in less than one 10^{-32} of a second, So, **if the singularity** of the universe was just the size of one nanometer (one atom) it would have become 10.6 [light years](#) in size (that is, 62 trillion miles in size) within a fraction of a second; that calculates to a speed of around 3 trillion-trillion-billion miles per second, while the regular speed of light is only 186,000 miles per second.
- 3) **So, If the Singularity was the size of just one nanometer** (size of one atom), then according to the Big-Bang model, **the proposed Inflation-Epoch's speed was one trillion x one trillion times faster than the speed of light.**
- 4) Apparently, light can travel at miraculous speeds when wanted or needed to be (without a Miracle Worker)?
- 5) *The Big-Bang proposes the "Inflation Miracle" but has no miracle worker; the "Creator Model" is fortunate to have a capable Miracle Worker as its foundation.*



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7. Summary & Ending thoughts:

- a. As mentioned, only the Special Creation models propose to have an Original Observer capable to validate the correctness of the time of starlight reaching earth.
- b. The Cosmogony/Starlight-Travel models of Eternal Universe, Big-Bang, and Creation Dasha-Theory have their own starlight travel problem and requires a miracle beyond natural physics, but only the Creation Dasha-Theory model has a stated Miracle Worker (the Creator God).
- c. The Creation Cosmogony/Starlight-Travel models of ASC and White-Hole could explain starlight travel using current physics (General Relativity) from a young earth/universe point of view.

“The heavens are telling of the glory of God; And their expanse is declaring the work of His hands.” Psalms 19:1

“For God so loved the world that He gave His only begotten Son, that whoever believes in Him should not perish but have everlasting life.” John 3:16



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8. Additional Resources

a. Reading Materials

- i. https://en.wikipedia.org/wiki/Horizon_problem
- ii. [Flatness problem - Wikipedia](#)
- iii. [Inflation \(cosmology\) - Wikipedia](#)
- iv. [The Expanse of Heaven, Faulkner, 2017](#)
- v. [Taking Back Astronomy, Lisle, 2006](#)
- vi. [Dismantling the Big Bang, Hartnett, 2005](#)
- vii. [light-travel-time-problem.pdf \(answersresearchjournal.org\)](#)

b. Videos:

1. https://www.youtube.com/watch?v=pErw_ygicJE Maxwell Equations - Speed of Light
2. <https://www.youtube.com/watch?v=a6gl8KZM0PM> Speed of Light (Fizeau experiment)
3. <https://www.youtube.com/watch?v=pTn6Ewhb27k> Why No One Has Measured The Speed Of Light Veritasium, 2020



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4. <https://www.youtube.com/watch?v=9R618vzhDfU> AIG If The Earth Is Only 6,000 Years Old, How Is This Possible? 2022, Faulkner
5. <https://youtu.be/9g3Y4y4ROrE> CMI Distant Starlight in a Young Earth Model, Sarfati, 2021
6. <https://www.youtube.com/watch?v=FCVLTtbhoS8> Calvary Chapel of Manassas - Astronomy Reveals Creation (By Dr. Jason Lisle, 2023)
7. <https://www.youtube.com/watch?v=AkoTubA52SQ> Origins: Distant Starlight in a Young Universe, Dr. Jason Lisle, 2017
8. <https://www.youtube.com/watch?v=sOauMjjuNxA> Distant Starlight and Biblical Creation | Dr. Jason Lisle, 2019
9. <https://www.youtube.com/watch?v=0UIR7PVhIkA> The First Four Days, Russ Humphreys, SoC, White Hole 3.0, 2020
10. <https://www.youtube.com/watch?v=cq2nNn6dOxA>, Starlight and Time. Dr. Russell Humphreys. Origins; White Hole 1.0