



**Probable Impossibilities:
Musings on Beginnings and Endings**
Alan Lightman, Physicist and Novelist

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The author Alan Lightman begins with his poetic reflections on Pascal's suggestion that we human beings find ourselves being caught between the abyss of nothingness and infinity, moving on to declare that with the introduction of the Planck length, the Plank world became a ghost world without "time" and without "space", and consequently suggests "space has been blown thin by an ancient glassblower, so thin that it dissolves into nothingness".

With this set of mind the author discusses the "big questions" like infinity, nothingness, the origin of the universe and Sean Carroll's quantum cosmology, but also ponders how life began and reports on Prof. Shostac's paper "how did life begin".

The author then embarks on the more "metaphysical" questions of what is the nature of mind, consciousness, soul, ethics and (im-) mortality of human beings, supposedly composed solely of cosmic atoms and molecules, driven (?) by our brain.

Alan Lightman presents the latest status of research, having talked to the cited experts and offers his own opinion as a physicist and in a personal way as a novelist, that you easily can associate with – and you realize that he is not only talking about the human species, but also about you.

Alan Lightman appreciates the "order versus disorder" idea (Yin and Yang philosophy), i.e., order necessarily is employing increasing disorder (increasing entropy).

The author writes:

"The cosmos sings order but sings also disorder"

That reminded me of Goethe's Faust

Prologue in Heaven:

The Sun sings out, in ancient mode,

His note among his brother-spheres,

And ends his pre-determined road,

With peals of thunder for our ears.

The sight of him gives Angels power,

Though none can understand the way:

The inconceivable work is ours,

As bright as on the primal day. [1]

We consequently arrive at the question "why is there something", associated with the power of Nature's laws throughout the universe, and again we are thrown into the contemplation of the spiritual world versus physical world.

The author confesses at the end of the book, in response to Andrei Linde's *inflationary theory* and its modifications: "I do not feel unlimited looking at Linde's map at the universes, instead I feel small and insignificant, like the Bible peddler [*Jorge Luis Borges, The Sand*] who says space is infinite, we are nowhere in space, nowhere in time ... On the other hand, there might be something majestic in being a part even a tiny part of this unfathomable chain of being."

The speculation about whether life is special (are we alone?) on our planet or are there other life forms in the universe? According to Alan Lightman all serious possibility-calculations were thrown off track in 1998 with the discovery that our universe is *expanding with increasing speed*, heading towards nothingness?

Somehow the circle closes – it might mean an infinite circle of unfathomable become and vanish.

I liked this profound book, because it covers four centuries of scientific breakthroughs, from Kepler's revolutionary laws of planetary motion to the thousands of habitable exoplanets discovered by NASA's *Kepler* mission and discusses the latest theories and discoveries up to the year 2014. But I also liked very much the more poetic, non-professorial style including the author's personal thoughts and insights – which, in an unusual way Alan Lightman is able to reach out to you as an insignificant, yet mysterious part of the universe.

Reference:

[1] Faust <https://www.poetryintranslation.com/PITBR/German/FaustIProl.php>