Premise 1:

An entity cannot be (exist) unless it is able to fully manifest all of its properties.

I cannot substantiate this premise with underlying truths, it is purely based on common sense.

"Common sense is not so common."
Voltaire, Dictionaire philosophique portatif, pp.317-319.

This premise implies that an entity having at least one spatial property has a minimal space requirement. This minimal space requirement is what a I from now on mean with the term *size*.

Definition 1:

***Size* is the minimal amount of space required for an entity to be able to exist.**

Example: according to quantum mechanics, electrons are to be considered as true point masses, but using the above definition electrons do have a non-zero *size*, since they have got spatial properties like:

the *classical radius*:	$r_e = e^2/4\pi\varepsilon_0 m_e c^2$	≈ 2.818 fm,
the *Compton wavelength*:	h/mc	≈ 2.426 pm,
and even the *Schwarzschild radius*:	$r_s = 2Gm_e/c^2$	$\approx 1.353 \times 10^{-57}$ m
which is far less then the *Planck length*:	$\ell_P = \sqrt{\hbar G/c^3}$	$\approx 1.616 \times 10^{-35}$ m.

All of these spatial properties depend on the electron's *mass*. The above then yields next.

Conjecture 1:

Entities having *mass* are fundamentally not compressible to zero.

What is *mass*? Isaac Newton's very first item in his magnum opus, the Philoſophiæ Naturalis Principia Mathematica, (please pronounce principia as prinkipia) is:

DEFINITIO I.

Quantitas Materiæ eſt menſura ejuſdem orta ex illius denſitate & magnitudine conjunctim.
Amount of Matter is the measure of the same as what arises from its density and extent conjunctly.

(...)

Hanc autem quantitatem ſub nomine corporis vel maſſæ in ſequentibus paſſim intelligo.
It is this quantity that I mean hereafter under the name body or mass.

With this definition, conjecture 1 implies *matter* would not be compressible to zero. According to modern physics, matter consists of elementary particles, for which I introduce:

Definition 2:

***Elementary matter* is that what constitutes elementary particles,**
whatever it may actually be, as well as those particles themselves.

Note: in this context I consider protons and neutrons (or hadrons in general) elementary particles because free quarks do not exist. In my main treatise (http://henk-reints.nl/astro/HR-on-the-universe.php p.19) I substantiate the latter by the common sense presumption that quarks must be smaller than protons, whilst their *Compton wavelength* as a presumed space requirement is far larger.

I also derived equation [119]: $\rho_{n,max} = 1.392134 \times 10^{18}$ kg/m^3

This is the *density* of a presumed spherical neutron having a *diameter* equal to its *Compton wavelength*. By assuming that as the maximum *density* of neutronium, the latter would consist of neutrons that are

so closely packed that all vacuum has been "squeezed out", whilst the neutrons themselves are not compressed, i.e. they would then isovolumetrically be deformed to tiny little cubes. Maybe this can be considered a silly idea, but on 2019-08-21 I unexpectedly found next on WikipediA:

Pressure inside the proton:

https://en.wikipedia.org/wiki/Proton#Pressure_inside_the_proton:

"**The pressure is maximum at the centre, about 10^{35} Pa which is greater than the pressure inside a neutron star.**"

V.D. Burkert; L. Elouadrhiri; F.X. Girod (16 May 2018): "The pressure distribution inside the proton".

Nature. 557 (7705): 396–399.
Bibcode:2018Natur.557..396B.
doi:10.1038/s41586-018-0060-z.
PMID 29769668.

Neutronium:

https://en.wikipedia.org/wiki/Neutron#Neutronium_and_neutron_stars:

"**The extreme pressure inside a neutron star may deform the neutrons into a cubic symmetry, allowing tighter packing of neutrons.**"

Llanes-Estrada, Felipe J.; Moreno Navarro, Gaspar (2012): "Cubic neutrons".

Modern Physics Letters A. 27 (6): 1250033–1–1250033–7.
arXiv:1108.1859.
Bibcode:2012MPLA...2750033L.
doi:10.1142/S0217732312500332.

So I am not the only person who is thinking of cubic neutrons. And the very high pressure inside a proton definitely does not contradict my conjecture 1 as stated above. This pressure is roughly 100 times the *gravitational pressure* inside a ball of neutronium with a *diameter* of $21.5\ \mathrm{km}$ and the above *density*, which is the smallest amount of neutronium having a *Schwarzschild radius* exceeding its *material radius*. Apparently, protons can easily withstand it. This gives rise to:

Conjecture 2:

Elementary matter is fundamentally incompressible.

TOV-limit

According to Oppenheimer and Volkov, neutronium above a *mass* of $\frac{3}{4}m_{\odot}$ would collapse, although slower and slower as *time* progresses and never reaching equilibrium. This is known as the TOV (Tolman-Oppenheimer-Volkov) limit, which, based on current knowledge about existing neutron stars, has been increased to above $2m_{\odot}$. This collapse however is to my opinion only the collapse of the neutronium and not of the neutrons themselves.

Conclusion

Altogether this would simply mean the big bang cannot have started as a zero-*size* singularity of infinite *density*. To me such a singularity seems absurd. The *IniAll* must have been a blob of neutronium of nearly 3 times Earth's orbit around the sun. Smaller is impossible. It also implies a minimal *diameter* of black holes of ca. $21.5\ \mathrm{km}$. Micro black hohohoholes? RoFLoL!

Sic.