The improbability of mutations is, itself, mirrored in the improbability of self-reproducing DNA and life arising at all. Many years ago already, Michael Denton explained that

The space of all possible amino acid sequences (as with letter sequences) is unimaginably large and consequently sequences which must obey particular restrictions which can defined, like the rules of grammar, are bound to be fantastically rare.\textsuperscript{22}

Even a sequence of “just ten amino acids long only occurs by chance in about $10^{13}$ average proteins.”\textsuperscript{23} Such considerations led to the conclusion that the probability of life arising on its own by chance is infinitesimal. We should keep in mind that, prior to life arising, the laws of Darwinian evolution cannot be said to have operated. So Darwinism either cannot comment on how life arises or only says that it arises via blind search by nature combining chemicals in all possible sequences. But such random combinations would require much more time than the universe has existed. As Stephen Meyer puts it,


\textsuperscript{23} Denton, \textit{Evolution}, 323.
Given the probabilistic resources of the whole universe, it is extremely unlikely that even one functional protein or DNA molecule—to say nothing of the suite of such molecules necessary to establish natural selection—would arise by chance.\(^{24}\)

The very probability of blind search in the finite time from the beginning of the universe makes it unreasonable to claim that life arose by pure chance, given the odds.

When we think of DNA or RNA, we need to imagine a string many, many letters (or bits) long. But to have life we need to have just the right string. The odds are simply astronomically against the right bit string arising on its own. Many people faced with such odds immediately either claim that such an event had to be ordained and designed or simply due to our world and universe being suited to life. Both answers indicate non-randomness at the heart of the origin of life itself. To argue that natural processes were right for life itself gives rise to the question of why that was the case and if it was itself a result of chance. Given enough time, of course, life could form by chance. It is not physically impossible. It is simply incredibly improbable. It would take many times longer than the earth itself has existed. All life is based on DNA and on variations on the same code. In many different life forms, for instance, there are differences of only a few percents between their bit-strings. All DNA sequences are related, even if many refer to very different life forms.

Darwinism rules out that the environment can play a role, as it insists that change is random. The environment might lead to the elimination of some life forms, but that is considered contingent and random by Darwinism. By ruling out any force driving or guiding evolution, Darwinism can only lean on random mutation and natural selection to show how things work. It is important to remember that

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Darwinism only looks at what happened in the past in attempt to retrodict and explain it. But due to its relying on chance, it cannot do so. For this reason, as we will later see, some metaphysicians are left saying that an infinite time exists such that anything can happen in order to overcome these problems. Of course, here many Darwinists point to Stanley Miller’s experiment wherein amino acids arose in a laboratory experiment. But Miller was only ever able to produce “nonbiological substances” in addition to amino acids, thereby neutralizing them.25 In this way, Miller was never able to come anywhere close to producing something like the DNA molecule. It is also not enough to simply create amino acids in labs in this manner. The amino acids also have to be arranged in the right sequence. As we see then, one can win amino acids sequences in the purely chemical sense in the lab, but that does not mean one will win the improbable sequence needed.

Many Darwinists here might also reply that one needs to see chance as cumulative. In this way, as with a nine-digit number, once one has the first number, the odds of what the number will be are reduced (if these processes are cumulative). As more digits come into place, the odds on what digits are possible are reduced. But that presupposes that the problem with things like amino acids by way of this analogy is that the odds of each link are not astronomical. Each stage along the way is astronomical rather than being a one in ten chance of getting one particular digit. It is also not clear that amino acids are linked together step by step in this fashion, rather than needing to come together all at once for things to work. Like with a lock, one does not know when one has the right combination. One cannot just claim one is right with the first number and then start working on the second. One needs to get all three in a row. It is not a matter of taking any old number as the first.

The key to unlocking the origin of life is showing chemicals coming together in the laboratory into larger mole-

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cules that are able to self-reproduce. I am not aware of any chemical experiment showing this. We did see, however, a computer experiment that could do this. But that was not a matter of random mutation.

The one who has most laid out the problems with a biological theory of life’s development that puts chance at the forefront has been Lee Spetner in his aptly titled *Not By Chance: Shattering the Modern Theory of Evolution*. In this text, Spetner undermines the idea that the development of life could have occurred simply by random variation, as such randomness cannot give rise to the changes needed if one is to trace a history from the first string of DNA to a human being. As Spetner notes, the main reason Darwinism is seen as the basis of modern atheism is due to its reliance on chance and conclusion—that all that life is but a “cosmic accident.”

Spetner, unlike almost all critics of Darwinism, is not satisfied just in showing the implausibility of Darwinism, but also develops his own theory that attempts to show that the capacity to adapt to a variety of environments is built into the organism. The environment induces the expression of its capacity. Cues from the environments combine with the information in the genes to develop the form of the organism. (*NBC* xi)

This view, of course, contradicts Darwinism, since it posits nonrandom and directional development. Spetner, like most critics of Darwinism, does not posit a divine creation from nothing to account for life as “life comes only from life” and thus has to have a material origin (*NBC* 2). Like most creationists, we only advocate a creation out of nothing at the origin of being itself. Life has not always been around. It has an origin, but not at the origin of existence.

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Spetner attempts to show that, at its origin, life had built into itself capacities that only later arose. For example, one might say populations of organisms have the size and shape they do due to outside factors like "starvation or diseases," but the evidence actually shows that it is something built into animals that controls how many offspring they have or, with plants, "by sensing the density of the planting" (NBC 16). The information for doing this is already in the seed of the plant. Spetner repeats the idea that we have articulated here that even positive developments in the development of life would be lost completely or degraded by further deleterious mutations. The odds on positive mutations even being around long enough to be passed on are slim. But Darwinism has to argue that positive mutations not only occur frequently enough to be passed on, but that they must be passed on to whole populations (NBC 52). Spetner notes that such positive mutations have a better chance of being spread through the whole population if the population is small, but, if the population is small, then the chances of getting such a mutation increase radically (NBC 56–57).

Now, high rates of mutation can occur if an organism is subject to radiation or toxic chemicals, but there is not much evidence this has occurred often in the history of life (NBC 58). Darwinism thus needs a high random mutation rate, but, if that rate is too high, there is devolution, as the organism will be overwhelmed by deleterious mutations. Darwinism needs to find a Goldilocks mutation rate. What is interesting is that creatures like flies do not seem to mutate any faster than creatures slightly larger than them or more diversified. Point mutations and other random changes also almost only "juggle existing genes" rather than adding new genetic information (NBC 62). Unless one adds the insights of the likes of anti-Darwinists Margulis and Sandin, there is little way for new information to accumulate rather than be shuffled. In this way, it’s not surprising that, given the way mutation rates work, something like a
horse would need “50 million births” to produce one evolutionary step (NBC 97). For this reason, Spetner investigates the possibility that genomes are stacked decks in which genetic functions get turned on when needed, or that one change needs to lead to a cascade at various points for true change to occur (NBC 65). Spetner concludes that, per his calculations, one would need 500 individual steps of positive mutation for speciation per purely Darwinian mechanisms (NBC 98). But here we are faced with a lock combination where each stage has a low probability and must link to each following stage.

Against Darwinism, Spetner draws upon experimental research to try to show that mutations only occur when they are needed, as mutations generally “do not occur when they are not needed” (NBC 159). Here, Spetner points to bacteria that mutated in the lab to be able to digest a new chemical when its normal food supply was no longer available (NBC 149–154). These bacteria, when put under environmental stress, exceeded Behe’s edge of evolution by developing multiple positive mutations. Such an improbable occurrence, due to environmental stress, suggests non-Darwinian mechanisms at work. Spetner thereby concludes that it is the plasticity of the organism’s genetic code in combination with the environment that enables change. Note I do not here distinguish between the genome and genetic code. Doing so leads to the belief that only part of our DNA is significant (the part involved in making proteins), but all of the genome is part of our software, and even what was once considered ‘junk’ has functions.

But not all genetic information is found in what is referred to in molecular biology as the genetic code. The rest of the DNA is a mosaic of other structures and sequences. This DNA is not only part of the software for sending info to the cellular machinery. While the genetic code might have its operating set of instructions, the rest of the genome as modular units, for instance, inserted by viruses, might have distinct and unrelated algorithmic rules. It will not be rules for generating proteins. Since the genome is the way
we can specify species and is composed via Lamarkianism it must all be seen as key to understanding an organism as well the development of life. This is not to say that the genetic code as that which is elated to proteins is not important. It is but subsequence of the genome. Codons specify what amino acids are to be manufactured. However, mitochondria have a different code for proteins, and that code would need to be a part of any attempt to understand the cell itself with its hardware computationally.

At the same time, even if we just speak of the genetic code and not the overall genome, there are a seemingly endless number of possible genetic codes that could arise as well as genome sequences. Nonetheless, the genetic code that is part of the genome we have is used by almost all life forms and thus has an unreality about it. All of life is about making essentially the same proteins in essentially the same way, for instance. At the same time, the rest of the genome is made of a mosaic of subroutines that are themselves modular units repeated throughout the fabric of life. Not only does that imply that all of life is part of the same fabric and history, but that it has a unique origin.

The genetic code—but also the genome itself—refers to a unique origin. But how it formed when so many other possibilities are conceivable is yet to be explained. There would not be enough time in the history of the universe to produce the genetic code or genome at the origin here, and that is universally used via blind, random permutations. This code specifies things in such a way that it appears like software and thus assigns values and functions in particular ways. The overall genome itself does not use a hodgepodge of subsequences, but a very finite set of possibilities. But, of course, we are focusing here more so on how the environment can affect how the genome itself and the information it contains are expressed. For instance, change in embryonic development due to environmental stress in just “the timing of a molecular signal” can lead to physical changes (NBC 180). Spetner believes the environment induces such changes. Spetner also points to genetic recombination such
as occurs during sexual reproduction and notes this is not random, as it follows rules for combination and thus cannot be strictly classified as Darwinian in nature (NBC 186).

Spetner notes ways new information can be added but does not note lateral gene transfer. However, his main point is that the large amount of information in organisms has accumulated, remained, and has a plasticity in its own coding and articulation that allows for change to occur by design rather than via mere chance. Many changes we see in species are due to changes in their physical traits without any change in their DNA code, such as the way birds will have differing beak shapes simply due to eating different types of seeds from birth (and note how Darwin himself focused on such differences) (NBC 203). Fish living in cold versus warm water show differences that seem to appear only due to how the fish develop from the egg onwards due to the water’s temperature (NBC 208). We see such changes in humans, such as Eskimos, where, due to the influence of cold temperature on them from the start, they have shorter arms than people living at the equator (NBC 207). We should therefore not be quick to think any change we see is due to some mutation. It might be the same code at work being expressed and articulated differently leading to different results simply due to the environment.

The code itself, in almost all organisms, is so long that it includes many aspects that are unexpressed. One need not change any aspect of the code itself but only to allow for those unexpressed genes to be turned on for significant phenotypical changes to occur. To return to experiments on E. Coli, Spetner cites research showing that, when E. Coli only has lactose to digest, a dormant gene that enables it to do so turns on (NBC 190). What Spetner is showing is that, given that random mutation is not enough, one must look to the very interaction of organisms with their environments to show how change occurs. Of course, the changes appearing are only further examples of microevolution.