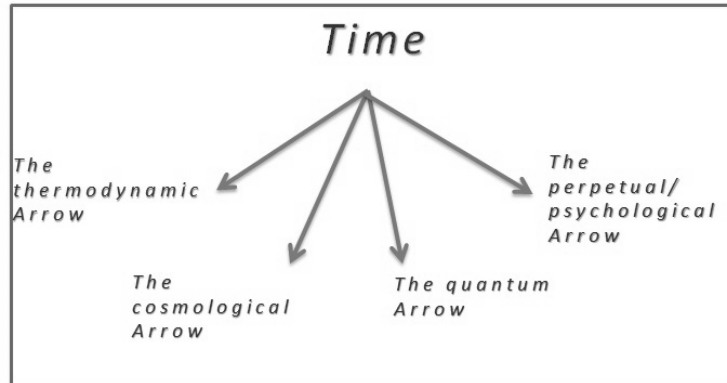


## Arrow of Time and the Law of Reverse Entropy



*“The increase of disorder or entropy is what distinguishes the past from the future, giving a direction to time.” — Stephen Hawking*

Why is there no going back in time, and why can we not know our future? Why does memory work backwards, but not forwards? Time plays a very important role as the very prerequisite for consciousness, recognition, and the presence of life in general. But it still seems a great mystery that time’s arrow has only one direction, from past to future. Is this a universal law or a merely a limitation in our understanding of time?

The two main characteristics of time are direction and speed. Because time has only one direction, it is considered to have only one dimension (while space, for instance, has three). Time can move at different speeds, but it moves only in the direction of the future. There have been many attempts to explain why time cannot move backward, but the most accepted one relates to the second law of thermodynamics, which is the law of entropy. The second law of thermodynamics is the principle of disorder. It states that entropy, which is the gradual decline of all elements into disorder, can never decrease in a closed system, it can only increase. Thus, everything in existence is bound to become increasingly disorganized, diluted and randomized. Entropy, as expressed by this second law, is the ultimate natural law because it actually determines the flow of time.



It is due to the principle of entropy that it is easier to spend money than to acquire it, that a cup of hot coffee will always cool down, that a car will eventually break down rather than improve its performance, and that a building will eventually fall into decay unless it is continually maintained. In other words, everything is unalterably and by law in a state of decay and deterioration.

The law of entropy applies only to closed or isolated systems. If energy and matter (mass) can pass into or out of a system, it is an open system. If energy can pass into or out of a system but not matter, it is a closed system. If neither matter nor energy can pass into or out of a system, we call it an isolated system. The earth system as a whole is a closed system, the boundary of which is the outer edge of the atmosphere. Virtually no mass is exchanged between the earth's system and the rest of the universe (except for the occasional meteorite). So the earth's climatic system (including land, oceans, and the atmosphere) is considered to be a closed system rather than an isolated thermodynamic system. And this is the reason that our earth survives: it receives energy from the sun which rejuvenates it. On the other hand, the sun's entropy is increasing because the sun is a closed system that only generates energy from inside itself, radiating and losing it externally. The universe as a whole is the only purely isolated system. As such, its entropy is irreversibly increasing. This means the universe will run out of fuel and energy eventually, and will not be able to avoid gravitational collapse. However, if our universe were contained within, or energetically linked to, another larger universe, it would not be considered an isolated system, but rather a closed system of energies (but not matter) that are being exchanged with that larger universe.

Entropy is one of the most fundamental principles of the physical universe, which, at the cost of our time, energy, and money, we constantly resist. It has been used to justify the truth of Murphy's Law, which states: "Anything that can go wrong will go wrong," or, "Left to themselves, things tend to go from bad to worse." It seems that when Buddha spoke about the inevitability of sickness, death, and impermanence, painting such a seemingly negative picture of the world, he was just verbalizing his intuitive understanding of the principle of entropy.

The arrow of time cannot go backwards because of entropy. You can see a cup falling off a table and breaking on the floor, but you cannot see it repairing itself and flying back up to the table. An ice cube will dissolve in hot coffee, but the process will not reverse itself – because entropy does not decrease. It is because of entropy that it is much easier to end a life than it is to create one; for



a child to develop in a womb and then to be born requires tremendous energy from its mother, who in turn has been nourished with energy from external sources. We all know these facts intuitively, and take them for granted as the way things are, but what we are usually unaware of is that this seemingly natural order is the outcome of the second law of thermodynamics.

Time cannot go backwards, except in our imagination. In cosmology, they have a notion of 'imaginary time', which they use to calculate time that is flowing backwards. By imagining that we can go back in time, we visualize time as a straight line on which one can walk either backwards or forwards. But this can only be done in the mind, not in reality.

Time can be defined as the speed of becoming and as a measurement of the intervals between different events. We can divide time into relatively large segments, such as days, weeks, years, decades, and millennia, or we can look at much smaller units of time, such as seconds, milliseconds, or even nanoseconds (one billionth of a second). However, unlike matter or light, for which we can identify increasingly smaller units, units of time only exist metaphorically. They do not have an actual existence, but rather represent how we have commonly agreed on an interpretation of the flow of time using our calendars and clocks. In other words, we divide time in our imagination for practical purposes and convenience. There is a theory in physics called 'loop quantum gravity' in which space-time is considered to be composed of a 'fabric' of discrete time and space particles. These hypothetical discrete quanta of time (and space) would be so unimaginably small that they are unlikely to be of practical use for normal human purposes.

Stephen Hawking posited the existence of three notions (arrows) of time: psychological, entropic, and cosmological. The first notion, psychological time, refers to our common interpretation of passing time and its direction, in which we remember the past but not the future. The entropic notion of time has to do with the observed law in nature, that the universe tends to move from a state of order toward one of disorder. And finally, cosmological time expresses the notion that our universe is expanding rather than contracting. Even though, according to the theory of relativity, there is no single measure of time that all observers agree on (as each one sees it from a different angle), all commonly experience the arrow of time pointing forward from the past to the future.

When we step away from science and look at our reality from a deeper spiritual perspective, can we discover a higher reason for time moving in just one direction? A higher understanding of time is not found through using our linear mind. Rather, we must begin to perceive reality from an awakened perspective, where our consciousness has become attuned with the substance,



wisdom, and original blueprint of creation. The secret of time lies in its simple purpose: the actualization of the future. That future is not a single definite target or destination at the end of the arrow of time, but rather a process of never-ending unfoldment. As the expanding universe creates new space, it also creates new time and a new future. It is understandable that our psychological selves might not like the future that is caused by increasing entropy and the gradual death of the universe, together with all of us. But we must see beyond the boundaries of physical reality, and seek to understand time in the higher context of our spiritual purpose. Without a clearly defined arrow of time, we could not evolve; we would either abruptly halt our journey of unfolding and becoming or go into retrograde (reverse evolution). The reason for our very existence is to move forward, and to do this, we must become one with the direction and ultimate plan of time.

### *The Law of Entropy as our Wake-up Call*

There must be an important reason for the second law of thermodynamics. Even though it causes the increasing disorder and randomization of the universe, it is also needed for the evolution of intelligent life. In order to help offset the onward march of entropy, we must receive energy from external sources, such as the sun and our surroundings. In the process of doing so, we begin to create a dynamic relationship with, and understanding of, the universe we are living in, which is crucial for the development of our consciousness.

In addition, as our intelligence evolves, we are getting in touch with the impermanence of the physical dimension, realizing that no matter how much we struggle to make things better, it is still inevitable they will fall apart at the end. We all die and everything that we have created deteriorates sooner or later. These are the simple facts of life that most people prefer to ignore, or rationalize through religion or philosophy in order to numb themselves from feeling any pain. But unless we face reality, how can we ever learn the lessons we are here to learn? Without getting in touch with the utter hopelessness of any sustainable outcome within the relative realm of physical manifestation, we would never begin to question the very meaning of life and of our own existence, and we would never begin to awaken as spiritual beings. In short, the second law is our invitation to and motivation for transcendence of the relative dimension.



## *The Law of Decreasing Entropy in Pure Subjectivity*

The arrow of time points to the future, but our future is two-fold: illusory (that of the relative physical realm) and real. The kind of future that we realize in the physical universe is no more than a dream; at the end, it will be as if we had never existed, much like a soap bubble which disappears into thin air. However, from a higher perspective, there is a certain threshold, or level of evolution, in our journey toward that illusory future that marks the point of transition into our real future. When we consciously reach this threshold, we recognize our spiritual call and begin our new journey into the realization of our true purpose. Then the real begins to unfold, that which is hidden in the inner dimension of pure subjectivity. We enter the inner realm, and from that point on everything changes.

In some ways, the law of entropy also applies to the inner reality. However, there is a crucial difference: it actually operates entirely in reverse. The inner reality is ruled by decreasing entropy, meaning that the level of order is increasing proportionally to our evolution. In some cases, we may still have the impression of experiencing increasing entropy, but this is rare and occurs during a transitory period in which we have not yet fully entered the inner realm. In principle, the probability for decreasing entropy is much higher once we are on the inner journey.

Although the arrow of time in the inner realm of pure subjectivity still moves into the future, it is the higher future ruled by decreasing entropy, in which the level of order increases continuously and indefinitely. This is the higher meaning of the arrow of time – to increase order. Here, as the higher inner flow of time unfolds, life begins to make more and more sense and truth becomes increasingly clear. This is real evolution. Here, Murphy's Law also operates in reverse: "Anything that can become better will get better." This re-interpretation of Murphy's Law (or the reverse of it) is neither optimism nor pessimism, but simply a reflection of higher reality.

## *The Double-tracked Arrow of Time*

When our identity is centered in the inner realm of pure subjectivity, we still continue to exist in the physical plane and are subject to the law of increasing entropy. We truly live a double life, which directly corresponds to being on a double-tracked arrow of time. As humans in the



external, relative, and physical realm, our lives move in the direction of the illusory or relative future, while as souls in the inner realm, we move in the direction of the real future. However, because the soul is the foundation of the relative human, she is able to bring grace to the time-track of our earth-bound future so that it is able to manifest much more relative harmony and completion: we will tend much more towards human happiness and fulfillment. The soul is nurturing her human expression from the plane of real time, thus reducing and softening the impact of the human's otherwise increasing entropy with the unconditional energy of love and peace.

Blessings,

Anadi

*For a full glossary of terminology please visit our website [www.anaditeaching.com/glossary](http://www.anaditeaching.com/glossary)*