

In the Chaos of Today's Society: The Dynamics of Collapse as Another Shift in the Quantum Anthropology of Heidi Ann Russell

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ABSTRACT

The presented study introduces a new theoretical model of collapse for social, cultural, or political systems. Based on the current form of quantum anthropology conceptualized by Heidi Ann Russell, further development of this field is provided. The new theoretical model is called the spiral model of collapses, and is suggested to provide an analytical framework for collapses in social, cultural, and political systems. The main conclusions of this study are:

- 1) The individual crises in the period before a collapse of social, cultural, and political systems form the trajectory of a conical helix similar to a vortex.
- 2) The occurrences of crises in the period before a collapse have the shape of the trajectory on the surface of the circular cone with a convex wall narrowing up to its peak. The shape of this cone is based on the Fibonacci sequence coiled into the three-dimensional space.
- 3) The constant circular movement along the trajectory of crises can occur in exceptional situations in the development of social, cultural, and political systems; however, such a state is always temporary. In such cases, the trajectory of the crisis does not follow the Fibonacci sequence, but the shape of a regular helix. Remaining on the trajectory of a regular helix in the long-term is highly improbable for social, cultural, and political systems.
- 4) The creation of new potentialities after the final collapse of a system is explained by the conception of topological inversion, when the heretofore embodied part of the energy-information field returns to the global, wave-particle energy-information potential.
- 5) The global, wave-particle energy-information potential is a source of energy-information for future embodiments in the sense of the future collapses of wave functions.

Quantum theory in social and cultural anthropology? That must surely be a mistake! How could the research of microparticles contribute in any way to anthropology? And how are the findings of quantum mechanics related to contemporary anthropological issues?

Such thoughts and many more like them ran through my mind when I first read the paper by Heidi Ann Russell, hailing from Chicago's Loyola University, presenting this new theoretical concept [Russell 2013]. Although the application of quantum theory in social and cultural anthropology is still quite unusual, it would not be right to immediately condemn or even radically reject such attempts. Multi-paradigmatic approaches are characteristic of social and cultural anthropology, and thus, from this perspective, we can consider the quantum anthropology of Heidi Ann Russell as another new source for contemporary anthropological thought. Critical reflection is an essential part of academic research, and may sometimes aid in initiating further shifts in the understanding of reality. At first, the academic sphere often considers new, unorthodox theories with a sense of mistrust, and this may be a good thing. Constructive criticism gives way to new perspectives, points out discrepancies, and helps to further develop knowledge. Even the quantum anthropology of Heidi Ann Russell cannot be accepted as is

without a tinge of doubt. A critical view is fully acceptable here; on the other hand, however, I would like to avoid the situation where criticism becomes the heady tool for destroying new thoughts that are provisionally formulated in their primary, embryonic form. The quantum anthropology of Heidi Ann Russell is deserving of the discussion of its main points. I would like to be benevolent and respect the fact that since this theory is at the beginning of its development, we are temporarily dealing with an emerging concept. “Considering New Thoughts” is the main motto of this chapter, which introduces and further develops the theory of quantum anthropology.

Since quantum anthropology deals directly with the issue of collapse, I have decided to present a concise theoretical outline of this theory to the readers of this monograph, and then I shall develop a new direction of quantum anthropological analysis in relation to the main themes of this monograph, i.e. to social, cultural, or political crises and collapses. The aim of this paper is to introduce the theoretical concept of quantum anthropology, and furthermore, to present a new, general model for the analysis of the development of crises and collapses of social, cultural, and political systems. Let us first look at the basic foundations of quantum anthropology as developed by Heidi Ann Russell.

THE BASIC CHARACTERISTICS OF QUANTUM ANTHROPOLOGY

The quantum anthropology of Heidi Ann Russell stems from the basic pillars of contemporary quantum theory, as well as from the theological anthropology of Karl Rahner [Rahner 1969]. For Heidi Ann Russell, the central theme is wave-particle complementarity. Matter is energy, energy is a field, and everything simultaneously has the characteristics of a particle as well as a wave. Heidi Ann Russell uses the term “spirit” in the sense of a transcendental energy-information field or a spiritual essence of embodied reality. Spirit is transcendence; matter is embodiment. At the same time, matter has the unlimited potential for the individual embodiment of spiritual essences. Both matter and spiritual essence are, although fundamentally different, interconnected always and everywhere; they are interfering constitutive moments of the one and the same reality [Russell 2013].

Heidi Ann Russell rejects the duality of matter and spirit. Spiritual essence is constantly present in the world, and some parts of the energy-information field as a whole can manifest through matter, such as, for example, the existence of a specific person. This is, in fact, the act of embodiment. Every person is an embodiment of a part of the energy-information field. Embodiment is the particularization of potential and probability. It is really the particular aspect of human existence, i.e. one's actual position in space and time, where the probability of choice and one's ensuing actions become definite. Without the knowledge of a person's position in space and time, one cannot say anything specific about their past or future behavior. In the case of people, embodiment is unique; it is practically impossible to find two people who are exactly the same physically and mentally.

Therefore, the energy-information field is, in reality, potentiality/possibility, or probability, which can, under certain circumstances, be actualized/shown/embodied in time and space. Analogically to the shape of wave function, this potential is infinite, and yet, in the case of a person, is limited by the constrained possibilities of our world and furthermore by the embodiment of the energy-information field into a specific anatomical form – that is, the human body. This constellation influences the probability of how specific possibilities from the palette of potentialities can be actualized. That is, every person is determined by their bodily form and cultural embedding in space; however, in time, both can change to a certain extent.

At the moment that a potentiality is being actualized (in the form of embodiment, for instance), a collapse in the energy-information function occurs in the same sense that a collapse in the wave function occurs in quantum mechanics. Every actualization or collapse automatically creates a new potentiality. After each collapse, a new palette of possibilities is created. The difference between the behavior of an electron and of a human lies in the fact that an electron cannot “choose” its position as a person can choose an action. The position of a particle at the moment of measurement is random. A person, however, can act consciously and actualize various potentialities in space and time on the basis of their own free will, and thereby attain a desired state on the basis of their own intentions. At the moment that an individual actualizes one of the potential possibilities of their life, all other potential possibilities collapse into one specific, embodied act in the continuous action or “coming into being” in space and time.

The fact that an individual chooses one line of action means that they, at the same time in that very moment, sacrifice all other possibilities. Coming into being is, however, a continuous dynamic process, and so another wave of potentialities emerges in the very next moment. An individual then again chooses from this palette. It is a continuous sequence/continuum of actualizations in space and time. This process is dynamic and continuous, and so when we choose a specific action for analysis, we cannot observe reality in its entire complexity, but we merely observe just one moment of embodiment in space and time. This limitation pertains to the analysis of the behavior of individuals, but also to social groups, cultures, and societies.

Heidi Ann Russell places great emphasis on the possibilities of a person influencing what is going on in the world. Man is not a mere, defenseless puppet strung along by fate. On the contrary, we are what we are thanks to our daily choices and activities. Man is an active instigator of reality and thus actualizes their potentiality. They

thus have relative freedom in their self-actualization, so-called transcendental freedom. This transcendental freedom is, however, always actualized through each choice in time and space. This actualization is known as categorical freedom. Every person as an embodiment of the part of the energy-information field does have an infinite number of potential choices; however, not every possibility in our life has the same probability of really occurring. It is our own personal history, our past actions, and decisions that, among other factors, shape and also limit our infinite potential so that some trajectories of our next development are highly probable, whereas others are highly improbable. The moment of the present is actually an interaction between our pasts and our futures.

One is never alone in the world, and thanks to this, one's freedom is also limited. On the contrary, we are all a part of interconnected interpersonal relationships, others' interests, public interests, the interests of politicians on the national and international level, etc. Every free human action has the ability to develop, to qualitatively change, or to limit the sphere of freedom of someone else or of an entire group of people. The autonomy of a person is thus always restricted. The mutual interconnectedness of individual interests and motivations is analogical to the phenomenon known as entanglement in quantum mechanics. Particles/people exist only as a part of the macro-system in its entirety and are never isolated.

Aside from the interests of others, every person is also embedded into a certain situation and certain context. Situations and contexts may be historical, cultural, ethnic, sociopolitical, etc. This contextuality also displays the characteristics of quantum entanglement, and we can assume that, thanks to the internet and to the development of telecommunication technologies, this entanglement is only heightened in today's globalized world.

CRISIS, COLLAPSE, AND WAVE FUNCTIONS – FURTHER DEVELOPMENT OF THE THEORY

The outline of the main theses of quantum anthropology mentioned above also presents several problems. For instance, the collapse of wave function is considered to be a part of our quotidian lives in the sense of forming the constitutive moments of our existence. The chain of collapsing wave functions creates a trajectory of historical developments of both individuals and sociocultural systems. Specific events in the space-time continuum, such as a crisis – one of the types of historical events, can be understood as collapses of individual wave functions. They are links in the chain representing the history of a specific culture or society.

On the other hand, we can consider a collapse on a higher analytical level, on which we analyze, for instance, social or cultural collapses. However, collapses of an extensive, society-wide, or cultural scale have a different character than the single moments of the everyday existence of individuals, and we thus must clearly distinguish between these two cases.

Another question is whether an entity, e.g. a person in the concept of quantum anthropology of Heidi Ann Russell, can have a real character field, or if we can consider it a system as purported by Luhmann [Luhmann, 2006]. According to quantum anthropology, every person is an embodiment of the energy-information field, or, in other words, a spiritual essence. The moment being observed by the observer is the current embodiment, i.e. a specific person, in the sense of a collapsing wave function. Every actualization or collapse automatically creates a new potentiality. After each collapse, a new palette of possibilities is created. When we observe a specific person or their actions, however, we can hardly imagine any abrupt change of their anatomical or physiological essence in another moment of time in the future (with the exception of sudden injuries, illnesses, mutilating operations of plastic surgery, etc.). Changes in the anatomy, physiology, in the reactivity of the nervous system, or in the ability of the senses are, to an extent, limited by the continuity of existence and actually represent the physical determinateness of the specific embodiment. The same applies to the clearly differentiated limits of the human body, which enclose a specific entity, or, in the terminology of quantum anthropology, the embodiment of a part of the field. The differentiation of a specific person from their environment is apparent, and so, although the observer changes the object of their observation by observing it, we can talk without hesitation about systems in the sense of Luhmann's general theory of systems in the case of man [Luhmann, 2006].

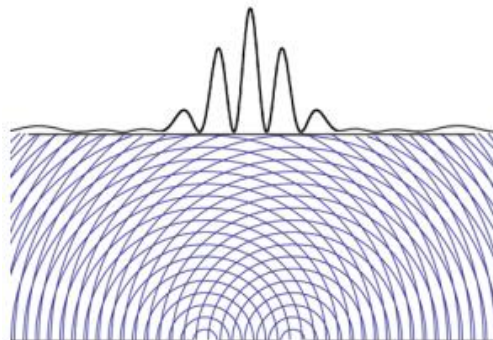


Image 1. Shape of the wave function. (Source: <https://thegodguy.wordpress.com/2012/01/05/harmony-collapses-the-wave-function/>)

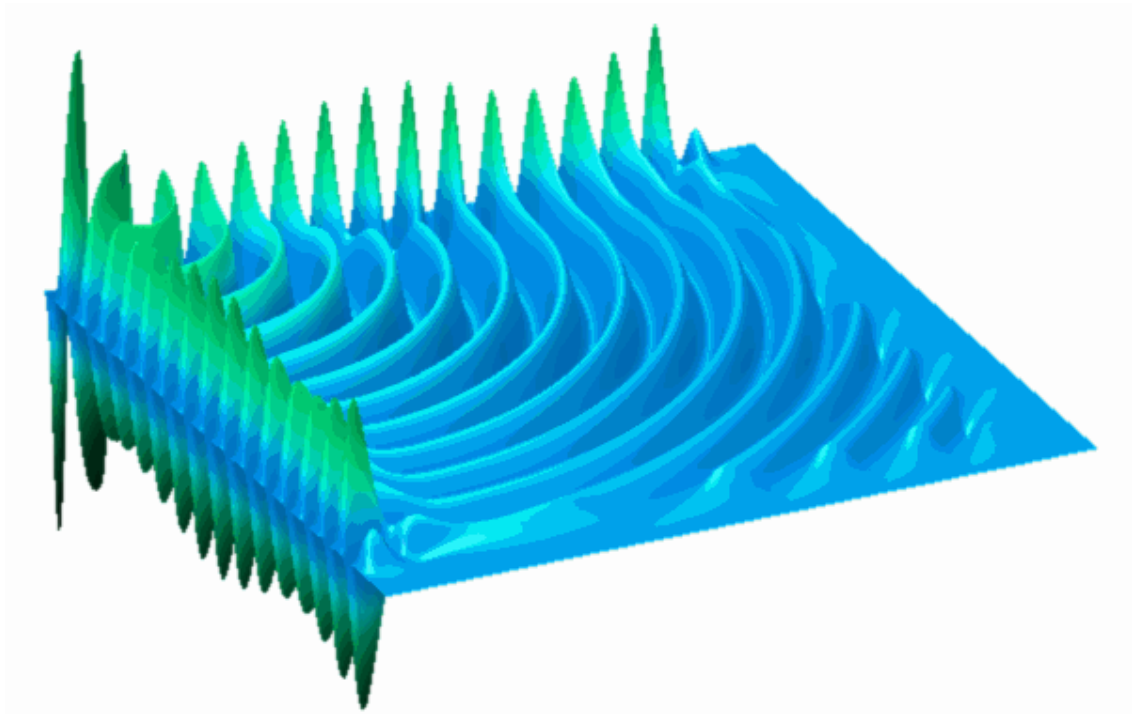


Image 2. We can see the collapse of individual wave functions along the side of the diagram. (Source: <http://arstechnica.com/science/2011/11/the-insanely-weird-quantum-wave-function-might-be-real-after-all/>)

One concept does not exclude the other. A specific person is a system that can be distinguished from other systems throughout the course of their lives; a system, that, in essence, can simultaneously be an actual embodiment of a part of the energy-information field or a spiritual essence. The question is when and how does a spiritual essence enter into a material manifestation? The moments of conception and the ensuing period of prenatal development come to mind, for instance. On the other hand, the end of a certain embodiment can be analogically anchored in the moment of the death of the physical body of a person.

This study aims to continue in this line of thinking represented by the current theory of quantum anthropology. I will especially focus on the relation of the collapse of the wave function from the perspective of quantum theory with collapses in general, that is, in the sense of a sudden and fundamental transformation of the given system. Both levels offer a different operationalization of the collapse; however, they can both fruitfully inspire each other. We are confronted with the question of whether we can generalize any insights from observing the development of systems on various levels of analysis. In the least, the behavior of microparticles in some aspects is dependent on relations other than that of the behavior of complex systems in the macroworld. The general systems theory [Luhmann, 2006] assumes that thanks to observing the behavior of systems on one level of analysis, we can discover some patterns of the behavior of systems on other analytical levels. However, in the case of wave function collapse, we must ask ourselves the question whether this manifestation is governed by laws that are specific for the behavior of microparticles?

Crises and collapses are current topics of anthropological and sociological discourse. What actually is the relationship between a crisis and an impending collapse? On the levels of cultures or societies, each crisis can indicate an impending collapse of the entire system [Bárta 2013]. Thus, a crisis can be said to herald an impending collapse. It is an indicator of destabilization that already hints at a future radical transformation of the system. As a rule, periods of crisis alternate with periods of relative calm. This wave amplitude based on a continuous alternation of stable and unstable periods in cultures and sociopolitical orders is apparent. What is interesting is that as the moment of the collapse itself approaches, the frequency of individual crises increases and the intervals between them become shorter [Bárta 2013]. Each crisis thus can be said to herald the final collapse, such as the collapse of a given social system.

Collapses are a part of the natural course of things, and we have noted many of them throughout the history of mankind. They are sudden and fundamental changes to the given system. The system is transformed and fundamentally reconstructed. Simultaneously, though, it does not indicate the complete end of all existence, because with each collapse, the possibility for the emergence of something new is created. Nothing lasts forever and the temporalization of complexity in its entirety through the temporalization of elements or subsystems is

evident in the world. Crises and collapses are not unnatural phenomenon; the very functioning of a system is based on the mutual interdependence of extinction and reproduction [Luhmann 2006]. Thanks to this continuous decay, systems with a temporalized complexity are forced to continuously change their states. Even a person is born, grows up, grows old, and dies. Just as every anatomical, physiological, or perceptual structures change throughout life, so does the mental state of a person change. Older cognitive schemes are altered or superseded on the basis of new experiences. Similarly, resistance to stress or emotionality changes throughout life. Parallels with a continuous change in structure and complexity can also be found on the higher analytical levels of societies, cultures, economies, and political systems.

How does a collapse actually look like in general? As an introduction, it would be appropriate to discuss what a wave function collapse looks like according to quantum theory. Oscillation in quantum mechanics has somewhat different properties than of the wave of the macroworld, e.g. a wave moving on a water surface. If the collapse of the wave does not occur, the wave spreads out over the entire space (see the shaded part of Image 1). Each constituent of matter or energy does not have a clearly defined position. All things have the properties of both a particle and a wave in their microstructure.

The wave function of an object has probabilistic nature. According to Schrödinger's equation, the wave function changes shape smoothly and gradually. At the moment that an external observer observes the wave, it peaks (Image 2) and the wave collapses in the sense that it actually has null values in all other places of the space where the given part of matter or energy was not observed [Greene 2004]. The shape of the wave function collapse thus corresponds to the Gauss curve coiled up into the three-dimensional space (Image 3). The moment of collapse is actually the interconnection of the wave function with what is being externally observed by the observer.

The very act of measurement is integral for the collapse of a wave function. The act of measurement causes the wave function to leave its all-round vastness and to realize one of the many possibilities. This means that in reality, a wave in its original, uncollapsed state cannot be empirically observed. We therefore must rely only on the theoretical premises of quantum theory. Also, this idea does not match our everyday experiences. The issue that is pushed to the forefront is thus the universality of quantum theory. Can we deduce something about the behavior of matter and energy in the macroworld from the behavior of microparticles?

The collapses of societies or cultures cannot be so observed, which presents anthropology with a serious methodological conundrum. Let us pose the question: at what moment exactly can we describe a society as being in a crisis? The fact that we label certain historical periods as being a crisis is conclusively the result of social construction. Social crises are usually not an objectively measurable reality, but depend on how the given situation is interpreted by the media and by influential people whose opinions form the public opinion of the members of society. From this perspective, some social phenomena are really of an interpretative nature, and the opinions and attitudes towards it at that moment contribute to the social construction of the crisis. Therefore, the very act of observation can have a transforming effect on the observed reality, and so the nature of this reality may be heavily influenced by this social construction. To speak of objectivity or of an objective reality is thus not substantiated when it comes to social phenomena.

Some researchers believe that the behavior of microparticles can also have an effect on systems in the macroworld. One argument supporting this contention is the discovery of the phenomenon of decoherence [Zeh 1970]. Microparticles are very tiny; they do, however, continuously interact with the other microparticles in their surroundings. Basically, it is these continuously shaking/vibrating/oscillating constituents that keep colliding with each other. It is with this that they disrupt the order of the phases of the wave functions of the macro-objects that they make up, i.e., of which they are the building blocks.

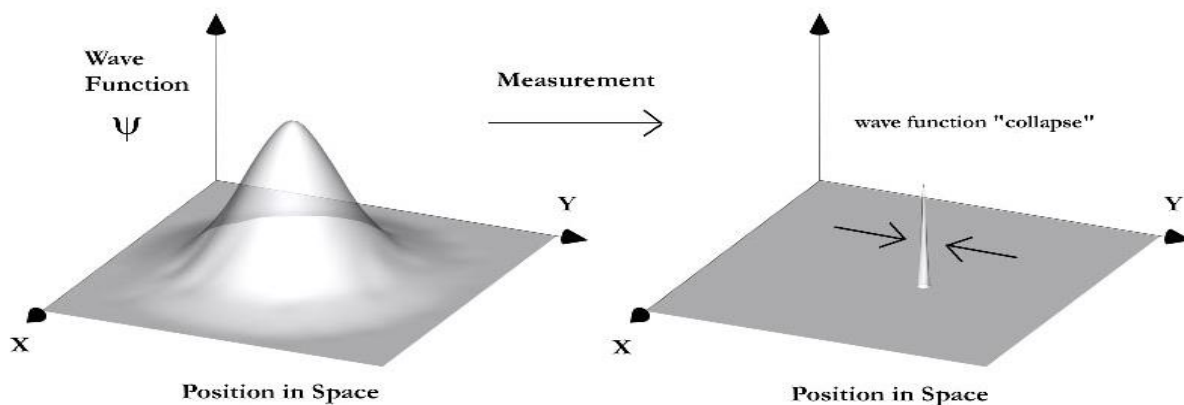


Image 3. The collapse of wave functions according to the Copenhagen interpretation. (Source:<http://afriedman.org/AndysWebPage/BSJ/CopenhagenManyWorlds.html>)

What are the possible effects of decoherence on the course of wave functions? One possibility is the existence of several non-linear dynamics, which can be observed, for example, in the development of complex social and cultural systems in time. A wave has a defined highest point called a crest and a lowest point, known as the trough. A wave amplitude can be either linear in the case when similarly-sized waves repeat, or non-linear, when the size and the frequency of waves change in various ways through time. With the trajectory of historical events, we often observe the repetition of similar courses of crises or collapses; however, the periods of repetition and their exact shape are not completely identical. It is these non-linear patterns themselves that may be one of the results of the effects of decoherence, and are also typical for the course of events in the lives of individuals.

Fluctuation and change are typical for the dynamics of societies and cultures. The period of destabilization of these systems is often described by the term crisis. We can consider a society or a culture to be in crisis, a political system to be collapsing, etc. In reality, the state of crisis is a mere outcome of the accumulation of previous, less obvious changes in the system, which can be either directly observable or we do not give them a greater significance. Gradually, these small changes that are usually not observable exceed a certain limit, and the system becomes destabilized; crises, chaos, and the accumulation of crises begins to have a non-linear character. This all hints at the impending radical transformation of the entire system – a collapse. In the course of the collapse, the changes may be relatively sudden, precipitous, and with a turbulent dynamics.

The gradual accumulation of changes which, in turn, cause a sudden change on the larger scale is, in actuality, analogical to the decoherent action of microparticles. Although both levels of analysis have different characteristics, we can utilize this analogy considering the following difference: in the case of the microworld, the decoherent action is based on the continuous mutual interaction of microparticles, and in the case of societies, cultures, and political systems, one considers the mutual interaction of elements or subsystems within the given system, as well as the interaction of a system with its surroundings via the permeability of the limits for inputs and outputs. In the case of societies, cultures, and political systems, we can basically never consider such a system to be absolutely isolated and not interacting with its macroenvironment at all.

Most systems display an alternation of periods of stability with phases of instability, and in general, all systems try to return to a state of equilibrium in order to preserve their existence [Luhmann 2006]. Destabilization may occur thanks to both the inner environment of a system and to external factors that stem from the environment of the system. Whether a system survives such a destabilization or crisis then depends on the degree of destabilization and the resilience (or resistance) of this system. In some cases, the system breaks down, it collapses.

As already mentioned above, in the case of societies, cultures, and political orders, one cannot directly observe the course of the collapse. What is certain, however, is that this course is non-linear, and that it is virtually impossible to predict its ensuing development. A collapse is a radical change in the existing development of the system, but this general characteristic is insufficient for a deeper analysis of this issue. What is the actual form of a collapse in general? What shape and course can a crisis trajectory take before it collapses? These are the questions that should be further explored in order to advance the theoretical analysis of crises and collapses, including their mutual relationship.

Let us first examine the very basis for the development of all systems in time. Růžička [2002] points out that the universal characteristic of any type of movement and development is a cycle, or spiral. This is a relatively vague definition. A cycle is generally a description of a sequence of a chain of events that has the tendency to repeat itself. From a certain perspective, we can also understand the spiral as a description of a cyclical sequence of events; however, if we consider a spiral in the real, three-dimensional space, its shape hints at the factor of a time dimension. If we should consider the chains of individual moments of existence in time, then the typical movement of spirals with a time dimension is a helix. In general, the shape of a helix better characterizes the dynamics of the material and non-material world than a straight, one-way development, which very rarely occurs in the macroworld.

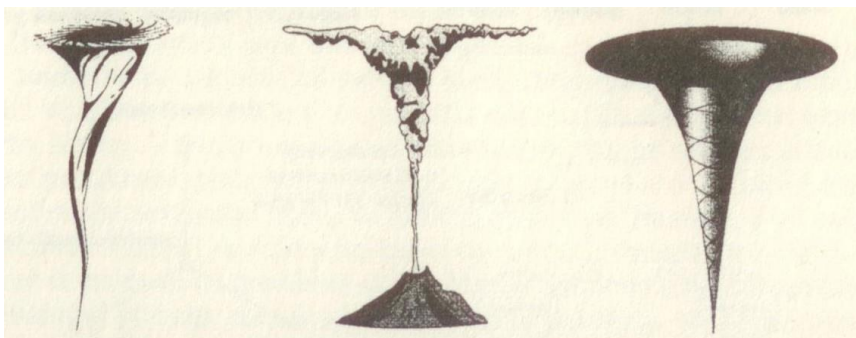


Image 4. The shape of whirlpool, the smoke of a volcano, and a black hole. (Source: Růžička 2002)

The basis of spiral movement stems from the effect of actions of two binary opposites – homo and hetero forces [Park in Růžička 2002]. The following passage presents the basic characteristics of the effects of these forces. For a better analytical understanding, I have introduced a slight modification in the terminology – specifically the terms of homogeneous, heterogeneous, and neuterogeneous inner dynamics of systems and processes [Trnka 2015]. Their meaning is, however, concordant with the original concept of J.W. Park [in Růžička 2002].

Homogeneous inner dynamics is characterized by an invariance and a tendency to return things to their original state, i.e. to the very beginning of their existence. Heterogeneous dynamics is, on the other hand, a source of differentiation, diversity, and multiplicity. Heterogeneous inner dynamics stimulates change and the creation of various things, production. It disrupts sameness and consistently expands its existence into new spaces. It is a source of movement. The effects of heterogeneous inner dynamics has an opposite effect to that of homogeneous inner dynamics. If one or the other dynamics significantly prevails, the system is destabilized and has the tendency to collapse. It is this moment that we refer to as a crisis in the cases of societies and cultures.

A neuterogeneous inner dynamics maintains harmony, order, and basically serves to protect the existence and the stability of the system. It ensures an equilibrium between the homogeneous and the heterogeneous effects. If the homogeneous and the heterogeneous inner dynamics are in a relative equilibrium, movement along the trajectory is stabilized in an even helical shape orbiting around its central axis shaped in a straight line. If, on the other hand, the system reaches an unstable phase, the regular spiral movement is disrupted, and the spiral movement now has an either ascending or descending tendency. In this case, the individual threads of the helix either continuously grow or continuously shrink, creating the shape of a conical helix. The central axis can either be straight or however curved. For example, we can witness such types of movements in the macroworld with whirlpools, tornadoes, hurricanes, etc. (Image 4).

I believe that this parallel is inspiring for the concept of the course of the collapses of societies, cultures, and political orders. Bárta [2013] points out that the frequency of individual crises increases and the intervals between them decrease with the approach of the impending moment of final collapse. This type of development mirrors the shape of a funnel, or of a circular cone with a convex wall whose surface narrows up towards its peak. This shape surprisingly reflects the shape of the Fibonacci sequence (Image 5) coiled into the three-dimensional space and partly also the shape of a wave function collapse in quantum mechanics (Image 3).

The Fibonacci sequence, sometimes referred to as the golden sequence, is an infinite sequence of natural numbers, where each number is the sum of the two previous numbers (Image 5). The golden spiral/golden section, representing the horizontal view of the Fibonacci sequence (Image 6), is also a relatively universal law that manifests in many forms and shapes regularly found in the macroworld.

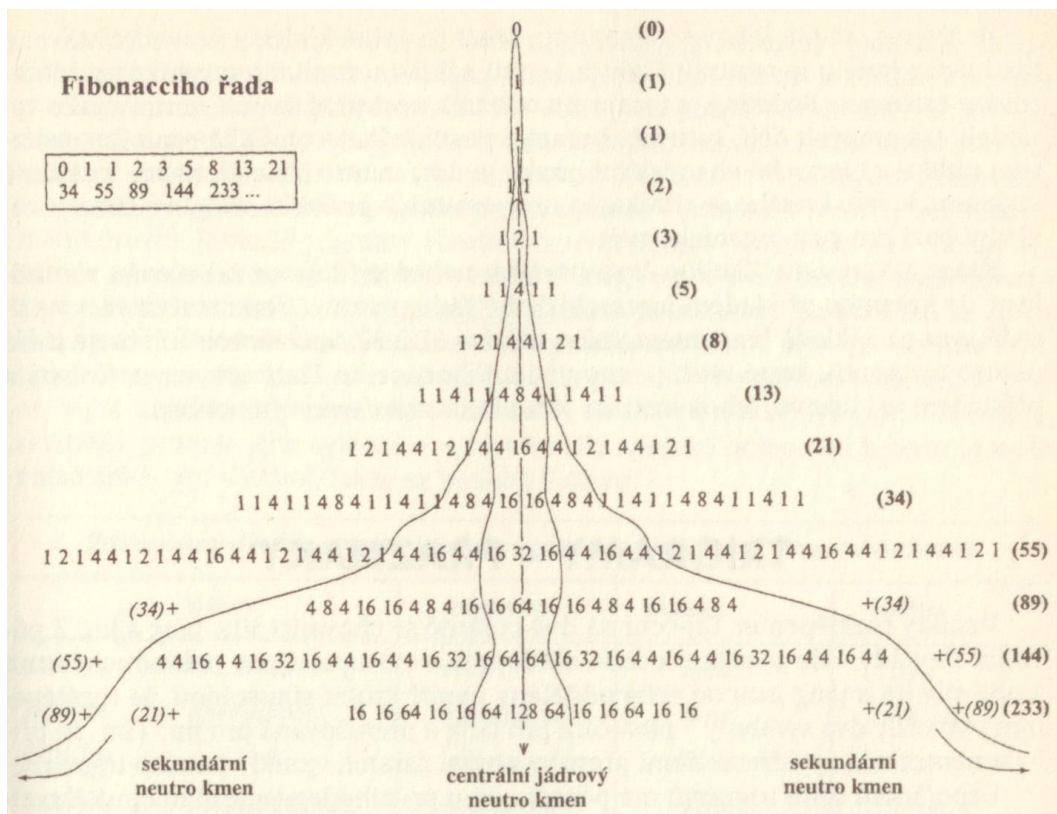


Image 5. The Fibonacci Sequence. (Source: Růžička 2002)

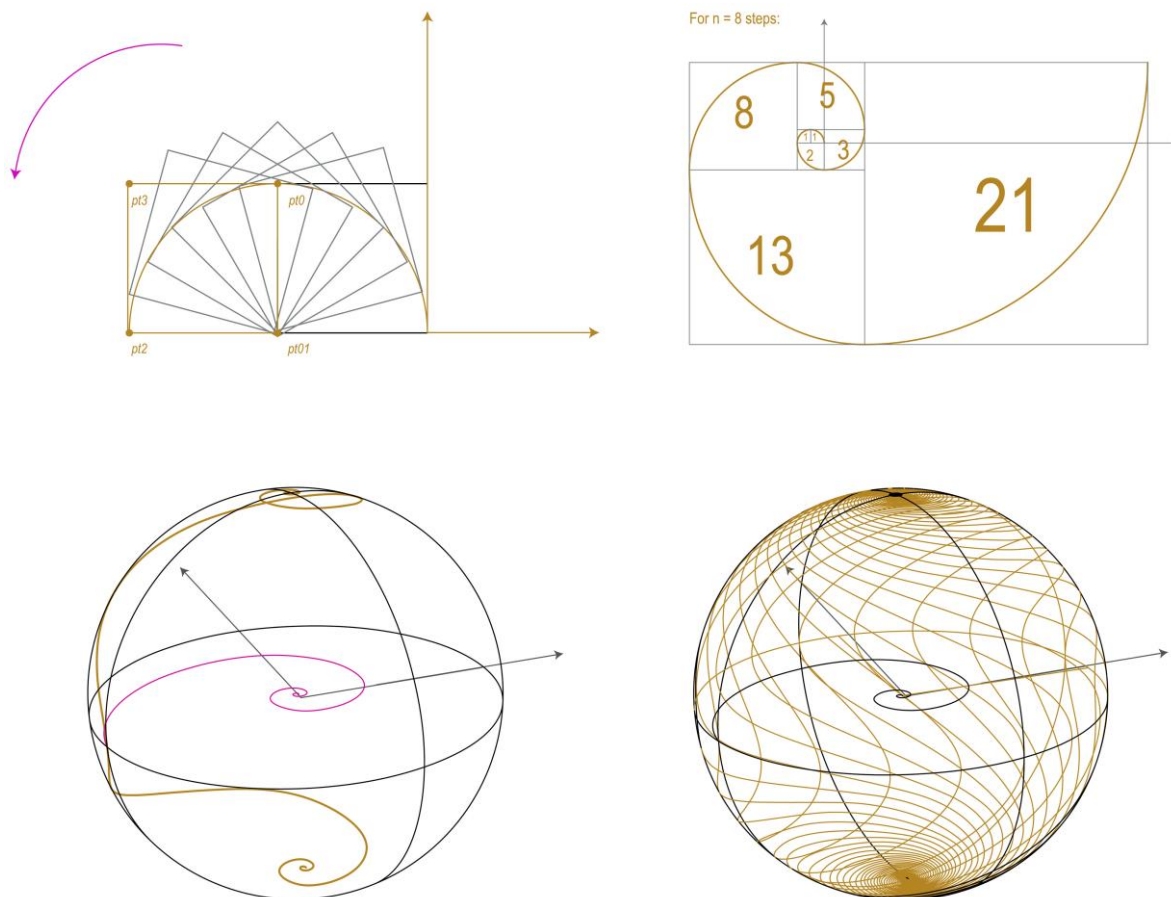


Image 6. The golden spiral (or the golden ratio, golden section). (Source:<http://afroemelt.peregrineone.com/fibonacci.html>)

One way of defining the basic general form of the development of collapse in social and cultural systems is this shape resulting from the Fibonacci sequence. The development of societies, cultures, and political orders in time can also display a sequence of crises with a trajectory rotating in the surface of the cone into a vortex. Then the increase in the frequency of individual crises and the shortening of the intervals between them with the approach of the impending collapse would make sense. Each moment of the trajectory of the development of societies, cultures, and political orders roughly traces the shape of the conical helix stemming from the coiled three-dimensional projection of the Fibonacci sequence. In other words, the development of crises through time can be analogical to the vortex that we are familiar with thanks to e.g. a whirlpool or a destructive tornado. Individual crises may thus be a part of the surface of the circular cone, and the final collapse is thus the narrowest point of the cone, equal to the sequential value of 0 (note: 0 is not a natural number, but represents a positional moment in the Fibonacci sequence, from where the central core of the neuter stem begins and further evolves, see Image 5)

How does this concept relate to the development of historical events from the perspective of quantum anthropology? From the perspective of quantum anthropology, each historical event has the character of a wave function collapse, just like the origin of the various entities of a material character. This is a bit surprising, since what we understand under the term of “embodiment” is the origin and the ensuing existence of material entities, that is, something that is tangible. Here, we must return to the basic foundations of quantum anthropological thought and point out that particle-wave complementarity assumes that all things, whether of a material or non-material nature, are of the same character in their microstructure. It is up to the interpretation of the observer if they cognitively categorize the entity as “material” or “non-material”. According to quantum anthropology, matter is energy, energy is a field, and all things have both the character of a particle and a wave. To a certain degree, this concept goes against our deep-rooted folk concepts about the structure of the macroworld; however, it is important to realize that it is these very concepts that have been imprinted in us by formal education and upbringing, both prevalently still based on classic, Newtonian mechanics. Quantum thought now works with a different concept of the world, and thus within it, we can rightfully consider a historical event an “embodiment” caused by the collapse of the wave function, in other words, as an event that most people interpret as an entity of

a non-material nature in the context of their everyday lives. From this perspective, individual collapses of the wave function would correspond to points on the trajectory of the spiral development heading towards collapse. The comparison of the trajectory of crises to the narrowing of a helix mentioned above might give the impression that the only path of development for all societies and cultures is to irrefutably head towards collapse. The proposed model, however, does not necessarily assume this. As already mentioned, the spiral form of the movement results from the dynamic interaction between the homogeneous and heterogeneous inner dynamics throughout time. Thanks to this, we can substantiate the hypothesis that the spiral movement can be ascending, descending, or even constantly developing. If an equilibrium is achieved between the homogeneous and the heterogeneous inner dynamics, the trajectory of the development of crises ceases to trace the shape of a regular helix. The trajectory of movement settles on the surface of a figure shaped like a cylinder, and we can also assume the absence of any crises in this state of equilibrium. However, this state is temporary. Remaining on the trajectory of a regular helix in the long-term is highly improbable for social and cultural systems. In these highly complex systems, the inner differentiation, as well as differentiation in regards to the macroenvironment occurs continuously. Throughout history, no societies or cultures have been internally stable and existed without any crisis, harmoniously and in the long run. Crises and collapses are typical signs of the development of complex social and cultural systems. The direction of the development of cultures or societies may vary. If a heterogeneous inner dynamics is prevalent, society or culture is heading towards a collapse at the narrowest point of the cone. In such cases, the frequency of crises increases and the time intervals between them become continuously shorter and in parallel, the system becomes more complex. This type of collapse is typical for social and cultural systems and occurs the most often, also because most societies and cultures are constantly internally differentiating, thus increasing their own inner complexity.

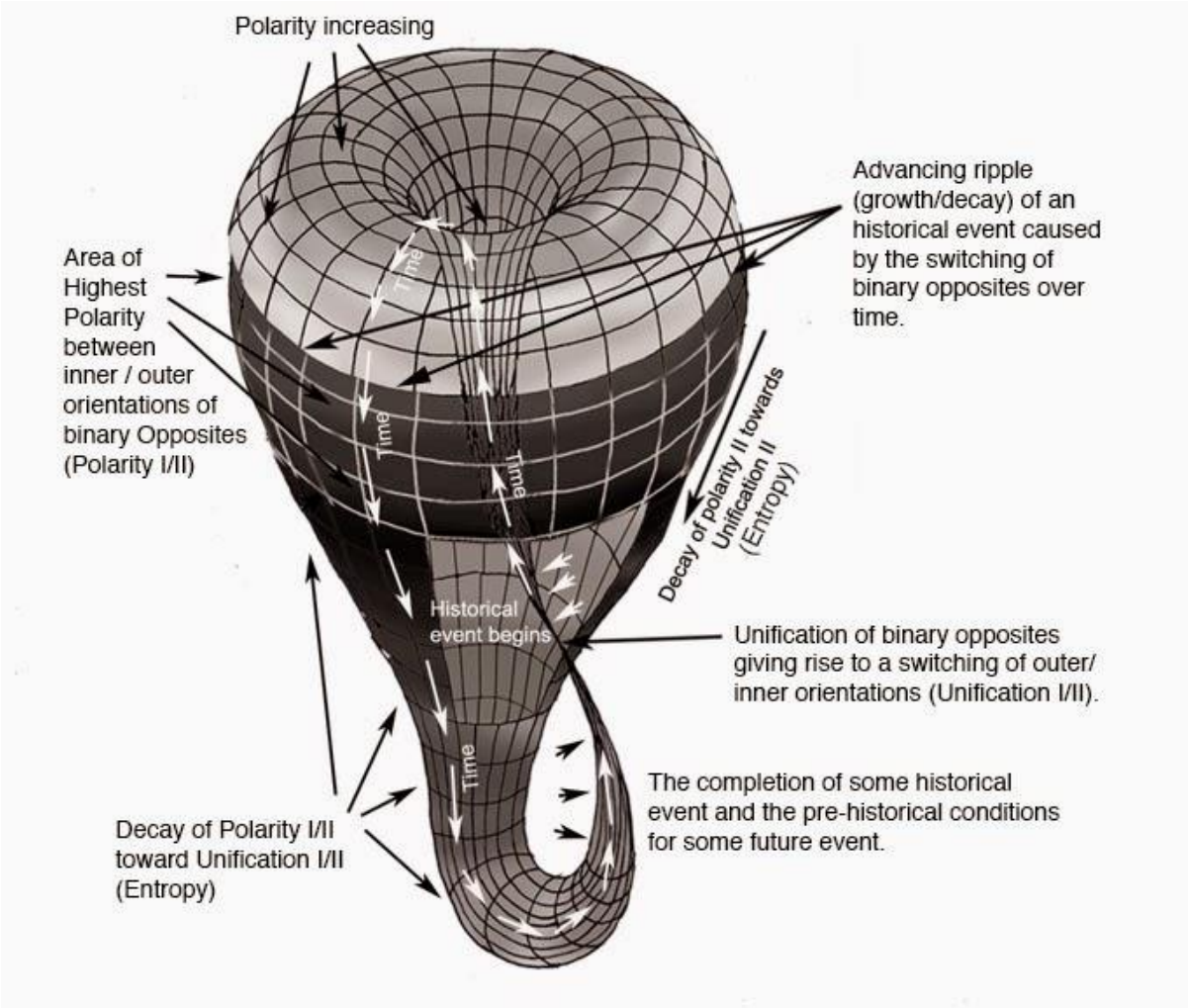


Image 7. Ekeson's topological model of collapse on the third level of complexity. (Source: Ekeson, 2014)

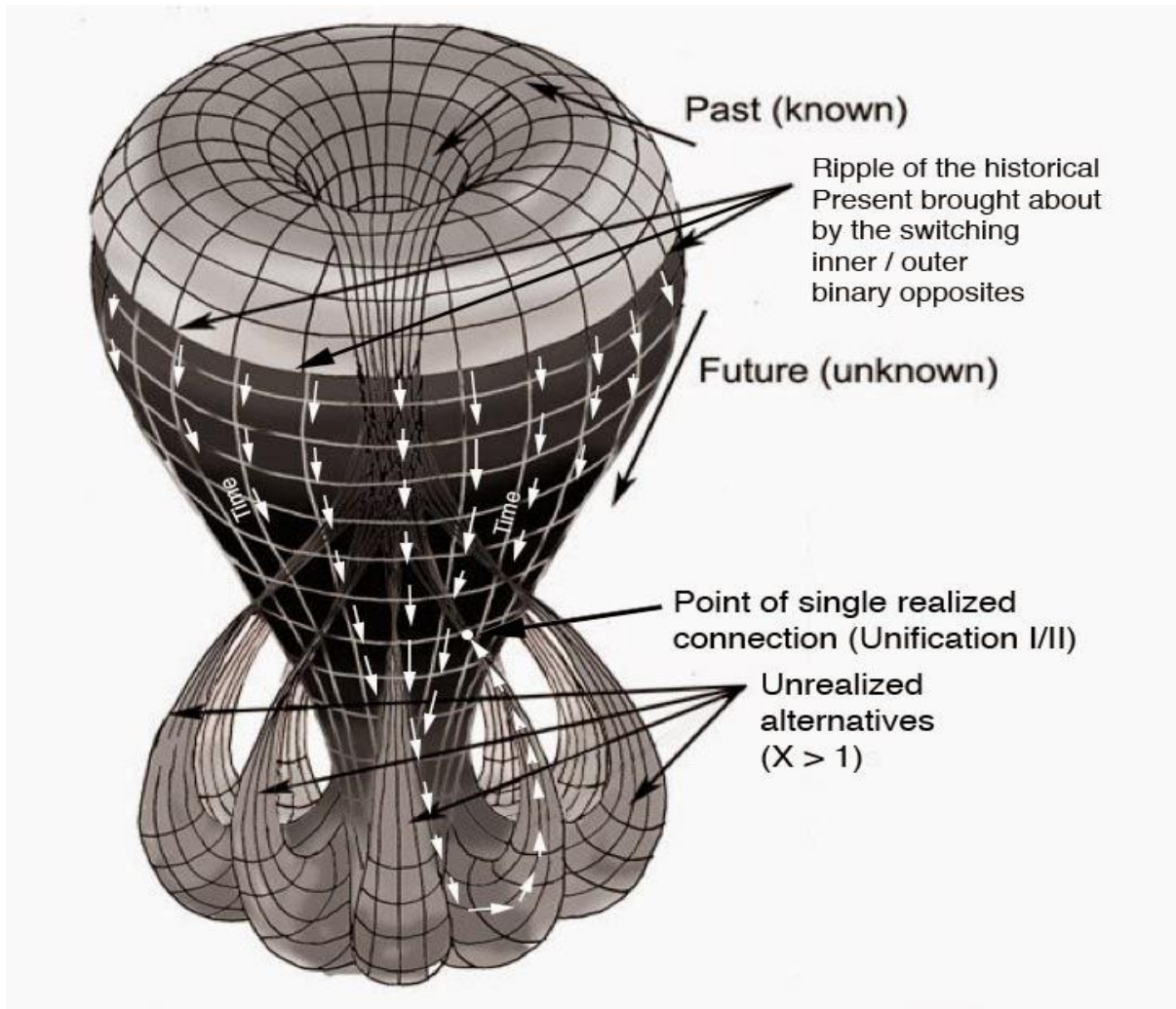


Image 8. Ekeson's topological model of collapse on the fourth level of complexity. (Source: Ekeson, 2014)

In some cases, the opposite occurs. If a homogeneous inner dynamics prevails, society or culture moves towards the wider parts of the cone. Crises occur less frequently; however, a gradual inner decay that we can compare to a dissolution, a crumbling, or a dilution occurs. The overall complexity of the system is then decreased. If the homogeneous inner dynamics prevails in the long run, the given system would decline at the moment that it reaches the point where the vortex or the Fibonacci sequence widens so much that it flattens out (Image 5). This would mean a return of the collapsed wave function into its uncollapsed state, where the wave evenly spreads throughout the entire space. Perhaps it would be more appropriate to label such declines of systems with the term “gradual decay” rather than “collapse”, as the word collapse carries the connotations of a sudden, radical change in the system.

Societies or cultures can thus move along the trajectory of a conical helix both in the direction of the narrowest point and in the opposite direction. A collapse in the sense of a sudden, radical change thus isn't an unavoidable outcome, and can be prevented under certain conditions or, at least, be temporarily averted. The dynamic relation of homogeneous and heterogeneous inner dynamics does not, however, expect a long-term endurance of the system in the stable state characterized by the trajectory movement along a regular helix. Such a trajectory of the development of social and cultural systems more or less never occurs, nor does any observation of the development of various cultures or societies in history reflect this.

However, a collapse does not indicate a complete end. Every collapse automatically creates a new potentiality, a new possibility of ensuing emergence and existence. After every collapse a new palette of possibilities emerges, some of which are realized and others not. The vortex model created by the three-dimensional projection of the Fibonacci sequence does not, however, contain a mechanism for the return of part of the energy-information field into the global, wave-particle energy-information potential. Thus, it is necessary to adjust the existing model by the topological model of wave function collapse suggested by Kigen Ekeson [2014]. This theory also

stems from the dynamic interaction of opposites as the basic source of movement for all systems. Ekeson [2014] gradually works on four levels of complexity. His model on the third level of complexity (Image 7) shows how the collapse of wave function opens space for a new actualization/embodiment in the sense of the quantum anthropology of Heidi Ann Russell [2013]. At the moment that a culture collapses or that a person dies, the existing embodiment of part of the field again becomes a part of the uncollapsed wave function evenly spreading out throughout space (Image 1). On the fourth level of complexity, Ekeson's model [2014] shows the emergence of many possibilities, of which only several are actually realized (Image 8).

Both Ekeson's topological model of collapse and the three-dimensional coil of the Fibonacci sequence share the same basic shape and the concept of cyclical movement as a part of the sequence of critical historical events in time. However, the representation of the directional orientation of the development of crises differs in Ekeson [2014] and Růžička [2002]. For Růžička [2002], the dynamic foundation of reality is a circular or spiral movement which creates a helix through the dimension of time. This implicates an ascending or spiral movement along the wall of the cone. On the other hand, Ekeson [2014] illustrates the sequential development of historical events with a vertical curve moving exclusively from top to bottom along the surface of the cone, sharply bending at the lowest point and, with the help of the topological inversion resulting from the contrary forces of the binary opposite functions, returns again up through the inner plane into the widest part of the cone. Ekeson [2014] also does not consider the possibility of averting the collapse, which stems from the one-way concept of crisis development, always heading towards a final collapse.

Similarly, the widest part of the cone is understood differently in both models. In the Fibonacci sequence, the cone continuously widens, and this widening can continue for infinity (Image 5), which corresponds to the concept of an uncollapsed wave function that spreads throughout the entire space (Image 1). On the other hand, Ekeson's model [2014] is cyclical, where energy-information essences continuously flow and the cycle is limited by the surface of the upper part of the cone's surface. The concept of passage of the energy-information flow through the wall of the surface into the interior space of the cone is the moment of topological inversion (Image 7).

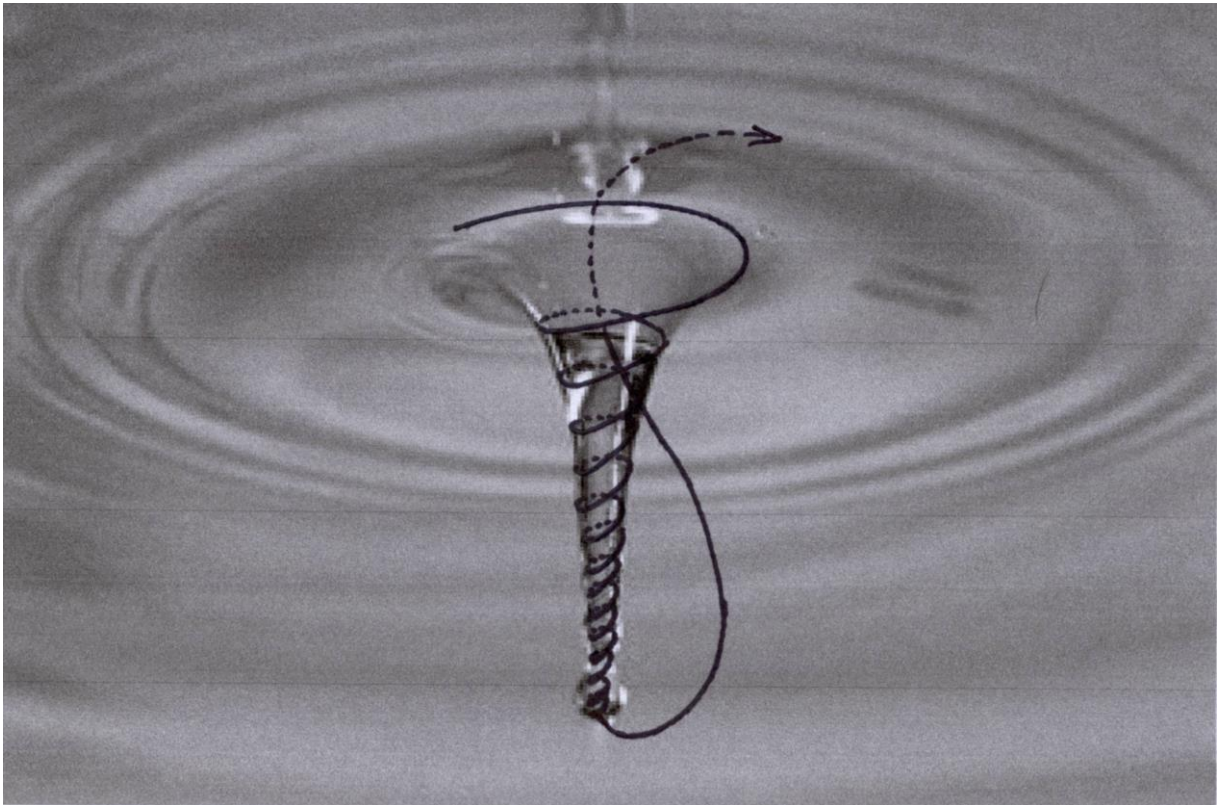


Image 9. The spiral model of collapses in social, cultural, and political systems as suggested by this study. (Artistic rendition: Radmila Lorencová)

It is this moment that serves as inspiration for the adjustment of the synthetic models of collapse suggested here. Diagram 9 (Image 9) introduces the new synthetic concept called the spiral model of collapse. In its upper part, the cone is expanded into infinity, which corresponds to the character of the Fibonacci sequence and to the concept of an uncollapsed wave function that spreads throughout the entire space. The moment of collapse is represented by the narrowest part of the conical helix, and after a specific entity or system decays, the existing embodiment of the energy-information field passes with the help of topological inversion back into the global, wave-particle energy-information potential. The given part of the energy-information field then again becomes a part of the whole, and some of its parts may be again manifested in the form of future embodiments.

At this point, it is not clear how the global, wave-particle energy-information potential works. For the time being, this problem extends beyond the possibilities of currently available scientific knowledge. Despite this, we can speculate about how the moment of the return of the part of the energy-information field into the global, wave-particle energy-information potential takes place. Basically, we can discuss several concepts. One possibility is that various sets of various constellations of the energy-information potential exist for various forms of embodiment. These variants are internally consistent, and when a system decays, they maintain the given constellation for a repeated embodiment. We can alternatively imagine that after a system collapses, part of the energy-information field freely dissolves into the global, wave-particle energy-information potential/field. In such cases, any embodiment in space and time would always emit new, original entities as a result of the previous conditions and whose character can be hardly construed. Currently, though, this level of discussion is not analytically anchored, and any further development would be purely speculative given the existing limitations of our currently available scientific knowledge.

CONCLUSIONS AND DISCUSSION

This paper has presented a synthesis of previous conceptions and introduces the new spiral model of the development of crises and collapses in social, cultural, and political systems (Image 9). This synthetic interconnection of the collapses of wave functions, the three-dimensional Fibonacci sequence and Ekeson's [2014] topological model of collapse thus raises a whole range of questions. It is necessary to point out that the proffered synthesis is very speculative and must be subjected to critical reflection. Below, I suggest several main areas of methodological problems that this new synthesis, as well as the original suggestion of quantum anthropology, deals with. First, let us summarize the main conclusions of this paper:

Thesis 1

The individual crises in the period before a collapse of social, cultural, and political systems form the trajectory of a conical helix similar to a vortex.

Thesis 2

The occurrences of crises in the period before a collapse have the shape of the trajectory on the surface of the circular cone with a convex wall narrowing up to its peak (Image 9). The shape of this cone is based on the Fibonacci sequence coiled into the three-dimensional space.

Thesis 3

The constant circular movement along the trajectory of crises can occur in exceptional situations in the development of social, cultural, and political systems; however, such a state is always temporary. In such cases, the trajectory of the crisis does not follow the Fibonacci sequence, but the shape of a regular helix. Remaining on the trajectory of a regular helix in the long-term is highly improbable for social, cultural, and political systems.

Thesis 4

The creation of new potentialities after the final collapse of a system is explained by the conception of topological inversion, when the heretofore embodied part of the energy-information field returns to the global, wave-particle energy-information potential.

Thesis 5

The global, wave-particle energy-information potential is a source of energy-information for future embodiments in the sense of the future collapses of wave functions.

The aforementioned theses summarize the main conclusions of this paper, and propose areas for further discussion or for further specification or rejection. Below, I offer a critical reflection of the suggested synthetic model of collapse, as well as of the current theory of quantum anthropology.

Contemporary quantum anthropological theory is problematic for several reasons. For instance, one can argue against the theoretical basis of the very foundations of this theory. Heidi Ann Russell works with particle and wave complementarity, where everything has the character of both a particle and a wave. It rejects the duality of spirit and matter. One of the basic building blocks of this theory is considered to be the act of embodiment as a manifestation of the spiritual essence in the form of a physical entity. On the one hand, we consider spiritual essence, and on the other, a physical entity as a manifestation of the spiritual entity through embodiment. If we were to consider particle-wave complementarity in its totality, then there would be no reason to consider spiritual essence on one hand and the physical determinateness of reality on the other. This partial discrepancy should be part of the further development of quantum anthropological theory. On the other hand, we could also consider the possible interpretation of the process of embodiment as being a change in the state of matter, just as water changes its state from a liquid to a gas or eventually to a solid. Similarly, we can also imagine a particle-wave complementarity in quantum anthropological theory. The manifestation of spiritual essence could be analogical to a metamorphosis such as a change in the state of matter, and thus the assumption that all things have both the characteristics of a particle and a wave would prove true.

Another shortcoming of quantum anthropological theory is also the fact that Heidi Ann Russell uses the term “spirit”, yet does not provide a detailed delimitation nor an exact definition for it. Its meaning is thus rather foggy and vague. Various anthropological theories define the term “spirit” in various ways, and so social and cultural anthropologists with different theoretical backgrounds may understand the concept differently. Such a discrepancy can cause problems in the overall understanding of the theory of quantum anthropology, or the misinterpretation of some of its parts. What is certain is that “spirit” represents a non-material constituent of reality; however, this area should be more exactly defined in order to unequivocally determine its character, attributes, and location in spacetime. This very critique also applies to the new term introduced in this study - “a global, wave-particle energy-information potential”. It is also not very clear what characteristics and wave-particle delimitation this entire energy-information field has.

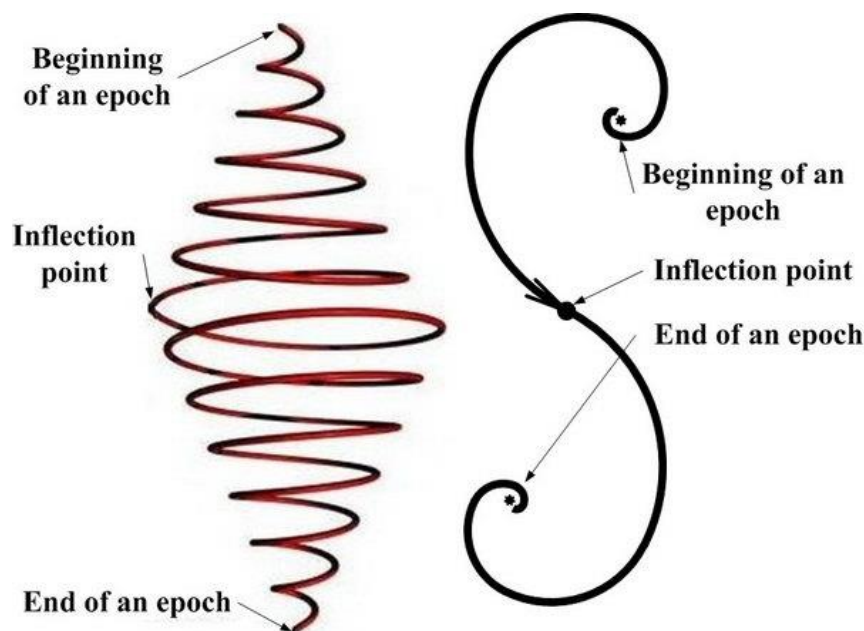


Image 10. Lions's model based on the duration of individual historical epochs. (Source: Lions, 2012)

I shall now focus my critical reflection on the synthetic model of collapse presented above. For instance, the role of time in relation to movement along the conical helix copying the shape of a circular cone narrowing up to its peak is very contradictory. From the perspective of our human experience and our empirical observations of reality, each historical event is clearly linked one after another on a timeline. The time sequence of events is, from the point of view of experience under the usual state of consciousness, clearly given both for the developmental trajectory of an individual and for the trajectory of societies and cultures. Something happens, and then something else happens. With such an assumption, however, the direction of movement along the spiral trajectory collides as a result of the interaction of opposites, that is the interaction between homogenous and heterogeneous dynamics. The constant changes in the equilibrium between homogenous and heterogeneous dynamics assume that the development of the event in relation to the final collapse can have two different directions. That is, either society/culture is heading towards a collapse, which is the narrowest part of the cone,

or it is heading in the opposite direction, to the widest part of the cone. Events cannot, however, occur on the timeline in the backwards direction. The only thing we can imagine is a situation where society or culture arrives into a constellation in which it has already been in in the past, in some previous stages of development, for instance. The spiral movement would thus still continue forward, whereupon the development of the trajectory in the surface of the cone would change and would further continue towards the widest part of the cone. The concept of the directional characteristics of movement in a conical helix is not satisfactorily solved and represents an area for further discussion.

The possibility of generalizing the suggested spiral model of collapse is also problematic. The course of crises and collapses in societies and cultures displays a certain degree of variability and some exceptions do not support the presented model. The possibility of generalizing the model is thus disputable, and it is necessary to consider other modifications and variations that can complement the current spiral model to better represent the results of empirical research of crises and collapses in social, cultural, and political systems.

Another shortcoming is the fact that this study does not provide any specific definition of culture and society. Both terms are used in the analysis, but their detailed delimitation is absent in this paper. Culture and society can be understood in various ways, and so this omission can be a source of inconsistencies in the theoretical parts.

Another problem is the insufficiently developed application. Although I have presented a general theoretical model depicting the development of the collapses of social, cultural, and political systems, its application and what it could be practically used for remains to be unclear. The application of the spiral model of collapse should be developed in the future, and the methodological approaches for its practical application in the identification of crises and for the eventual prediction of impending collapses should be determined.

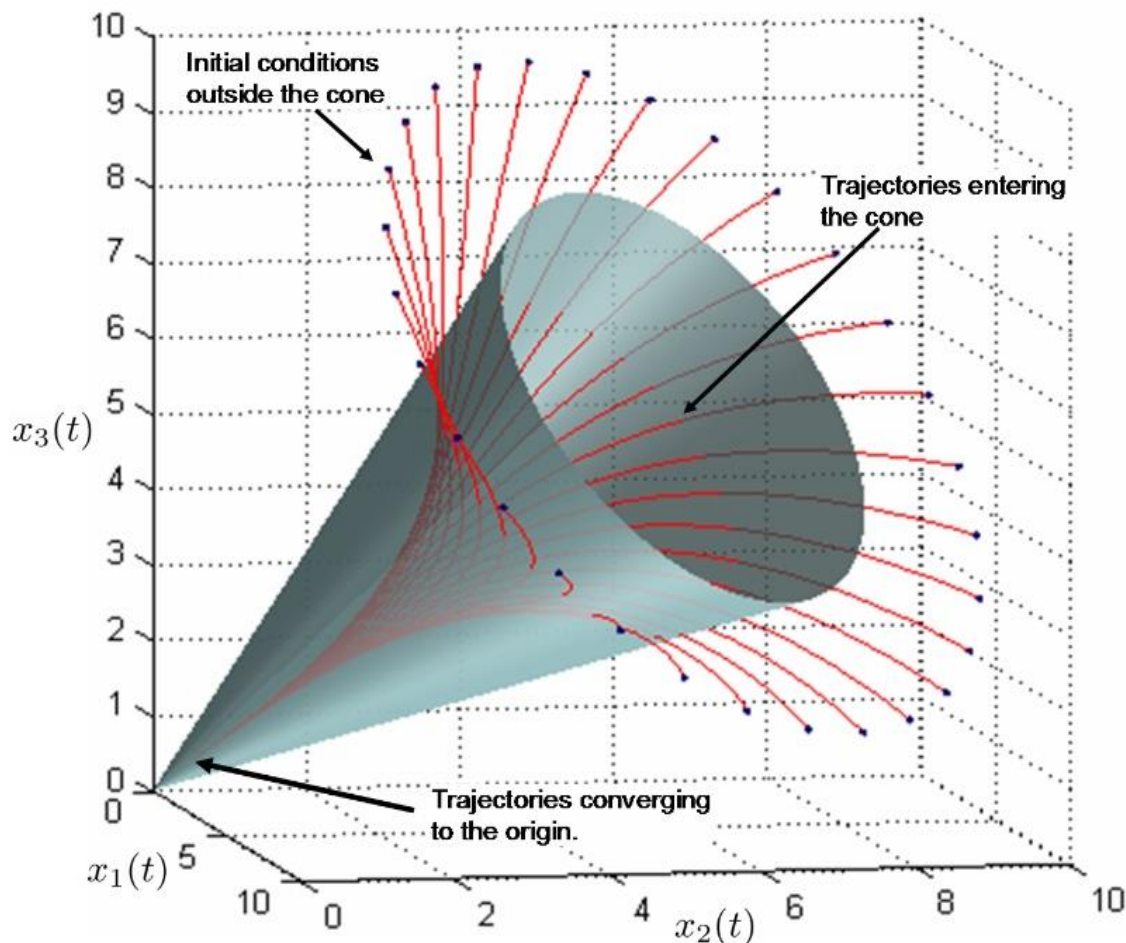


Image 11. Bhattacharya's model of the dynamic behavior of collective systems. (Source: Bhattacharya et al., 2009)

The suggested spiral model of collapse mentioned above is contradictory to the findings of Lions [2012], who analyzes the social history of Russian society and suggests a somewhat different general model of the development of historical events in time (Image 10). Lions [2012] also realizes that historical events take place on a trajectory tracing the shape of the Fibonacci sequence. His model, however, is based on the length of each

historical epoch. In our case, however, we emphasized the development of the frequency of crises as an indicator of an impending overall collapse of a society of culture. Lions's model [2012] thus monitors a different parameter for indicating an impending collapse. According to him, the spiral development first has a divergent development up until the point where convergent development begins, and continues until the moment a society collapses, that is until the end of a historical epoch. Lions's model [2012] is based on the interconnection of two directionally opposite Fibonacci sequences, which is in direct contrast with the proposed spiral model of collapse. The model proposed here, however, stems from the idea of the emergent origin of cultures and societies, when new social and cultural systems emerge through a concurrence of many different sources that in the first phase of development form the fundamental character of the emerging culture, society, or historical epoch depending on the initial conditions. In essence, this process may be compared to the concept of Bhattacharya et al. [2009], whose mathematical model captures the dynamic behavior of collective systems (Image 11). In this case, the cone is also an attractor for the convergent spiral trajectory coming from the external environment of the system. Such trajectories are constitutive for the system from the moment they begin to collect in the space and create a whole. All head for the narrowest part of the cone, that is, in the case of social or cultural systems, they head for collapse. This model is thought-provoking as to the dynamics of crises and collapses of social and cultural systems. In the future, it is desirable to focus on the function and the character of attractors for the collapses of social and cultural systems, on the character of critical periods in the last phases of a system's existence, and on the possibility of predicting an impending collapse.

The development of the spiral model of collapse in this study utilized a perspective that allows the course of crises and collapses on the level of countries or of geographically localized cultural groups, ethnic groups, policies, etc. The global perspective, that is the dynamics of the birth, the development, and the decline of entire civilizations was not taken into account. This level of analysis in the sense of possible spiral developments of crises on a global analytical level is still waiting to be explored. Thus, placing the issue into a wider analytical framework, such as the connection of Kondratieff's waves describing the cyclical developments of economies (K-cycles) with the wave cycle of global system conflicts as proposed by Zgurovsky [2009], is also absent. Zgurovsky [2009] shows that the sociopolitical dynamic correlates to the course of the phases that the global economic system is in. In the phase of growth of the Kondratieff wave, representing a growing global economy, serious crises such as revolutions, wars, etc. occur more often. The question is to what extent do such global fluctuations influence the emergence, development, and intensity of crises on the level of state or of a geographically localized cultural group. This line of thought could serve as inspiration for a global analysis of the development of crises and collapses in future research.

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