THE DECRYPTION OF LAW AS AN EXACT NORMATIVE SCIENCE USING FRACTALS

Nasty Marian VLĂDOIU*  
Ph.D., associate professor,  
Faculty of Law, “Transylvania” University, Braşov, Romania,

Abstract  
In order to be studied as a science, Law had to transit an intense process of specialization and consecration of values, values becoming thereby its object of study and specific research.  
Throughout time, Law has been studied from various perspectives, because of its variable geometry, being considered in continuous transformation, with a social dynamics in ascension.  
Most specialists agree that Law is a complex phenomenon, with a synergistic, well-defined structure, which cannot be summarized in the exegesis of some legal norms or normative texts and precedents. Therefore we ask ourselves whether the Theory of Fractals can argue the law’s character of being an exact science and implicitly natural on the one hand and, on the other hand, its nature of normative science.  

Keywords: public law, fractals, exact science, normative science, legal norm, theory of fractals, auto similarity, recursive character, aliens, extra-terrestrial civilizations.

1. Introduction  
Since the early 20th century, a great jurist, Rudolf Stammler, appreciate that the science of law has a structure based on two main branches, namely: one technical, designed to study the meaning and content of the laws in their systematic composition and, one theoretical branch, which has to determine whether the law is the fair means for fair purposes (”The agreement of laws with the social ideal”)¹.  

It was stated that naturally, the science of law belongs to the system of social sciences, taking into consideration the object of law and a long and unchanged traditional perception.  
It is well known that in the picture of social sciences, law holds a very important and special place, being determined both by its own purpose and by the

* E-mail: vladoiu.nasty@gmail.com.  
The decryption of law as an exact normative science using fractals

interdisciplinary one closely related to it, which helps configuring the dimension and structure of law as a science.

"As a science having specific status and position, the science of law examines a particular area of relationships and social structures – the area of people participating in the legal circuit, as bearers of legal rights and obligations, with all the consequences arising from this"².

Throughout time, law has been studied from various perspectives, thus we conclude that law is a complex phenomenon with a variable geometry, being in continuous metamorphosis and having an increasing social dynamics.

2. Law as a social science

To be studied as a science, law had to transit an intense process of specialization and consecration of values, thus becoming its object of study and specific research.

On the question if Law is a social science the answer is affirmative and it is based on the traditional theory and on the fact that the analysis of its object was made from the perspective of epistemological connections and its relations with other social sciences, which helped to demonstrate its classification as a social science.

However, we can formulate at least two legitimate questions that are based on the most important theories launched over the years about the science of law namely, whether Law is an exact science and can be demonstrated from the gnoseological perspective of relations and links with the exact sciences, such as, for example, mathematics, despite the theory of natural law. And the other question: If Law is exclusively a normative science, taking into account the stated purpose of the Pure theory of law, "to save a knowledge based on law and to eliminate from this knowledge everything that does not belong to the domain determined exactly as being the Law"³, and also one of the most important ideas of Kant’s legal philosophy, which replaces the naturalistic paradigm of controlling individuals by force with the normative one, that of defining the persons through their rights and obligations⁴.

Relevant for the attempt to answer these questions it is also the statement of the great Romanian professor of Criminal Law, Vintilă Dongoroz, according to which he is on the "line of Kelsen's pure juridicity" representing "that" "back to Kant" from the theory of knowledge, that was recorded in Marburg School by German philosophy⁵.

² Ibidem, p. 3.
⁵ T. Avrigeanu, op. cit., apud P. Pandrea, Criminologia dialectică, p. 53.
We cannot consider that the research in the legal phenomenon is sufficient at the level of knowing the consecutive forms of law (historical analysis) nor at the level of knowing the positive law and the active law, in force, in a particular time and space. Usually, the General Theory of Law is considered the reference discipline for studying the science of law and it tried constantly to provide solutions as accurate, satisfying both conceptual issues and their subsequent application in practice. Whether he fully succeeded or not and if he had a comprehensive approach, we will appreciate together in the present study.

Anyway, the research process of the legal phenomenon can be translated into a simple phrase: Today's research is tomorrow's future!

At this point, one of the dilemmas that disturb much of the general theory of law professionals is the fact of knowing whether the science of law should stop at the study of legal rules, case-law, legal relations, legal sources, contracts etc., without subjecting to an intense explanatory process the socio-cultural context in which occur and exist the rules and legal institutions, that collaborate in this process with all the social sciences, such as economics, sociology, history etc.

To this dilemma is trying to answer the science of law system, which according to some opinions, consists of: The General Theory of Law, The legal sciences branch, The historical legal sciences and the supporting sciences (participatory).

Most specialists agree that Law is a complex phenomenon, with a synergistic, well-defined structure, which cannot be summarized in the exegesis of some legal norms or of normative texts and precedents. Thus law, both through its intrinsic value and through the relations and connections with other social sciences known at some point, represents a complex of interdependent sciences.

3. Law as an exact normative science

It is interesting compared to the above, to analyze in context and in counterbalance one of the great jurist Hans Kelsen theory assertions, according to which the entire law is reduced to the rule of law, considered by him the sole object of study of the science of law and a way of subjective self-interpretation with legal sense.

Kelsen showed that validity is the one the normativism concept is configured on, meaning that every legal norm is valid due to a systemic security based on the compliance with the superior law.

The author of the Pure Theory of Law argued that the validity of the legal norm does not depend on its effectiveness or on the volitional act that gave birth to it, but it is related only to the whole legal edifice existing in a particular time, in a specific space.

---

7 N. Popa, op. cit., p. 3.
8 Ibidem, p. 4.
The great author stated that Law is based on and develops itself as a logical system, perfect deductible.

However, we consider that when Kelsen produce claims, by which is trying to demonstrate the establishment and sanctioning of the supreme norm, that he considers the basic rule, is not fully convincing. The supreme norm should be a rule that requires a purpose, it has to be assumed and not sought and it cannot relate to or rely on another norm, much higher, which would give competence to the authority generating the supreme norm.

We believe that the supreme norm can be although generated with the help of fractals theory, having available more and more efficient technologies in the IT area, thus regularities about human being created following a primary outcome, and which are able to unveil us everything that should be connected with humans and for them, not just what it is.

In 1937, Tudor Vianu, the founder of the stylistic school of the Faculty of Letters from Bucharest said: “Starting the scientific research of a particular object by sitting the methodical principles, means to conclude a convention with your own intelligence, similar to that of modern states given to each other through their fundamental pacts” 9.

Whether Hans Kelsen, ”concluding an agreement with his own intelligence” obtained through a well-defined method, or not, the result of his theory, we believe that what matters following a judicious process of scientific thinking is the result obtained.

Of course, the methodology is very important from the perspective of the scientific research of the object of law, and the method appears as an effective means of scientific thinking, especially in the current context, in which the border sciences, the research and studies at the confluences have become a necessity for specialists.

Very important are also, however the methodological steps from the perspective of the complex relations that can be established between them, starting from singular to multiple, from particular to general, from idea to an entire process, from part to whole.

It is necessary to reveal a striking similarity between Hans Kelsen’s theory, concerning the rule of law as the sole object of study of the science of law, and a part of our study having as purpose to demonstrate that law is an exact normative science, using the theory of fractals.

Obviously that Hans Kelsen could not have as a scientific research method, but maybe just as vision, the theory of fractals, given the appearance of fractal geometry, as part of mathematics, in particular, and of exact sciences, in general, only in 1975, when was launched by its parent, the great mathematician, Benoit Mandelbrot, Sterling Professor at University of Yale.

---

Typically, the natural sciences are considered to be exact sciences, because they can be easily quantified through usual methods of physics, astronomy, mathematics, chemistry, biology etc., while the social sciences are considered to be immeasurable.

The quintessence of our scientific study is based on the assertion that law is also an exact normative science, statement that can be proved by using the method of applying and comparing the characters and functions of fractals in relation to the ones of Law.

In fact, Kelsen although denies the natural roots of the science of law, he understands society as a natural and normal coexistence of humans, placing the only difference between the natural process and that of human psychic, in nature. Relying on this difference between the natural process and the human psychic process in nature, he appreciates the rule of law as an exclusive object of study of the science of law. In Kelsen’s view, these are true schemes of legal interpretation of reality, by way of the normative link existing between coercion and human behavior.

However, we consider necessary a more rigorous clarification on the response to the question, if between the natural character and the normative one of the science of law is there any connection or are they completely different?

The great Romanian professor, Mircea Djuvara appreciated such differentiation in the following parameters: “The word “normative” is usually employed for certain laws and sciences, to distinguish them from natural laws and sciences. The natural sciences include laws on the external or internal nature, the laws contained as type in the exact sciences in general, those which ascertain what simply happens when researching what are, in fact, the efficient causes of the phenomena given. The normative sciences have not as object to find what is, but what should be an activity”\textsuperscript{10}.

It is also the renowned professor Mircea Djuvara the one who promoted in our juridical doctrine the rigorous distinction that “the individual is nothing but a human being seen as object of study of the natural sciences, while the person condenses the aspects that became relevant from the perspective of normative sciences”, and pointed out that for the development of the legal concepts this distinction represents the starting point and also the quintessence: “everything is to agree on what is to be understood in law and moral through the idea of person. If a person should always be seen as a material reality, as practiced often, there are possible any confusions, but if...we consider us persons, is because we assign us rights and obligations”\textsuperscript{11}.

\textsuperscript{10} T. Avrigeanu, \textit{op. cit.}, apud to M. Djuvara, Teoria generală a dreptului, Bucharest, 1995, p. 213.
\textsuperscript{11} T. Avrigeanu, \textit{op. cit.}, apud to M. Djuvara, Eseuri de filosofie a dreptului, p. 192, 63/64.
The decryption of law as an exact normative science using fractals

So we see that professor Djuvara defines and outlines “the connections” between the natural character and the normative one of the science of law. He distinguishes the man, by evaluating him as individual or as person, depending on the need to address, individual – when it is about the natural character of the human sciences, and person – when it is about the normative character of the science of law.

The Romanian specialist appreciates and recognizes the “vast new light brought into the science of law, following the path indicated by the neokantian school”\(^\text{12}\) of Kelsen.

In the Kelsen-Djuvara parallel is interesting to note that both lean explain the normativism, but they treat it from different perspectives when reporting to law. While Kelsen starts from the rule of law as sole object of study of the science of law, Djuvara, shows that the person is the main object of study of the normative sciences and, consequently, of Law as a normative science.

Until the advent of the theory of fractals in 1975, the ability to commensurate the complexity of the science of law and its normative dimension was science fiction. In this endeavour, we will try however to prove, based on the application of the theory of fractals that, Law is also an exact normative science.

We will start from the definition of fractals, as it is colloquially depicted by Mandelbrot, according to which, a fractal is “a fragmented or broken geometric shape that can be split into parts, so that each of them to be (at least approximately) a miniature copy of the whole”\(^\text{13}\).

Comparing the definition of fractals with the above mentioned, we can assert without fear of error that both the rule of law and the person, can be treated, individually, as a fractal.

Therefore, the person can be defined as that man considered subject with rights and obligations and who participates in this quality in civil legal relations\(^\text{14}\).

Consequently, the sum of two fractals represents also a fractal and we consider that, for the present study, in order to demonstrate the law as an exact normative science, is sufficient only the appreciation of the legal norm from the perspective of the theory of fractals, as an intrinsic value, able to define everything that has to be the person, as subject of law with rights and obligations.

Kelsen’s and Djuvara’s theoretical assertions on the rule of law as sole object of study of the science of law on the one hand, and the one according to which, man as a person and not as individual is relevant from the perspective of normative sciences on the other hand, can be considered in terms of the theory of fractals that


\(^\text{14}\) Dicționarul explicativ al limbii române, DEX ’09.
they had generated two fractals, two observation units on a different scale, both representing the whole in miniature, in fact, the basis from which one can start in the advocacy of demonstrating the law as an exact normative science.

Having the opportunity to consider it a fractal of law, we define the rule of law as being that rule of conduct, general and impersonal, edicted and sanctioned by state, which regulates rights, obligations, interests and important aspects in a given society, whose compliance is compulsory, and which in case of violation engages the intervention of the state coercion force.

Consequently, positive law represents the totality of the active legal norms in a state, at a given moment, being an immediately applicable law, continuous, compulsory and liable to be brought to fruition through the force coercion of the state.

It is easily noticeable and well known that the rule of law has a trichotomy structure (hypothesis, provision, sanction), related to its entire existence in the system of law and that the dichotomus appearance of some legal rules (as for example, the rule of constitutional law) cannot be taken into account as an object of analysis, because the sanction is found in other specific branches or can be implicitly inferred from the provision.

As a first condition required by the existence of fractals namely, that of having a fine structure at arbitrarily small scales, we consider that the rule of law corresponds to the unit of observation in report to which we will examine the other conditions too.

A second condition consists of the fact that a fractal is too irregular to be described in a traditional geometrical language, being very easy to notice that law cannot be reduced to simple traditional mathematical formulas, in the light of the effects that can be produced by the legal rules and also, that there cannot be ab initio predictable the totality of situations in which they may applied.

The third condition in order to determinate the presence of a true fractal is the one of autosimilarity, by this being understood that the fractal represents a whole, whose parts are in largely identical to it or at least approximate. Mandelbrot himself described autosimilarity as “an ensemble presenting the same irregularities at all scales considered”.

Although apparently the trichotomic structure of the rule of law entails an easy mathematical presentation (three parts), in reality they are irregular from a legal rule to another from the perspective of the size of texts and the specific effects they generate, respectively the particular situations they are related to, maintaining thus the same character at the level of laws, codes, constitution, conventions, treaties.

To get a clearer picture on the fulfilment of this condition, we can call the plastic model of the tree presentation which has “as strain”, the Fundamental Law (the Constitution), who generates “two main branches”, the Public Law branch
and the Private Law branch, which in turn, are divided into several other secondary branches, each one of these being considered a unit for a random scale of observation, that will always satisfy the part-whole condition of similarity.

The forth and the last condition, relevant to point out the presence of the theory of fractals in law is represented by the *simple and recursive character of fractals*.

The rule of law must be flexible and accessible to understanding, being desirable the application of as few methods of interpretation, in order to achieve the effects considered ab initio at the adoption.

There should be also taken into account the cumulative existence of the fractal’s recursive character, in our case, of the rule of law, along with that of simplicity. The recursive character is translated through the repeatedly, automatic and unlimited application of the rule of law. In the case of Law, the legal norm as fractal, can be implemented whenever necessary, without limit of application, without any restrictions, as long as the rule of law is in force.

4. Conclusions

Accordingly, the present approach attempted to show on the one hand, that law is a normative science, by analyzing the theories and relating us to the allegations of the great coryphaeus, theorists of law at national and international level as Kant, Kelsen, Djuvara, and on the other hand, that Law represents an exact science, characters of the science of law evidenced through the theory of fractals.

If until now, the study of law as a self-contained social science or in connection with other border sciences was deemed sufficient, it becomes thus necessary a new approach, in relation to sciences apparently without intrinsic connections, but which finally determines, proves and fixes its very character.

The development of the new technologies and the sciences of the future will reveal certainly new ways of law configuration and study at the international level and will strengthen the value of the assertions of the present study.

We notice that the theories launched so far, according to which, the law is only a social science, should be assessed under benefit of inventory, being taken into account as long as the type of society will not be changed. It should be appreciated, however, when the portrait of the new era will be changed, being determined by the paradigm of a future society, namely, the Informational Society, which sure will serve to influence and configure maybe, in another way, the science of law.

It will not take long and the first laws designed entirely by computers, with little human intervention, will occur. We appreciate that the problem of the supreme norm of Kelsen remains an open question, because the type of society in which the man of the future will live has to answer to "how?" and "in what way?" and "by whom?" the supreme norm shall be generated and, even "what form?" will it have, so that the complice in relation to it to offer a systemic result and pure of law. The paradigm of the "supreme norm generator" seems that will be
configured and managed by an innovative branch that is outlined into being Cyberlaw.

Perhaps the Constitutions of the future created using computers, based on everything it is known about human as an individual and as a person, will be much better than those made so far by jurists. The widespread use of information technology and communications and the progress towards the Informational Society provide economic growth in conditions of increased environmental protection, by accelerating the reduction of physical consumption to harness information and knowledge, the movement of the gravity center from investment in fixed assets to investment in human capital.

The Informational Society integrates the objectives of sustainable development, based on social justice and equality of opportunity, freedom, cultural diversity and innovative development, ecological protection, restructuring the industry and the business environment.

The transition process to the Informational Society will also outline its risk-phenomenon called Digital Divide, which has to be managed both nationally and internationally.

Accordingly, we sustain that globalization, the technological evolution and the possible existence of extra-terrestrial civilizations were not envisaged by the great coryphaeus of law and this might change drastically the theories known so far about the science of law. Only the character of exact science of it can give us vague predictability regarding the transformation of law in the future, based on the theory of fractals and other theories that have not been discovered yet and which will allow us, actually, to start from a norm and a given issue and reach \( n \) regularities.

We conclude to appreciate that regardless of the type of society the man will develop, he will still be the supreme norm generator, as long as computers will be mastered by him and in the case that human intelligence will be the creator of artificial intelligence and will control thereof.

What will be however, Law, in relation to the question, “If there are other civilizations in the Universe?” and to the simple answer, that has raised endless discussions: “YES”.

We cannot ignore the assertions backed with increasingly more strength by internationally authorized institutions and even by the Papal State, through Jose Gabriel Funes, the current Director of the Vatican Observatory, who claimed that ”as there is a multitude of creatures on Earth, it is possible that Universe be studded with numerous life forms, some much more intelligent than us”, or even the statement of the Pope Ioan Paul II, beatified at 1st May, 2011, who had the following answer to the same question: ”Yes, aliens exist and they are our brothers”.

What will then mean the supreme norm and who will enact and sanction it?
The decryption of law as an exact normative science using fractals

References


[3] Djuvara, M., Eseuri de filosofie a dreptului, pp. 192;


[8] Pandrea, P., Criminologia dialectică, pp. 53;

