



# International Law in The Era of Blockchain: Law Semiotics

Koshzhanova Baktygul<sup>1</sup>

Accepted: 12 May 2023 / Published online: 26 May 2023  
© The Author(s), under exclusive licence to Springer Nature B.V. 2023

## Abstract

Being built on the ground of mutual effect, facing the current state-isolation, international law is losing its grip on efficiency. This makes some of us to question (1) If law is not working, do we still need law? If we would say no, the history shows that such is the path to the state-suicide. As Smithian mutual benefits is the assurance of the individual benefits, we need international relationships to create the benefits for the individual states, hence international law, Yet the current one is certainly not working, then, the question, (2) What should the international law be? The enforcement of the international law could be accomplished through the blockchain. As blockchain “went bypass” the national law, and simply negated it, yet it is still not immune to the scope of international jurisdiction. We also argue that the blockchain’ smart contract is not sufficient enough to operate smoothly. Human brain is structured as the mirror rather than a glass and transferring the law interpretation to the machine would not work, hence, we designed the formula of langue and parole, blockchain multiseq operating under the semiotics of the international law. Here the language learning is modelled with the supervisory and reinforcing algorithms, with supervisory predetermined with bias X,Y towards the values of law. Sort of form of constant repetends of Heidegger’s hermeneutics circle. The most important part in this paper is written with the purpose to explain that international law is at the same struggle that Kafka had. Carrying the weight of both, the clothed façade and true self, first being the morality guide and later the states will, and not being neither, international law is self-isolated from the real world, as Gregor Samsa was. Hence, this is not the paper of secularization, no customs, no higher purpose, nothing except the will of states, that can be constantly renewed with the signifier and signified being linked and re-linked.

**Keywords** International Law · Blockchain · Semiotics

---

✉ Koshzhanova Baktygul  
geshupan@gmail.com

<sup>1</sup> Shanghai University of Political Science and Law, Shanghai, China

The United Nation Charter, signed by world states after Second World War, is the utopian law<sup>1</sup> [1], carrying the values that are requiring the states to adhere, yet at the same time giving the states much more power to simply deny the enforcement by not participating. Trying to balance between the ascending and descending parts of the law [1], international law has trapped itself in the hands of the sovereign states, which certainly do not wish to give up on their own interests, even if the cooperation would mean the bigger good.

The current international law was drafted at the result of the consequences, which were brought by the nationalism in Europe at the 20th century. As it is vivid in the history, the outcome of this nationalism was two consecutive World Wars, which was later the motivation of choosing the opposite direction, the globalization. Devastated and exhausted, after the Second World War, the world nations were more than cooperative to unite under the common organization, The United Nations. And the international law was deemed as the “messiah” to the world problems. One would’ve question from all the possible directions, why would the international law has taken the way of the Kantian romanticism? As the perpetual peace is certainly the wish for everyone, yet in terms of the international relationships, the more accurate approach would be the utilitarianism, and not even Bentham’s, but more of the Mill’s one.<sup>2</sup> As the working motto for the international law is the state’s rights protection a priori, and only then the happiness for all [2].

In mid of twentieth century, at the peak of the international relationships, leaded by Wolfgang Friedmann, the international scholars saw the development of the international law from the cold coexistence to the ever bright cooperation [3]. Finalizing with the establishment of the World Trade Organization, the international law was further diversifying its role. Oppose to the post-war role of moral guider, international law has become the substantial law specifying the technicality of the trade, the tax ratio regulations, intellectual property and etc. But that was then, and twenty-first century came with the change. With the raise of the Asia, in particular China dominating the world economy, and the natural economy slowdown in the United States and Europe,<sup>3</sup> the world politics experienced the change of the power. Instead of the previous bipolar relationship of United State-Soviet Union/Russia, now it is officially United States-China. And these new opponents came with their own game, where with Russia, the competition was on who has a bigger atom bomb,<sup>4</sup> with China it has become who makes better smart phone chips and sells them to the

<sup>1</sup> Martti Koskenniemi, *From Apology to Utopia The Structure of International Legal Argument*, 2005 described the law not being rendered from the sovereign states will as the utopian law, being too idealistic to the natural law.

<sup>2</sup> The Bentham’s utilitarianism is majority focused, as the bigger number of people, as such not considering the minority of people. Mill’s view is the minority.

<sup>3</sup> The economic development, as was described first by Adam Smith, is divided into stages, where the first stage is the rasp development, generating higher gross domestic products, the later are slower and shier in numbers, hence such term as “economic slowdown”.

<sup>4</sup> During cold war period, both countries, Soviet Union and United States, used the method of deterrence theory, which would heavily develop the mass killing weapons as military deployment, nuclear arsenals, and etc.

bigger number of customers.<sup>5</sup> And this meant the trade war. With the further escalation of the situation, Trump administration decided on the strategy of the isolation, de-globalization. Focused on the protection of the domestic producers and the labor market, further cooperation in WTO and continuing the establishment of the Trans-Pacific Partnership was not deemed logical. This direction was later assured by the Biden's order of "Made in America" [4]. The recent "Chips Act", "Science Act", and others.<sup>6</sup>

Not only United States chose the method of isolation of the economy, its opponent, China, also planned the long term development direction of "inner circulation" (Neixun huan, Chinese: 内循环). The strategy is focused on the domestic production and the consumption of the production locally. Considering the 1.4 billion of the population, China believes that the domestic producers would have the fair market to guarantee the stable business requests [5]. Promising that the businesses are run stable as long as the consumers are buying locally guarantees that the business supply is meeting the demand. And these bring us to the current international relationships, if we could call the mutual isolation, and absence of relations as the "relation". Surely, Covid-19 pandemic did not help, with the literal decision of states isolating themselves as the way of dealing with the virus spread, and the impact of the quarantine measures that affected the businesses, such as food chains, travelling agencies and etc., the world states are comparably focused on their own economies.

With the two biggest world economies choosing not to cooperate and isolate themselves, where does the international law stand on? More importantly, where there is no international relationship, and here we must admit that economy, trade, the mutual benefits are the main incentives for the international relationships, and without the need of benefitting from each other, do we still need to hang up and insists that international law shall remain? And if such, how can it be justified? This is the obstacle that international law is facing now. And the following is our attend to try to fix the problem by changing the form of the international law, which should not be the burden as the states see it, but may actually be the tool for the order in the world.

1. The greatest, professor Martti Koskenniemi puts the question in this way: "*Should the law be abandoned, or modified?*" [6] First, let's try to answer *Whether international law shall be abandoned or modified.*

To say that the current world is changing is perhaps downplaying of what actually is happening. Albert Prince Consort speech in 1851 International Exhibition in London couldn't describe in better way the current world: "*Nobody who has paid any attention to the peculiar features of our present era will doubt for a moment that we are living a period of the most wonderful transition which tends rapidly to*

<sup>5</sup> Huawei and the tech cold war, China v America, Economist, Jul 18th 2020, <https://www.economist.com/leaders/2020/07/18/china-v-america>

<sup>6</sup> <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/>.

*accomplish that great end to which indeed all history points – the realization of the unity of humankind”*.<sup>7</sup> His words perfectly describe the change, the unity, and suchs are coming to life through blockchain. This is the exact change that we argue would bring authoritative power to the international law. By being decentralized blockchain perhaps prevented itself from the domestic law, yet the international law could establish the jurisdiction, if, the states will come to the agreement.

But before anything, lets first explain the blockchain, which might not be so familiar to the law world, hence the following introduction.

## 1 Blockchain

The blockchain technology has brought to the world the new concept of the decentralization (although decentralization has been introduced long before blockchain, yet it is blockchain that proved the theory in practice). What decentralization is? In simple words, the technology that is built on the concept of the non-centralized form of the control over the net, but the distributed to every IP address. As long as, the single admin does not possess more than 51 percent of the web, which is practically impossible, the blockchain can further support its integrity. Blockchain most-known product is the Bitcoin, perhaps you are familiar with its raging price lately. The Bitcoin was created by the anonymous name, Satoshi Nakamoto, as the result to the financial crisis in 2008 [7]. Bitcoin white paper described that 2008 financial crisis, and others before it, was the result of the governmental incapability, leaving the ordinary people to face the consequences. The proposed solution was to deny the governmental control over the financial matters, in particular, fixing 21 millions of total tokens, and not being able to mint more, hence preventing the devaluation of the tokens. Through the years, Bitcoin’s philosophy proved to be efficient, and as now, the Bitcoin price is sky rocking, and it is claimed as one of the best investment options.<sup>8</sup>

The blockchain, and in general, the whole technology, did not stop at the point of creating Bitcoin. Further years technology overtook the finance from banks and the tall offices of Wall Street. The finance of the world, at this point, is happening between the tech companies and is much more diversified that it previously was. The internet from the user consumption turned to the user data monetization, and now is stepping into the third phase, which is called the Web3. Web3 has also introduced new concept, the new reality if we might say so, the Metaverse. The metaverse has gathered the huge audience, since Mark Zuckerberg announced that Facebook will change its name to Meta, and the future of the social platform will be

---

<sup>7</sup> Albert Prince Consort’s speech given at a banquet at the mansion house on 21 March, 1849, <https://www.napoleon.org/en/history-of-the-two-empires/articles/albert-prince-consorts-speech-given-at-a-banquet-at-the-mansion-house-on-21-march-1849/>.

<sup>8</sup> Price changes every second, but in average price could be found at any trading platform, one of them is coinbase.com.

around this concept.<sup>9</sup> Metaverse might sound as something sci-fi movie like, built of pixel-like image, which is true, metaverse is mostly described as the digital reality. However, if we would look at it from existential way, the metaverse is the next step for the human existence. As Nietzsche paraphrased of Hegel's words "There was god, whom we killed, and then the language came" [8]. By the establishment of the metaverse to our daily life, the humankind is stepping to the point of the existence through the conscience. As the imagination, the envisioning, the human thought exists in the metaverse, forming the universe through not the physical, but the conscious existence. In the world of the metaverse, the physical identity of the humans is no longer the defining factors, but the digital data, such as the non-fungible token, NFT, that has grown as the main bio attribute representing the profile information of the account users.

There is also the specific value of the Web3, where it is proposed to fully detach the real-world identity of the user account as the ID, driving license, the nationality, citizenship and etc., from the physical account. Since the blockchain provides the infrastructure for such goal and the metaverse is already building a world, where the users can not only simply be, but actually interact and even acquire the real estate assets, as the house on the beach, and then perhaps sell it and gain profit, the digital identity has proven to deliver its incentives and attract the bigger audience.

Worth to mention Mark Zuckerberg's ambitious plan of creating the whole state, where the Diem (previously Libra) is the national currency is built on blockchain technology. While the world states are busy with their meaningless fights over who is superior, Diem meanwhile is gradually developing its ecosystem. Now being available to operate on such apps as WhatsApp, providing app users the function of digital payment, which is much better than Visa's one. Yet, Diem would not be fully executed to its potential if there would not be the universal market. The market, where Diem would be applied on every transaction, every settlement mean, somewhere as the whole state, or in this case, the virtual state. Hence, Meta was created. Zuckerberg's Meta is the state, which has bypassed requirements of the state for territory and governance, by simply having the users, who recognize Diem as the currency. And viola, Zuckerberg has a state, where his money is circulated, without any nuances with UN or disputes over the land. Google is also working on its own version of metaverse, and many other tech companies are joining the tendency of creating the digital reality projects. And surely, there is Elon Musk, who is building the bases of blockchain taking the form of the currency in Mars, certainly after he assures that we have safely landed there.

The blockchain is not going anywhere, more to be sure is the metaverse, which is not only the technical game to play with for a short period and that fades away as soon as the hype is gone, but the realization of Hegel, Nietzsche, Wittgensteinian thoughts on the human existence, the natural next step for us. Human conscience being the next step for the human emancipation.

---

<sup>9</sup> Alex Heath, The Verge, Oct 28, 2021, MARK ZUCKERBERG ON WHY FACEBOOK IS REBRANDING TO META, <https://www.theverge.com/22749919/mark-zuckerberg-facebook-meta-company-rebrand>.

From being the part of a whole from Plato's Republic, as individuals were not considered for the sake of individuals, but the collective republic with the purpose of being the "dream state". The individuals were fulfilling their roles as soldiers, crafters, and philosophers, even marriage was a social responsibility designed for a single purpose of giving a birth to a child, and not doing so is condemned by law [9]. Then the Aristotle's whole and part logic, and submissiveness of the part to the whole. The individuals were replicas of the bigger purpose, which was, again, the state [10]. With Hegel, inspired by Hume [11] and Kant [12], carrying the idea of sensibility, a posterior, the concept that everything that we believe has been given to us is actually us experiencing it first and only then having it [13]. This has fundamentally changed everything, as now there was not one universal truth, the God, but were individuals, who were creating their own truth, hence the God has died. And yes, exactly as Nietzsche has put it: "We killed the God", not him dying himself, but our pro-active decision [14]. Since we killed God, now the individual arose. That has brought the commerce, the trade, the industrialization as now the individual is working for himself, not for the God's chosen one, the king and queens of the world. Yet, being free has not brought the peace in our minds. The inequality has been and still is an issue.

Marx has tried to emancipate humans through denying the capital, essentially, the property. He thought if we all would labor, and have an income, the same amount state-controlled income, we would not fight among each other for bigger amount and will focus on ourselves, do what we please to do and do the best [15]. The only problem of this thought was humans need property to feel save. The property is the food we eat, hence the life. The property is for what we need liberty, to own our own body, which produces the labor and creates the property for us. The property is also the happiness we pursue, as we even abandon one state and join another for the sole purpose of the state assuring the protection of our property. Hence, denying capital/property would hardly work out, which it didn't.

With metaverse, the conscience is creating the value, the assets on the platform. Some NFTs do not even exist. As how can the land exist on the shore of a beach that doesn't exist? Or even the alien creature claiming to be coming from the outer space can exist? Wittgenstein said that language is the death of us, as the moment we define the object, we refuse the object to be anything else than the definition we have given to it [16]. Going in reverse of his logic, we could come up with the new definition only to the things we can only see in the material world, but metaverse is not a material world. Metaverse is the world where non-existing beaches exist, and creatures from outer space live. And having such non-materially constructed world, we are not restrained by the definition.

The metaverse is the realization of the dualism, the idea that conscience and the human body being separated from each other. Descartes's idea on the separation of the body and mind [17], which later has been further developed to the property dualism, where the mental properties as thoughts and ideas are identified as the property of mind. This way, we establish the product of mind as the property. Perhaps, you've read the news of the metaverse estate, the NFTs, the coins, the land one can

purchase on Decentraland,<sup>10</sup> and etc. are essentially the products of mind that do not exist in material world, some of them truly does not exist, as appear to be the NFTs of some alien objects. Another question is how we define metaverse as “being”. As NFTs are not much complicated from any other digital assets that we already have,<sup>11</sup> except having fancy non-fungible element. Certainly, the idea of products of our minds being our property is nothing new, the basis for the intellectual property originates from it. Yet, the revolutionary part of metaverse is the interaction of the accounts, by accounts being the digital identity of humans. The metaverse picture is the property, the accounts, the NFTs and etc. are being in the interaction between each other (trade, exchange, investment, development of the eco-system and etc.), and such interactions creating further interactions are essentially being in the web-world, which is being-in-the-world, which constitutes Heidegger’s Dasein [18].

The present metaverses are the platforms that either require the registration of the account, or the unified account from the decentralized wallets, such as Metamask,<sup>12</sup> provide the required information for the registration. After the completion of registration in metaverse, the account obtains the NFT, that is the genesis version of account on metaverse. Later that NFTaccount through actions, interactions, transactions and etc. creates the value to its account, surely there is also the interactions with other accounts on trade of the assets, investment into new projects, the general development of the metaverse ecosystem and etc. This NFTaccount later can be sold, since it has gained the followers through the trade timing, investment choices, and the general thoughts shared that have inspired others, it carries the value for others to possess or re-sell, the investment. Doesn’t this sound familiar? As us, human beings, trying to do something our lives? Getting degree so what we say/write would cost higher, laboring, purchasing real-estate? Hence, the above statement, metaverse is the natural next step for the humans.

## 2 And in This World Where Does the International Law Stand?

At this point, it is clear that the domestic/national law is no longer applicable to the blockchain, it simply cannot enforce itself over the technology. It may be ironical to point out that for decades the international law was balancing between the law enforcement and the sovereign will, and now, this is no longer existing question, as the blockchain nullifies the concern of the state will. Yet, it would be illogical to assume that in the world, where blockchain operates, the order is not required. We exist under the assumption that we need law, some sort of order that guides us. Perhaps we are under the influence of the past, and carry the gospels of the ancients, as Socrates’s words: *“It is necessary for men to make themselves laws and to live according to laws, or else to differ not at all from the most savage of beasts. The reason thereof is this, - that no man nature is naturally able both to perceive what*

<sup>10</sup> <https://decentraland.org/>.

<sup>11</sup> That would be digital music, books, the Ips from the computer games and etc.

<sup>12</sup> <https://metamask.io/>.

*is of benefit to the civic life of men and, perceiving it, to be alike able and willing to practice what is best.*"<sup>13</sup> Yet, are these words still applicable in our times? We do not argue the terms of the human nature, after all, the Markov's pyramid applies, yet we question the word "law". Is the law that Socrates meant the same what was later designed to rather suppress than to protect? Does the law is only the law, and nothing except it? If these questions arise, and we are not discussing the semantics here, but rather the law being the result of human corruption. And as such is assumed, then do we still want the law that is rather suppression for us?

The human corruption is the result of the fear of the pain, as we do everything to avoid the pain, and obtain the pleasure, the happiness. This is how John Stewart Mill introduced on his *On Liberty* [19]. Essentially, he inherited this thought from Socrates [20], then Aristotle [10] and later on from John Locke [21], the happiness being the ultimate purpose of the governance, and law being the application of such, hence the happiness has been cemented as the principle of law. Mill saw that in between the balance of pleasure and pain, law shall be the one constructing the bigger happiness. One side note to mention, Mill is bigger happiness for the individual, unlike Bentham who was not so specific in regard of the individuals' happiness. Yet, the current world shows that more times that we can admit, the law is the cause of the pain. We create the law to maintain the order, to prevent the corrupted actions. Those laws make us to consider before we act, to weight the cost we would pay in case if we act upon our corruption. Preventing the pain, or at least preventing the bigger pain, we attempt to obtain the happiness, the utilization of the situations. The more happiness we gain through corruption rather than pain, we act upon it. Hence, in order to rebalance the pleasure/pain, governments introduce stricter laws, till the living under such rules is burden, and the rebel, revolution occurs.

Then, if there are no laws, as the second possible option. Some may call it anarchy, yet the anarchy is when there is no order, it does not mean there are no laws. Haven't we established that extensive amount of laws lead to anarchy as well. Hence, the absence of laws does not lead to disorder. Then the world without the laws, which means no punishment, and no prevention, if the crimes happen. So, for individual to be able to exist in such society, no crime should occur. And it does sound as Utopia, and every individual would be altruistic, which would contradict the initial concept of human desire for happiness. Such altruistic happiness is only possible if being altruistic is bigger happiness than being egoistic.

Human happiness is centered around the property, as property is the source of our lives. We depend on food we eat, and since one can eat the food that one owns, regardless how contradictory it might sound, even stealing from others requires the property to be in physical possession of a thief, the property is the source of life and guarantee for the life of tomorrow. Property can be utilized from the resources that surround us, and considering that the resources that are available for one are similarly available for others, we humans fight for the resources. This is the logic behind Hobbes's natural state, the state of war that occurs due to the fight for the resources. The pain would be the situation, where we are losing this fight and not having resources for our existence,

<sup>13</sup> Plato, *Laws*, Book 9, page 271, par.2.



the happiness would be the binary opposition of it, the situation in which we are winning and obtaining the resources, hence having the property. Human cannot be altruistic, at least when we are concerned over our lives, and by lives we mean not only the simple breathing.

The human fundamental rights consist of life, liberty(freedom), property, and pursue of happiness. Although they might seem different principles, yet all of them are focused on one single function: life, survival of humankind. Rousseau named freedom as the inalienable part of us, as even if we wished to give up our freedom, it would be simply impossible. Let's imagine the situation, when the armed man attacks us, we would run, we would shield out body, we would do everything possible to protect ourselves, and as such we are solely in charge of making a decision regarding our life and death. And that is liberty in its absolute function. The following liberty(freedom) is the base for the property. This is how Locke argued we either all or none of Adam's heirs, hence we are equal. And since there is no master over us, as claimed kings are same as us, are all or none, then we are free born. And this is essential to be free, as being free means we are in possession of our bodies, and the fruits of body labor are in our possession as well. We depend on our property to survive; hence, property is for the sake of life. The last one, pursue of happiness, is essentially what we are discussing. What is the happiness if not the utilized life with lesser pain! So, to summarize, our altruism is possible if it does not affect to our life, freedom, property and to what we deem the happiness for us. However, how much is there left for human altruism to apply?

The third question was in regard of the blockchain characteristics, considering the fact that blockchain already has some sort of order system, smart contract, which follows its principles of "code is the law", why does blockchain need law.

### 3 Why Blockchain needs the law?

There are two types of the order that current blockchain operates on. One is the smart contract, the line of codes, according to which blockchain operates. Smart contract is the logical result of actions upon the satisfaction of certain conditions. Smart contract is similar to the conventional contract, yet does not require the bureaucratic work of review, approval, audit, and operates under instant execution of the pre-coded conditions. The obstacle of the smart contracts is, and its advantage as well, the simplicity of it. Being the code, which is formed from the combination of the very basic computer language, the current smart contract cannot meet the requirements of the complicated law language. More importantly, the essence of the law, the interpretation of the law, smart contract is not capable of such function.

The second is much familiar to the legal world is the paper contract, which is applied as more of the insurance rather than efficient contract. The following picture is the sample of the paper contract.

#### NOTICE TO RESIDENTS OF CHINA

**THE RIGHTS ARE NOT BEING OFFERED OR SOLD AND MAY NOT BE OFFERED OR SOLD, DIRECTLY OR INDIRECTLY, WITHIN THE PEOPLE'S REPUBLIC OF CHINA (FOR SUCH PURPOSES, NOT INCLUDING THE HONG KONG AND MACAU SPECIAL ADMINISTRATIVE REGIONS OR TAIWAN), EXCEPT AS PERMITTED BY THE SECURITIES AND OTHER LAWS AND REGULATIONS OF THE PEOPLE'S REPUBLIC OF CHINA**

Source: <https://saftproject.com/><sup>14</sup>

The inefficiency of such contracts comes from the consideration that not every jurisdiction recognize crypto/cryptotokens (ex:China), and the fact that the majority amount of blockchain related investments are coming from China, simply relying on Chinese jurisdiction, which does not recognize the subject matter, is basically degrading the legal protection to obsolete.

China has seen the cases, where the investors lost their assets and referred to the local courts, yet were refused due to the fact that the law does not recognize the crypto as the assets, hence no loss has been occurred. One of the very well-known cases was declined by the Chaoyang, Beijing district court on 15<sup>th</sup> of December in 2021, the court held that 10 million yuan (around 1.5 million US dollars) worth of lost by the investor was found groundless, due to the fact that the payment occurred in Bitcoins and the contract between the parties was deemed invalid by the court. Because again, the Bitcoin as a type of the cryptocurrency is not recognized as value assets.<sup>15</sup>

Blockchain doesn't have the legal order as to what we are accustomed to, what it has is the smart contract, which cannot fulfill the requirements. The paper agreements are just the symbolic signing, without any actual power of protection. Hence, yes, blockchain does need a law. And considering that blockchain based technology is further expanding, and now has become the mainstream, let it be Web3, metaverse, the finance or anything other, the type of the law shall be the one that can adopt to the pattern and can deliver.

We also need to clarify blockchain and its philosophy of decentralization. Blockchain is the decentralized network, unlike internet's ".com", that we are familiar with. .com works in the way as main domain, first, collects the information of the net, and second, every transaction is occurring through the main domain. Let's say, A wants to send an email to B, that email is actually sent to main domain before sending it to B. Blockchain is, in opposite, sends all the transaction to all the domains, and there is no such thing as main domain to collect, and to be the first receiver of the transactions. In theory, blockchain is not controllable by any domain, hence the idea of the law being enforced by the government/police is unrealizable. Yet, with

<sup>14</sup> SAFT website contains the model contract, yet this specific clause is from the real investment contract between the Chinese investor and US based blockchain developing company.

<sup>15</sup> 北京首例比特币“挖矿”合同案宣判 法院: 合同无效, 2021-12-15, 京法网事, <https://mp.weixin.qq.com/s/xjlqO0s6jXjtIVGqu0bqQ>.

the consent of the states, blockchain is subject to the cosmopolitan law, referring to Lord Leutherpacht's vision on how shall the international law be.

## 4 International Law is Kafka's Vermin

What we are proposing is retire international law from being in predicament of trying to satisfy everyone. We do not wish to integrate international law with/into blockchain and then again be in the predicament of running between the natural law, morality, etc., and the will of states. As Kafka's Gregor Samsa [22], the current international law is struggling to get up from bed and being isolated behind the closed doors from its family, from those whom it serves, the states. Instead of burdening it with more weight of the façade, what we are building here is to let international law have its own true self. There is another book that Franz Kafka didn't finish, "The Wedding Preparation in the Country, where the shero's name is Raban [23]. And unlike Gregor he leaves his true self at home, which is a gigantic beetle, and the clothed body goes to work. What Raban has accomplished is the acceptance of two different selfs. For international law that would be the natural law, the morality, as Koskenniemi described them, the ascending factors of law, and the descending factors being the social concreteness, the will of states, the positivism. Gregor Samsa was tormented in the struggle of trying to be both, and failing to be neither, which eventually killed him. If the international would continue of being in the similar one, it will eventually disappear or will be forced to stop existing. Isn't that what has happened to WTO! The current state isolation is the same isolation that Samsa had in his room, eating rotten vegetable, and being ignored by his family. Hence, the clear and out loud logic of the proposal, no morality, no ascending factor, only state will, and not even the customary states' practice, but the current, only current will. Surely, the will of states would change, and constantly renewed through constant repairing the signifier and the signified of the state will.

## 5 Solution

### 5.1 Law Semiotics

The international law, this paper is designing, is not the one we have encountered before, and not the one building on the ruins of the current one. We are suggesting the new structure, build on the norms of the law semiotics. Certainly, the philosophy of law would not change, as how the nature of the law cannot be changed. The natural law, the fundamental rights would be the opriori as the principles of the law, yet the form of the grammar, the content and the process of the decision-making would be relevant to the blockchain concept. Since we are creating the new law and, surely enough, we want to prevent the previous issues of the international law such as the enforcement opposing to the sovereign will, the eurocentrism and multidiversity and etc., we as well could architect the new grammar for the international law. And this grammar would be structured through semiology.

The present days, trying to redeem itself from the wrongdoings of the past, like any other area, promoting the diversity, international law claimed that its issue is the eurocentrism. This proposal neither oppose nor supports the international law carrying the European characteristics, it would be illogical to state that the law shall, all of a sudden, become Asian, African or any other place oriented, denying the centuries of the history of law, contributed by Thomas Aquinas, school of Salamanca, Hobbes and many other scholars. Yet, the issue of eurocentrism perhaps is not the dominating Europe, but rather the language that drafters use. More specifically, the human conscience that drafts the law, the drafters' mind. It's the community that produces the reader, who in turn produces the text.<sup>16</sup> Educated by the history of law, associating specific words with the specific meaning, that was written in majority by the European scholars, drafters set their mind on the signifier and the signified by the European academic works, long before they conduct the drafting for the other states. And drafting the laws and sending them out to the foreign states, who might have the different interpretation of the laws, yet leaving them with only two choices of either agreeing or not, would not break the cycle of eurocentrism. This issue perhaps could be described as the diachronic system of the law. To which this proposal is suggesting the synchronic solution [24].

Heidegger infamous phrase "Language Speaks"<sup>17</sup> perfectly fits to the international law [25]. When the language of each state speaks differently, as many states are involved in the law, so many variations of language there are, and so many interpretations of the law exist. Saussurean idea of language caring the anthropological, cultural, or even the personal psychological sense to interpreting the law can be easily spotted on the way that each state recognizes and execute the law. Yet, knowing that why do we interpret the law only in the way of either this or not, why can't they be different variations and change through the time?

## 6 Saussure's Signified and the Signifier is the Solution

First of all, we need to clarify that as long as we have the different language, we have the different view to the law, and that is impossible to change. As Lacan explained, "Language does not express thoughts, but the language constitutes the thought. Language brings thoughts consciousness, sense of things into being, that this is articulated through language" [26]. Hence, by simply translating the law from one language to another and hope that the states would happily cooperate would be only a wishful thinking.

By applying Saussure semiotics, what if the international law would be constructed through the arbitrary relationship between concept and sound image. Concept is being signified and the sound (word) being the signifier. The law would be

<sup>16</sup> A theoretical concept of the Interpretive communities by Stanley Fish.

<sup>17</sup> Saying by Martin Heidegger. Heidegger first formulated it in his 1950 lecture "Language".

the signifier, and the signified would be the result of the multisig,<sup>18</sup> which is a result of states voting. Saussure's arbitrariness gives the freedom for the states to decide through the multisig voting, as not the historical convention, but the majority voting would decide what the law is interpreted as at the current time. Surely, this is not applied on every possible word in the law. Common sense would take place where it should be. The multisig voting would be implemented on the issues that the states seem not to have the unified answer to.

There is another aspect that perhaps concerns us in letting machine deal with the law, as the machines are considered not sufficient enough to be able to comprehend the law. The interesting thing is to assume that humans do better job. Humans are not able to comprehend the law as well. Not because law is complicated, which it is, it is the fact that humans are not able to comprehend each other. For each of us is noumenon to another [12]. We are the humans-in-ourselves, existing independently, without being able to fully be understood by others, and not able to comprehend others in full as well. Hence, when one's mind produces the thought, the others are only lost in interpretation. Heidegger's thought to employ the hermeneutics circle for the interpretation [18]. As to have a partial experience comparing to the whole experience and repeating the circle over and over again till the understanding reaches the best possible option. Essentially, the general idea is carrying hermeneutics circle logic, as the language algorithm we have designed for the international law parole-langue smart contract consists of the principle of law professionals improving the signifier and signified, also the supervisory algorithm is built with repeatedly going back and forward with input and output of labels.

## 7 Example Case

Perhaps one of the biggest questions of this year related to international law was in regard of Taliban taking over the power in Afghanistan. What constitutes for the recognition of state? The recognition of the state, requires, foremost, the appearance of the NEW state. Could Taliban naming the territory and population of Afghanistan as the new state of Taliban be considered as a new state? Then the nature of the state recognition, the discretionary nature of it. It is either other states recognize the state, or they are just silent, tacitly reserved one. However, in this situation, where the Taliban is suppressing the basic human rights, women equal treatment, the rights for travel and transportation, is the simple silent enough? What if it could be replaced by decline? A clear, loud sound of other states being against everything that Taliban does.

---

<sup>18</sup> Multisig is the important part of the international law in blockchain application, as it assures the participation of the states. The blockchain has the function of the multi-signature (multisig), which refers to requiring multiple keys for the authorization of the transaction, rather than a single signature from one key. This is simple way of assuring that the execution of certain rules would be implemented on instant. Each state would be provided with the private key, and upon the completion of the voting, the smart contract automatically start execution.

The second question is the unilateral recognition. What if being the neighbor of Taliban and being concerned from backlash of the decision, some states need a collective decision? if in case of Taliban attack, have a collective protection as well.

Then more technical questions are regarding the 1933 Montevideo Convention on the rights and duties of states. According to the convention, the elements characterizing the state are the territory, population and the effective government. We surely have the cases where the effective government was clarified as the clear expression of the possession over the land, establishing the diplomatic relationships with other states and etc. Yet, how many exact relationships shall be established with how many states? How many are defined as significant? And the biggest question of *de facto* or *de jure*?

If the characteristics of the state recognition would be put into the smart contract, it would look as the following picture (this is a Prove-of-Concept version, not the actually code).

### State Recognition Smart Contract

```

1  pragma solidity >=0.7.0 <0.9.0;
2
3  contract International Law, State Recognition {
4      uint count;
5
6      event territory
7
8      event population
9
10     event effective government
11 }
12
13 function recognize public
14 }
15
16     uint256 number;
17
18     /**
19      * @dev Store value in variable
20      * @param num value to store
21      */
22     function store(uint256 num) public {
23         number = num;
24     }
25
26     /**
27      * @dev Return value
28      * @return value of 'number'
29      */
30     function retrieve() public view returns (uint256){
31         return number;
32     }
33

```

*(This smart contract is written by your humble server on the Ethereum chain.)*

As you can see from the picture above, the current smart contract can do as much as simply state the conditions for the requirements to be satisfied. In order for the smart contracts to be able to operate on the complex law base and its interpretation, we are suggesting a development of the smart contract law language, where the synchronic method would be adjusted upon the requirement. And through the development of the algorithm of the interpretation of the law, the smart contract would build its own parole. Using the same example that Saussure gave us with the chest, this proposal is to transform the international law from *Lingue* to *Parole* in some sort of way. Building the smart contract's own language, the parole, form the frequent *langue* of the states.

Perhaps this might sound shocking to the law community, the first question you might ask “How can the machine interpret? the second question might be “Are robots taking over?”. No, to both questions. Machines cannot interpret, but machines can learn. The pattern of logic between the specific conditions leading to the certain decisions could be learned, hence smart contract could develop the algorithm. No, robots are not taking over, but if we do not adopt to the current reality, international law might not have any position in the future. Blockchain is the perfect opportunity for the international law to acquire the most needed efficiency, enforceability, and solve the problem of the sovereign immunity trap.

## 8 Language Learning Algorithm

Certainly, there is only few people in the world that have not used or haven't heard about the ChatGPT. ChatGPT is very similar to what we are proposing here, and it would do a good job by visualizing the idea. Law has always taken its pride in being more complicated than just simple words could be. initially, the idea of law being written in advance language is for the others, who are not involved with law, is to not be able to understand it, let alone to interpret the law. The lawyers,<sup>19</sup> who were trusted to interpret the law, were not simply the ones that could interpret the provisions, but rather the ones that could interpret them from their approach, understanding, them rather carrying the message of law. This exactly proves the point of some skeptics, and not groundless, about letting the machines interpret the law. As interpretation itself is the unique function of human brain, which does not input the information through as glass, as machines do, but rather as the mirror, where the mirror is the human conscience. Hence, it is not the interpretation of any human is required in law, but rather the message of a law person, that is burned by responsibility, proud with values of law, and by interpreting the law, is giving the message to the world. Yet, we shall not underestimate the machines as well, considering there is one technique called bias tradeoff algorithm [27]. But first, we shall understand machine language learning techniques, and focus on the one that we would apply on this proposal.

As we have previously mentioned, ChatGPT is the visualizing example of what the language learning is, and what we will add to it so it will be adopted to law interpretation. ChatGPT is not, regardless of what OpenAi is trying to convince us and the investors, a working artificial intelligence, as there does not exist the machine capable of having an independent conscience. Yet, ChatGPT has a decent big data analysis, and even better marketing team. As any other language learning, ChatGPT is designed with the techniques as supervisory and reinforcing language learning [28]. There is another often used technique, unsupervised language learning, which is machine learning of human mimiques. ChatGPT has claimed that it is not using it as such would be an interesting turn of events. The supervisory technique is the one where the available

---

<sup>19</sup> By lawyer is meant not only a “lawyer”, but everyone involved with law, academia, practitioners, and etc.

data consists of labeled examples, meaning that each data point contains features and an associated label. The goal of supervised learning algorithms is learning a function that maps feature vectors (inputs) to labels (output), based on example input–output pairs. A supervised learning algorithm analyzes the training data and produces an inferred function, which can be used for mapping new examples. In ChatGPT case, the model of supervised learning was provided with conversations in which the trainers played both sides: the user and the AI assistant. Reinforcement learning differs from supervised learning in not needing labelled input/output pairs to be presented, and in not needing sub-optimal actions to be explicitly corrected. Instead, the focus is on finding a balance between exploration (of uncharted territory) and exploitation (of current knowledge). These two algorithms combined, would look as such:

The algorithm for Supervised learning:

Given a set of  $N$  training examples of the form  $\{(x_1, y_1), \dots, (x_N, y_N)\}$   $x_i$  is the feature vector of the  $i$ -th example and  $y_i$  is its label (i.e., class), a learning algorithm seeks a function  $g$ :

$X \rightarrow Y$ , where  $X$  is the input space and  $Y$  is the output space.

Then, the Reinforcement learning:

a set of environment and agent states,  $S$ ; a set of actions,  $A$ , of the agent;

$P_a(s, s') = \Pr(s_{t+1} = s' \mid s_t = s, a_t = a)$  is the probability of transition (at time  $t$ ) from state

$s$  to state  $s'$  under action  $a$ .  $R_a(s, s')$  is the immediate reward after transition from  $s$  to  $s'$  with action  $a$ .

These are the standard equations for the supervisory and reinforcement learning language, yet the important part is to allocate the logic behind the machine learning and the logic of the law that we have emphasized enough are not just words and actions, but rather the words that are said from lawyer, caring the values and the integrity of law. Hence, similar to any machine learning, what we are proposing is the continuous leaning of the machine from lawyers. Additionally, as we have discussed in the part of semiotics, the signifier and the signified being linked together, not by the historical factor, but by the constantly renewal. Yet, such concept of the law as the justice, right, life, freedom, the protection of the property, and the happiness being the ultimate goal of the humans shall be learned by the machine on the bias base, without any compromises. And such would be assured by applying the bias tradeoff from the supervisory language learning.

## 9 The Final Formula

The logic works in a way if there are available several different, but equally good, training data sets. A learning algorithm is biased for a particular input  $x$  if, when trained on each of these data sets, it is systematically incorrect when predicting the correct output for  $x$ . A learning algorithm has high variance for a particular input



x if it predicts different output values when trained on different training sets. The prediction error of a learned classifier is related to the sum of the bias and the variance of the learning algorithm. A learning algorithm with low bias must be "flexible" so that it can fit the data well. But if the learning algorithm is too flexible, it will fit each training data set differently, and hence have high variance. A key aspect of many supervised learning methods is that they are able to adjust this tradeoff between bias and variance by providing a bias/variance parameter. The parameters in our case would be adjusted for instance such as justice, freedom, life and etc. being always the prevailing.

As a result, we would have the algorithm similar to this:

1. Supervisory:

$$\{(x_{1(\text{bias})}, y_1), \dots, (x_{N(\text{bias})}, y_N)\} x_{(\text{bias})i}$$

$$X \rightarrow Y$$

2. Reinforcement:

$$Pa(s, s') = \Pr(st + 1 = s' / st = s, at = a)$$

$$R_a(s, s')$$

## 10 Possible Future Obstacles

Transferring the whole international relationships into the smart contract perhaps would cost high development fees, and the operational fees. Since blockchain is run on the chains as Ethereum, Solana, BSC and etc., which require the gas fee for the maintenance, and considering the fact that the development of the complex smart contract, the maintenance fee could be a future issue. However, blockchain is diversifying its mainnet options, such mainnets as Polychain, Conflux and etc. providing the gas fee-free bases, yet they might not be as well-known as Ethereum. United Nations as well can develop its own mainnet, transferring all of the operations into the blockchain, and maintaining its independent chain. Regardless what would be the decision, technical questions are not big obstacles, could be simply resolved through consulting.

The actual issue might be the convincing law community to transfer the documentation into the blockchain. This will require not only the change on how the law is drafted, but more importantly, fundamentally change the base of drafting. High possible that some might criticize it for being apologetic, the interpretation of the law being left for the states to decide might bring some concerns. Yet, the international community does not consist only of "one party state", as long as there is a political confrontation, which always exists, there is always logic and reason that dictates, hence in order to balance the relationship the justice would prevail. However, if this concern would further develop to the level of actual affecting the order, the smart contract can be modulated to the new conditions.

## References

1. Martti, Koskenniemi. 2005. *From Apology to Utopia The Structure of International Legal Argument*. Cambridge: Cambridge University Press.
2. Immanuel, Kant. 1795. *Perpetual Peace: A Philosophical Sketch*, Königsberg: F. Nicolovius.
3. Wolfgang, Friedmann. 1964. *The Changing Structure of International Law*. New York: Columbia University Press.
4. White House. JULY 28, 2021. "FACT SHEET: Biden-Harris Administration Issues Proposed Buy American Rule, Advancing the President's Commitment to Ensuring the Future of America is Made in America by All of America's Workers", Washington: White House.
5. 白果."Yicai," 24 August 2020. [Online]. <https://www.yicai.com/news/100746243.html>.
6. Martti, Koskenniemi. 1997. "Lauterpacht: The Victorian Tradition in International Law" vol. 8. *European Journal of International Law*. <http://www.ejil.org/pdfs/8/2/1428.pdf>
7. Satoshi, Nakamoto. 2008. "Bitcoin: A Peer-to-Peer Electronic Cash System," [Online]. <https://bitcoin.org/bitcoin.pdf>.
8. Friedrich, Nietzsche. 1882. *The Gay Science: With a Prelude in Rhymes and an Appendix of Songs*. New York: Vintage Books.
9. Plato. 1981. *Laws*. Cambridge: Harvard University Press.
10. Aristotle. 1905. *Politics*. Oxford: Clarendon Press.
11. David, Hume. 2007. *An Enquiry Concerning Human Understanding*. Oxford: Oxford University Press.
12. Immanuel, Kant. 2003. *Critique of Pure Reason*. Penguin Classics.
13. Georg, Wilhelm, and Hegel Friedrich. 1979. *Phenomenology of Spirit*. Oxford: Oxford University Press.
14. Friedrich, Nietzsche. 1974. *The Gay Science: With a Prelude in Rhymes and an Appendix of Songs*. New York: Vintage Books.
15. Karl, Marx. 1844. *Economic and philosophic manuscripts of 1844*. Dover Publications.
16. Ludwig, Wittgenstein. 1998. *Tractatus Logico-Philosophicus*. Dover Publications.
17. Rene, Descartes. 2008. *Meditations on First Philosophy*. Oxford University Press.
18. Martin, Heidegger. 2008. *Being and Time*. Chicago: HarperCollins.
19. John Stewart, Mill. 2002. *On Liberty*. Mineola, New York: Dover Publications.
20. Plato. 1943. *The Republic*. New York: Books Inc.
21. John, Locke. 1980. *Second Treatise of Government*. Hackett Publishing.
22. Franz, Kafka. 2004. *The Metamorphosis*. New York: Bantam Dell.
23. Walter Herbert, Sokel. 1964. "Die Erziehung zur Tragik," in *Franz Kafka: Tragik und Ironie*. Munich: Albert Langen George Müller.
24. Ferdinand de, Saussure. 1916. *Course in General Linguistics*.
25. Martin, Heidegger. 1975. *Poetry, Language, Thought*. New York: Perennial Library.
26. Jacques, Lacan. 1964. *The Seminar. Book XI. The Four Fundamental Concepts of Psychoanalysis*.
27. Stuart, Geman. 1992. "Neurl Networks and the Bias/Variance Dilemma" *Massachusetts Institute of Technology*. <https://doi.org/10.1162/neco.1992.4.1.1>
28. Samuel, Greengard. 2023. "ChatGPT: Understanding the ChatGPT AI Chatbot," <https://web.archive.org/web/20230119175109/https://www.eweek.com/big-data-and-analytics/chatgpt/> from the original on January 19, 2023. Retrieved January 11, 2023.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Springer Nature or its licensor (e.g. a society or other partner) holds exclusive rights to this article under a publishing agreement with the author(s) or other rightsholder(s); author self-archiving of the accepted manuscript version of this article is solely governed by the terms of such publishing agreement and applicable law.