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A FORMAL APPROACH TO NATURAL LAW

The idea of the paper is to use a symbolism taken from logic to explicate some notions of civil law, such as: subjective right, relative right, right, liability, obligation and claim. By having a formal explication of the above notions we will be able to find some logical consequences of these notions. In particular, we should be able to establish relations between the explicated notions. Legal statements that are logical consequences of generally accepted legal notions truly deserve the name of "natural law": if we accept the notions, logic itself will force us to accept the statements.

Two Meanings of the Expression "Legal Rationality"

When using the expression "legal rationality" we usually have in mind either (1) some attributes of lawyers ("rational lawyer") or (2) some attributes of law itself ("rational law").

Rational Lawyer

To explain legal rationality as the rationality of lawyers it is necessary to define the expected rules of behaviour of rational lawyers (i.e., to define what the expression "rational behaviour" means in relation to lawyers). Generally speaking, we can define rational behaviour in the following way: a behaviour is rational if and only if:
(a) it is based on a certain schema of action (an "algorithm"),
(b) it is efficient (in some sense[1]),
(c) it leads us to a good in a moral sense.

[1] There are several notions of efficiency. They are defined in praxiology, rational choice theory, expected utility theory, game theory, etc.

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Assuming the above general idea of rational behaviour to be true, we need to have an accepted (rational) hierarchy of values to be able to determine if a behaviour is rational or not. So, a choice of hierarchy of values determines a set of rational behaviours. Let us set forth an example related to lawyers[2]. There is a conflict of legal formalism and legal activism in the theory of law. According to legal formalism, legal norms applied by lawyers should be strictly connected to legal texts[3]. This means that a judge should be no more than a "logical device" for inferring norms that are coded by a lawmaker in legal texts (for example: coded by parliament in a bill). On the contrary, according to legal activism, lawyers should avoid blind subordination to legal texts: if a norm inferred from a legal text is "unjust", then a lawyer should (is supposed to) ignore it. The above opposite conceptions of rational behaviour of lawyers are based on different hierarchies of values. If we accept that the predictability of law is more important than the justice of the law, then we make a choice in favour of legal formalism. Otherwise – we make a choice in favour of legal activism.

The Is-Ought Problem

However, since Hume we have become aware that it is impossible to infer any statement about values from any statement about facts (Hume's "is-ought problem"). Today, we say that factual statements and deontic statements are logically separated[4]. Therefore, it is impossible to justify any hierarchy of values by methods of the so called "positive sciences". Respectively, it is difficult (if at all possible) to find a universal (absolute) hierarchy of values.

But if so, then we are not able to make a rational choice between legal formalism and legal activism. In other words, we are not able to determine by reason who is rational: a judge that subordinates himself to unjust norms coded in legal texts, or a judge that ignores such unjust norms. Therefore, the rationality of lawyers can be understood merely in terms of the so called

[2] The paper is connected with continental (especially Polish) tradition in theory of law. Nevertheless, methods and ideas presented in the paper apply to common law as well.

[3] Legal norms are rules of behaviour prescribed by the authorities. Legal texts are sets of inscriptions from which legal norms can be inferred. A text to be a legal text must be accepted in due course by a legitimate authority of the state.

[4] See: Jan Woleński, *Uogólniona teza Hume'a*, in: I. Bogucka, Z. Tobor (editors) "Prawo a wartości. Księga jubileuszowa Profesora Józefa Nowackiego" Zakamycze Kraków 2003, p. 293–303.

"instrumental rationality" ("hypothetical rationality"): any action taken by a lawyer can be classified as rational or not rational only from a viewpoint of a certain accepted hierarchy of values. Therefore, we cannot say "behavior x is rational"; all we can say is: "if our aim is y, then behavior x is rational".

Rational Law

To explain legal rationality as the rationality of law it is necessary to say what the attributes of a rational system of legal norms are. We can indicate some formal attributes such as consistency or completeness, but the question remains: can we indicate any material attributes? In other words: can we indicate any universal (absolute) legal norms? Or: is there a natural law?

At first sight the answer to the above questions is "no". The thesis that factual statements and deontic statements are logically separated still holds. So, if it is impossible to justify any hierarchy of values by using the methods supplied by the positive sciences, then it is probably also impossible to indicate any universal (absolute) norms[5].

So, it is difficult (if possible) to set forth any material attributes of a rational system of law without a prior acceptance of a hierarchy of values.

There is a way however. A way that enables us to set forth some material attributes of a rational system of law that avoids simultaneously all the possible discussions about which system of values is better.

The Way

The way consists in:

(a) obtaining a symbolic explication of certain legal notions and
(b) having such an explication – inferring logical consequences of these notions.

The notions that shall be examined are those which belong to civil law, evident since the Roman Empire. Such notions are present in our language. They are a part of our language. Therefore we need not accept any system of values to accept such notions: we learnt these notions when we were learning the language we use. We can say that the system of values connected with these notions is an intrinsic part of our language.

[5] Deontic statements are not norms but are closely related to norms. "John is obliged to close the window" is a deontic statement. "John, close the window, please!" is a norm.

Obviously, the logical consequences of these notions constitute a set of sentences that are analytical in relation to these notions (analytical statements)[6]. So, since the notions in question (and the system of values connected with them) are a part of our language, the logical consequences in question constitute a set of analytical statements from the viewpoint of our language. Since these notions are legal in nature and the related statements are about legal relations, the logical consequences in question constitute a set of analytical statements related to the matter of law. It is quite in accordance with common intuition to name such a set "natural law".

Some Notions of Civil Law

Some of the most general (and also/therefore most important) notions of civil law are the following notions:

(a) subjective right,
(b) relative right,
(c) right,
(d) liability,
(e) obligation,
(f) claim[7].

The above notions arose in Roman civil law or from the inspiration derived from Roman civil law. In the Polish Civil Code of 1964 (the code still remains in force) they are not defined[8]. Nevertheless, the correct understanding of the notions in question has a key role in understanding regulations of civil law: any person that interprets a regulation of civil law has to take into account not only the regulation itself, but also the notions in question. It is necessary for finding a rule of behaviour prescribed by the regulation, i.e., for finding a legal norm.

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[6] A statement is analytical if and only if the issue of whether it is true or false can be determined exclusively by analyzing the meaning of words that constitute the statement.

[7] There are no exact English equivalents of the Polish legal terms "prawo podmiotowe" (subjective right) and "wierzytelność" (relative right). I have proposed the above translation having in mind the meanings of the terms: a subjective right is a right attributed to a subject of law (e.g., to a physical person) and is valid in relation to all other subjects of law; on the contrary – a relative right is valid only between parts of a legal relation (e.g., a legal relation that occurred as a consequence of a contract or a tort).

[8] With the exception of the notion of liability that is defined in article 353. There are also some consequences of the notions in the code.

On the other hand, it can be observed that the notions in question do not have a clear meaning for many lawyers[9]. It is a consequence of their abstract character. For example, what is the difference between the meanings of "right" and "claim" in the sentences: "I have a right" and "I have a claim"?

Some Definitions

Let us look at some definitions:

(a) a definition of liability given in article 353 of the Polish Civil Code of 1964:

> Liability consists in that a creditor may demand from a debtor to fulfil the debtor's debt and the debtor ought to fulfil the debt.

(b) definitions and relations given by the theory of civil law[10]:

(i) Subjective right – a sphere of the ability to act in a way defined by a legal norm (i.e., to act according to the matter/essence of subjective right) that is granted by the norm to a subject of legal relation.

(ii) A subjective right brings rights. The rights are correlated to liabilities of uncertain (undefined) subjects or liabilities of certain (defined) subjects. If a right is correlated to a liability of a certain (defined) subject, the right is a claim.

(iii) A claim consists in an ability to demand from a certain (defined) subject to behave in a certain (defined) way (to act, to give up, to bear).

(iv) Relative right – a sphere of the ability to act in a way defined by a legal norm in relation to a defined (other) party of legal relation.

Symbolism

Let us construct a theory based on the first order predicate logic.

To the axioms of the first order predicate logic we add some new axioms that are supposed to be explanations of the legal notions in question. We

[9] The author of the present paper has made several observations of this kind.

[10] Reconstructions based on "System prawa cywilnego" (in Polish: "The System of Civil Law") – a system of fundamental inquiries concerning Polish civil law, prepared when the Polish Civil Code was issued.

presume that the additional axioms define the meanings of the notions in question as they are in Roman law. We also admit that it is a partial explanation: i.e., that the explanation indicates only a number, but not all of the relations between the notions.

For every subjective right, relative right, right, liability or claim we should have a separate axiom (axioms). But all axioms that define subjective rights are of the same schema (schemas). Respectively, all axioms that define relative rights are of the same schema (schemas), all axioms that define claims are of the same schema (schemas), *et cetera*. Therefore, we will analyze schemas of axioms.

Subjective Right versus Right

According to the definitions stated above, a subjective right is a sphere of the ability to act in a way which is defined by a legal norm that is granted by the norm to a subject of a legal relation. We also have that a subjective right brings rights. We can express the above in the following way:

$$\forall x\{SR(x) \equiv \forall y[R_1(x,y) \wedge R_2(x,y) \wedge \ldots \wedge R_n(x,y)]\}$$

where:

the domain is the set of subjects of law,
SR stands for a subjective right,
$R_1, R_2, \ldots, R_n$ stand for rights.

Right versus Claim

According to the definitions stated above, a subjective right brings rights. The rights are correlated to liabilities of uncertain (undefined) subjects or liabilities of certain (defined) subjects. If a right is correlated to a liability of a certain (defined) subject, the right is a claim. We can express the above in the following way:

$$\forall x \forall y\{R_i(x,y) \equiv [S_i(y) \rightarrow C_i(x,y)]\}$$

where:

S_i stands for the status of y (we read the expression $S_i(y)$ as "y is a subject in the situation S_i (y is a defined subject"),
C_i stands for a claim.

Claim versus Actions of a Creditor and a Debtor

According to the definitions stated above, a claim consists in the ability to demand from a certain (defined) subject to behave in a certain (defined) way. We can express the above in the following way:

$$\forall x \forall y \{C_i(x, y) \equiv [D_i(x) \rightarrow B_i(y)]\}$$

where:

D_i stands for the status of x (we read the expression $D_i(x)$ as "x demands a behaviour"),

B_i stands for the status of y (we read the expression $B_i(y)$ as "y ought to behave").

Liability versus Obligation

According to the definitions stated above, a liability consists in that a creditor may demand from a debtor to fulfil the debtor's debt and the debtor ought to fulfil the debt. We can express the above in the following way:

$$\forall x \forall y \{L_i(y, x) \equiv [S_i(y) \rightarrow O_i(y, x)]\}$$

$$\forall x \forall y \{O_i(y, x) \equiv [D_i(x) \rightarrow B_i(y)]\}$$

where:

L_i stands for a liability,

O_i stands for an obligation.

Therefore a debtor is obliged to fulfil a debt if and only if a creditor has demanded to fulfil the debt.

Some Consequences

The following relations can also be established.

$$\forall x \forall y \{C_i(x, y) \equiv O_i(y, x)\}$$

(Every claim is correlated to an obligation.)

$$\forall x \forall y \{R_i(x, y) \equiv L_i(y, x)\}$$

(Every right is correlated to a liability.)

$$\exists x\ SR(x) \rightarrow \exists x \forall y\ R_i(x,y)$$

(Every subjective right brings rights.)

$$\neg \forall x \forall y \{R_i(x,y) \rightarrow C_i(x,y)]\}$$

(Some rights do not bring claims.)

Subjective Liability

So, we found that the term "right" forms a pair with the term "liability" and the term "claim" pairs with the term "obligation". However, there is no term that forms a pair with the term "subjective right". Do we have a notion that pairs with the notion of subjective right? We should imagine such a notion (which we can call "subjective liability") in the following way:

$$\forall y \{SL(y) \equiv \forall x [L_1(y,x) \wedge L_2(y,x) \wedge \ldots \wedge L_n(y,x)]\}$$

where:

SL stands for subjective liability.

Such a notion can be found in the Polish Civil Code of 1964 – namely in article 919:

> *Who publicly declared a prize for an action is obliged to fulfil the declaration.*

So, there is no such term as "subjective liability" in legal language. However, using formal tools, we came to the idea of a relevant notion. And after that we found such a notion in a legal text. It shows that a formal approach can enlarge the theoretical apparatus of the theory of law.

Relative Right

Relative rights constitute a kind of subjective rights. Namely, a subjective right is a relative right if and only if it constitutes a sphere of ability to act in a way defined by a legal norm in relation to a defined (other) party of a legal relation. We can express the above in the following way:

$$\begin{aligned} \forall x \{RR(x) \equiv \forall y [R_1(x,y) \wedge R_2(x,y) \wedge \ldots \wedge R_n(x,y)] \wedge \\ \wedge \exists y [S_1(y) \wedge S_i(y) \wedge \ldots \wedge S_n(y)]\} \end{aligned}$$

where:

RR – stands for relative right.

And we can infer some consequences:

$$\forall x\{R_i(x,b) \equiv C_i(x,b)]\}$$

(Rights derived from any relative right are claims.)

$$\forall x\{RR(x) \rightarrow \exists y[C_1(x,y) \wedge C_2(x,y) \wedge \ldots \wedge C_n(x,y)]\}$$

(Relative rights bring claims.)

$$\forall x\{L_i(b,x) \equiv O_i(b,x)\}$$

(Liabilities corresponding to relative rights are obligations.)

$$L_i(b,a) \equiv C_i(a,b)$$

(Any debtor's liability corresponds to a claim of a creditor.)

$$L_i(b,a) \equiv [D_i(a) \rightarrow B_i(b)]$$

(A liability consists in that a creditor may demand from a debtor to fulfil the debtor's debt and the debtor ought to fulfil the debt – i.e., the norm expressed in article 353 of the Polish Civil Code of 1964)

Beyond First Order Logic?

The aim of the paper is to examine whether a logical symbolism can be effectively used in the theory of law for explication of legal notions. In previous paragraphs we were concerned with means taken from first order logic and some basic notions of civil law: subjective right, relative right, right, liability, obligation and claim. However more results can be obtained if we enrich our formal apparatus with some means of the second order logic and temporal logic. Then we are able to explain, e.g., how we should understand a Roman definition of ownership as *ius possidendi, disponendi, utendi – fruendi et abutendi*[11]:

$$\forall x\{OS(x,a) \equiv \forall R[A(R,a) \rightarrow \forall y\ R(x,y)]\}$$

where:

a is a constant denoting a property,
OS stands for ownership,
A stands for a kind of connection between R and a (we read "R is a right relevant to a").

[11] "Ownership is a right to possess, to dispose of, to use and to abuse."

Or, how we should define the transition of a subjective right[12]:

$$TR(x, y, SR, t_k) \equiv \{SR(x, t_{k-1}) \wedge SR(y, t_{k+1})\}$$

where:

TR stands for transition,

t_k, t_{k-1}, t_{k+1} stand for moments of time,

having as an important consequence of the above:

$$\neg SR(x, t_{k-1}) \rightarrow \neg TR(x, y, SR, t_k)$$

that constitutes a Roman rule: *Nemo plus iuris in alium transferre potest quam ipse habet*[13].

Having temporal notions of right and claim we can express a legal rule that any claim will expire whereas no right can expire:

$$\forall x \forall y\{R_i(x, y) \equiv \forall t[S_i(y, t) \rightarrow C_i(x, y, t)]\}$$
$$\forall x \forall y\{C_i(x, y, t) \equiv [D_i(x, t) \rightarrow B_i(y, t)]\}$$
$$\forall y \forall t\{S_i(y, t) \rightarrow \exists t_j < t\ [\neg S_i(y, t_j)] \wedge \exists t_k > t\ [\neg S_i(y, t_k)]\}$$

Natural Law?

So, we have outlined some explications of legal notions by means of logic. As a result, several legal relations were established as logical consequences of the explications:

(a) Any claim corresponds to an obligation,
(b) Any right corresponds to a liability,
(c) Subjective rights bring rights,
(d) Some rights do not bring claims,
(e) Rights derived from any relative right are claims,
(f) Liabilities corresponding to relative rights are obligations,
(g) Any debtor's liability corresponds to a claim of a creditor,
(h) A liability consists in that a creditor may demand from a debtor to fulfil the debtor's debt and the debtor ought to fulfil the debt,
(i) Any relative right brings claims,
(j) Ownership is a right to possess, to dispose of, to use and to abuse (i.e., contains all rights connected to a property),

[12] However, for this purpose we need a temporal explication of subjective right: $\forall x \forall t\{SR(x, t) \equiv \forall y[R_1(x, y, t) \wedge R_2(x, y, t) \wedge \ldots \wedge \forall R_n(x, y, t)]\}$ where t is a variable for time moments.

[13] "No one can transfer more than she/he has."

(k) *Nemo plus iuris in alium transferre potest quam ipse habet*,
(l) Any claim will expire, whereas no right can expire.

As stated at the beginning of the paper, the logical consequences in question constitute a set of analytical statements related to the matter of law. It is quite in accordance with common intuition to name such a set "natural law".

Conclusions

There are two conclusions from the above examination.

Firstly and fundamentally, it is possible to indicate material properties, which any rational system of law should possess, without choosing any hierarchy of values. As a consequence, it is possible to develop an objective theory of natural law which is not limited to formal considerations (as consistency or completeness of a system of norms or so on).

Secondly, logical formal tools are really useful for legal reasoning (at any rate – in the theory of law) and therefore such tools should be propagated among students of law. These tools, when used correctly, can significantly improve a student's understanding of fundamental legal notions.

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