What is Law?

from governance to government and back

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The complexity of the universe can only be defined in terms of the complexity of the perceptual apparatus.
The simpler the perceptual apparatus the simpler the universe.
The most complex perceptual apparatus has to conclude that it is alone in its universe.

Abstract In this paper a (synthetic) empirical approach to studying law is advocated, particularly in projects at the level of abstraction suggested by a title like "What is Law?". Theoretical abstractions like "law", "governance", "social contract", "freedom", "the constitutional state", "justice", "morals", "conscience", "legal decision making" etc. should not be the starting point of such research. Instead, if necessary, these abstractions should emerge from a bottom up empirical approach which starts with the observation of the most concrete data possible in the domain of interest. Abstraction without extension, inadequate validation and normativity are three flaws of jurisprudence that can be avoided by this. To illustrate the viability of this approach, starting with the emergence of elementary particles 15 billion years ago, the evolution of data, data exchange, material rules, natural values, informal and formal norms and eventually legal rules is described. Governance turns out to be an emergent abstraction that precedes and succeeds law and government. These abstractions were actually used in earlier research to design a model of legal knowledge and legal decision making which was successfully used to build and validate legal knowledge based systems. Interestingly enough, as a consequence of this, these systems exhibited rather human characteristics, like subjectivity, nuance, indecisiveness, etc.

1. Three flaws of jurisprudence

The heading of this chapter can be considered empty and the question it beholds void if approached in the traditional way. The conventional approach of abstract questions like *what is law*, be it theoretical, empirical or analytical, does not start with a search for its subject but with the assumption that a certain abstractly denoted phenomenon can be considered to be law[1]. Addressing this question through its derivatives "what is the origin of the law" or "what is the source of the law" or even "what are law's proceedings" is inadequate for the same reason. The quest for the meaning of law should start by observing the evolution of human psychology and social behavior setting the law's pickets in the course of its exploration[2]. What good is it for example to equal natural law

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[1] Of course most legal theoretical research is not aimed at answering broad questions like *what is law* and therefore exempted from this criticism

[2] This is not a recent insight: for example Hobbes starts his Leviathan with the word "nature" and not with words like "law", "governance" or "sovereignty"

and law if the underlying nature cannot be or is not actually observed and its characteristics are actually postulated or, even worse, accepted as axiomatic. And what good is it for example to equal positive law and law if a part of positive law is not applicable or cannot be enforced? Of course there are all kinds of other approaches from legal realism to normative jurisprudence. The only thing such approaches do is adding more restrictions. If law is what lawyers do, what do non lawyers do when they are involved in *the* legal system or actually in the hybrid legal-normative system? If law is what its purpose requires, be it a moral or practical purpose, how did we arrive at/decide on the subject of this purpose to begin with?

The tendency within jurisprudence to answer the abstract question what is law by taking a preconception of law as starting point can be called the flaw of abstraction without extension[3], i.e. founding a claim of existence on a general concept, the abstraction, without defining its extension. This would be of no concern if the claims of jurisprudence would be restricted to purely formal conclusions about the abstraction without any reference to real life phenomena or to the limited real life phenomena the abstraction was originally derived from (e.g. a specific case, the behavior of a specific group of lawyers, part of positive law etc.). If these conditions are not met the flaw of abstraction entails two other flaws, that of inadequate validation (poor verifiability or falsifiability) and that of normativity. If we take for example the natural passions of men as a starting point for research into the law, then we have a validation problem, for what are the natural passions of men, why are they natural, how can we measure them? The problem is simply that even the concept of passion is a high abstraction. Trying to operationalize such a high abstraction in a top down way only reinforces the flaw of abstraction. Consecutively defining the intension of the abstraction in other "less abstract" abstractions (lawyers call this process "interpretation") ultimately leads to a description which reveals the very limited concrete domain the original abstraction was referring to or reveals the illusion that the original abstraction referred to an actual state of affairs at all. If a human passion, for example love, is described in measured psychological or even neurological terms, i.e. a certain series of brain states (defined by a pattern of excitement and inhibition in a neural network or the neurotransmitter levels in certain synapses of certain areas in the brain) and this physical state could be reproduced experimentally, chances are big that an entirely different and probably less abstract experience is produced (probably just uninterpreted physical excitement). Therefore, it should be the other way around. The abstraction should emerge from the concrete description of the phenomenon it is supposed to refer to. If for example, a brain state can be brought about by physical stimulation and this consistently leads to an experience of euphoria and sexual arousal then we can label this brain state with the abstraction of love.

Finally the flaw of abstraction entails the flaw of normativity, i.e. the uncorroborated idea that an abstract definition is universally valid. The introduction of the abstract concept serves unnoticed as a prescription which apparently brings the subject of the abstraction into existence. If we call our instincts and acquired social norms "conscience" long enough and in a formal enough context, "conscience" apparently comes into existence and acquires more than a descriptive character. An example which is more familiar to lawyers is the theory stating that a separation of powers is a necessary prerequisite for the freedom of the citizens of a state, which is descriptive at its outset, but

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[3] In the rest of this paper shortly referred to as "the flaw of abstraction"

because of its abstraction degenerates easily into a prescription in which the separation of powers is part of the definition of a constitutional state and hence/consequently non constitutional states cannot provide freedom for their citizens. Of course, normativity is no problem if it is neatly separated from (legal) science. The knowledge science delivers can always be used as a part of a prescription.

The origin of the flaw of abstraction
To be able to describe and explain a phenomenon, like "governance" or "law", in all its details (all its constituting elements, relations and functions) the observer must at least be able to store all these details (be as complex as the observed). If the observer is less complex than the observed he needs to aggregate details to be able to store a full, but in this case abstracted, representation of the observed. This loss of detail poses no problem if the actual details are stored temporally and are aggregated before the details are deleted. The real problem is that in many cases with highly complex phenomena which can be referred to by high abstractions, our knowledge of the details is lacking, our storage space is too limited and our processing capacity is too restricted (for what is love?). This accounts for our natural tendency to fall for the flaw of abstraction without extension in these cases. This tendency is reinforced by our cognitive ability to construct and manipulate (sound and complete) formal systems on the basis of constrained (interpretation) models of reality instead of reality itself.

Circumventing the flaw of abstraction
There actually is a methodology (empirical, with emergent abstractions) which enables us to model phenomena bottom up. This avoids the flaw of abstraction and its associated flaws of inadequate validation and normativity to maximal extent by avoiding abstractions as much as possible by starting with the elementary characteristics of the research subject and by demanding that adopted aggregates are arrived at by applying the same method[4]. We can for example model information processing from a psychological perspective in terms of its primitive elements, attributes, relations and functions and see if at the level of perception (abstract) information processing emerges![5] We can also choose a biological perspective and describe a genotype and its genetic expression (the phenotype), calculate the correlation between the phenotype and certain (e.g. normative) behavior, observe the relation between certain (e.g. normative) behavior and reproduction and calculate its correlation and finally correlate reproduction with a certain frequency of genotypes (e.g. the emergence and dominance of certain characteristics of normative behavior). Using this approach law can be described and explained both in terms of concrete information processing and fit behavior. Of course other empirical perspectives can be added to complete the picture. The essence of this approach is to operationalize the research subject in a material/concrete way working bottom up from empirical data,

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[4] Actually in jurisprudence the burden of operationalization is commonly avoided by citing other "searchers for the meaning of law" pretending that citing actually adds to our understanding in stead of again narrowing our focus when referring to the abstractions of others. Invoking supposed authority can never be a serious substitute to empirical science.

[5] This is the idea behind the so called Turing test: an entity (e.g. a computing machine) can be considered intelligent if it cannot be distinguished from another entity which we consider intelligent without prove/on the basis of experience/perception (e.g. human beings)

through uncomplicated/elementary abstractions towards the high/aggregated abstraction whose explanation we are interested in[6]. This widens the methodological scope from descriptive (casuistic or anecdotic) and historical) or just formal/speculative (purely abstract and even normative) to explorative and even explanatory.

In the next sections this approach is illustrated (of course using many adopted aggregates from empirical science), by describing and explaining governance and law as emergent abstractions, starting with the genesis of elementary particles.

2. From elementary particles to governance and law

Elementary particles, structures, laws of nature
More than fifteen thousand million years ago the first elementary particles came into existence and directly interacted with each other under the influence of the fundamental forces of nature (gravity, electromagnetism and the strong and weak nuclear forces). With this, from the perspective of the potential observer (and therefore in fact much later in time), the first data and the first physical data exchange (relations between data) arose.

Apart from the development of more complex structures of elementary particles nothing exceptional happened. Albeit that these "compound data" later enabled physicists (being complex structures of elementary particles themselves) to study nature and to postulate the laws of nature, rules which describe the regular physical behavior of (compound) particles.

The material rule and natural values
More than three thousand million years ago the first unicellular organism interacted with its environment. It received a stimulus from its environment to which it was able to respond by changing its internal state and in some cases by changing its external state in reaction to that. By changing its external state it was able to emit a stimulus (signal) to its environment, partly existing of other unicellular organisms, which were also able to respond themselves. With this, again from the perspective of the potential observer, the first internal representation of external data in an organism (perception) and the first response to this representation (action or behavior in psychological terms) came into being[7]. At the same time communication originated as a (reflective) species of this new genus of responses. The signals received always had the same material and univocal/unambiguous effect on (meaning to) the recipient organism. The meaning of the signal was always determined by a fixed (built-in) or stimulus/data-induced (acquired) 'material rule' (the relation between signal, perception and action). A 'material' rule because it represents a physical relation and a 'rule' because it establishes a regular or general relation between a class of signals with certain characteristics, the perception of a member of this class and the ensuing/following action (the behavior). In natural language

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[6] Of course the use of language always necessitates the use of abstractions. Even the word "brick" is an abstraction referring to a class of objects with certain material characteristics. But nobody will deny that there is a closer relation between the word "brick" and a determinable material state of affairs than there is between the word "conscience" or the word "god" and a determinable material state of affairs. If you don't believe me I will visit you and bring a brick. I challenge you to bring your god.

[7] To make things more complex: a change of internal state as a reaction to a perception of an external or even internal signal is also an action.

this kind of relationship is described by universal propositions, i.e. a 'rule' in its linguistic manifestation. In absence of the ability of perception of the change of its own internal state, from the perspective of the organism, the meaning of the signal received, only existed of the actual perception and the meaning of the actual perception only existed of the produced action.

The ability to respond to external stimuli also allowed for simple forms of adaptation, directly to the environment or even through feed back (given the ability of an organism to perceive its own responses). Direct adaption or adaptation through feed back enabled the organism to maintain or achieve a certain internal state of affairs. Actions or behavior directed at maintaining or achieving certain internal states of affairs that enhance the individual reproductive survival probability of the organism can be denoted as natural values[8]. In more complex organisms with more complex neuronal systems these values are the impulses to behave in a way to maintain or achieve these internal states of affairs. Also in more complex organisms, part of these preferred states are the state of conformism that enables us to learn through imprinting and the state of reason that allows us to derive values from other values. Sometimes we flatter ourselves by calling these mechanisms "conscience" and its output (in action or principle) morality.

And apart from this, nothing exceptional happened, although the potential observer turned out to feel much more affinity for (complex) organisms than for non organic complex structures of elementary particles.

Informal and formal norms
More than forty million years ago the first organism became aware of itself, which means that it obtained the capacity to perceive its own perceptions and to react to them by observation of and reaction to the resulting internal states and the associated actions. It is important to realize that before that, the organism was able to perceive a stimulus it emitted itself and to react to it, but it was not able to associate this stimulus with itself as the origin and to distinguish itself as a source from its environment as a source. The ability of self observation also entailed the ability to observe the relation or interaction between the organism and its environment. So, the organism was now able to perceive its own perception (internal states) and actions (external states) and their relationship (the material rule!) and the communication with its environment (the relationship between its own actions and reactions of the environment, especially other organisms). With this, from the perspective of the potential observer (in this case the organism itself!), the organism became a part of its own environment and the potential observer became an actual observer! The material rule became an object of perception and as a consequence a distinct part of the internal state (an internal representation of data) and with that the potential subject of conscious application of other rules and of communication. As a consequence the nature of the material rule changed, it became an observable fact and with that the potential object of the application of other rules.

Self examination gave a meaning to perception, action and their relationship, which is called *information*. Information refers to the perspective or context bound character of the representation of data and with that is more abstract than the data sec.

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[8] In more complex organisms these natural values are called "needs". Needs are primarily physial but can be abstracted to safety needs, the need for care, appreciation etc. on a more aggregated level of consideration. Even "metaphysical" needs can ultimately be reduced to physical needs.

Actually this introduced the possibility of the flaw of abstraction. Of course this 'meaning' and the data it is attached, to form a new set of data themselves which includes the perspective or context, i.e. the identity of the data carrier. This combination of data and their context is commonly called an *interpretation*. This abstraction reveals the subjectivity of the representation and allows for a conscious comparison with other representations. Conscious comparison enables the organism to label perception, action and material rule as "my perception", "my material rule" and "my action", to communicate this and, by this, also to observe "his perception", "his material rule" and "his action".

The abstraction allowed by self examination enables the organism to observe and communicate the material rule (instead of just following it). More important, the conscious comparison of perceptions allows for a particular form of manipulation of these perceptions and their associated material rules and actions: the consideration of alternatives and arguing for or against them. Conscious comparison can not be equated to free decision making. The difference with free decision making is that the organism is potentially conscious of the process of alternatives perspectives competing to be preferred and consequently is able to describe the proceeding of its "decision making". In logic this kind of decision making is commonly called "regressive reasoning". Lawyers speak of "a posteriori legitimating". The organism can give a real reason for its behavior which is deceptively called "making a decision". Free decision making only appears if the alternatives are detached from their underlying values and become formal rules (see below).

The impulse to act in accordance with natural values combined with self awareness of the associated material rules enables the organism to expect certain behavior given a certain impulse in itself or in other observed organisms. This expectation is called an *informal norm*. Communication of an informal norm renders it into a *formal (expressed) norm*, which is commonly interpreted as an instruction. The acceptance of formal norms by other organisms is also subject of natural selection as these norms are strongly associated with their underlying informal norms and through them with the values they are ultimately based on. The establishment of common norms through shared natural values and the shared impulse to prefer the state in which they are fulfilled, constitutes a phenomenon that can be called *governance*: the setting and enforcement of shared norms.

Apart from this, nothing special happened, notwithstanding the fact that self examination would enable psychologists to do research into the observer of the observer, which would complicate matters considerably.

Formal rules

Forty thousand years ago, and maybe before but there are no archeological finds to corroborate this, humans began to record/store data on external media and to add explicit instructions for their interpretation, for example by reference to the labels of the formal norms, i.e. by naming of the norms and by reference to their supposed (divine, natural, rational, formal, human etc.) origin. Thus interacting through inanimate or formal means, i.e. substituting an animate source of the material rule and informal and formal norms by an inanimate source of a formal rule and by that acknowledging the material character of the source. Turning a formal norm into a formal rule detached the norm from the subject

and thus allowed for the formal manipulation of these rules in a process we call free decision making.

Apart from this nothing exceptional happened, although the possible coexistence of mental and "material" representations of norms entailed an epistemological debate which is still raging on, because it questions the (archaic) dualistic vision on mind and matter.

So what is law?

In a sense law comprises all the elements described above, because the material rules, the natural values, the informal and formal norms and ultimately the formal rules are its preceding manifestations and still are its main constituents. Apart from these insights into the origins, the elements, the structure and proceedings of law some general conclusions can be drawn. Law does not originate from universal values, nor from categorical utilitarian principles. It originates when at a certain point in time and space organisms share common natural values, are aware of the ensuing norms and are able to communicate these. This means that a myriad of manifestations of law can exist at the same time, and that is what we actually observe. These different manifestations of law differ in their formal substance but they are similar in structure and proceeding.

In another sense law is just the formal tip of the normative iceberg which foundation consists of material rules and natural values, sustaining informal norms and formal norms, translating into general formal rules. In this restricted sense law consists of the formal rules that are detached from/no longer directly related to their origins (the individual organisms and their individual values and informal norms) and can be discussed as an independent system of rules. This definition of law fits closely to the conception of law as being the formal product of processes of legislation, administration and jurisdiction but not including these processes themselves. The (political) deliberations and administrative manipulations of the processes of legislation, administration and jurisdiction are not law, but their product is. Thus, for example enforcement is not law, but the formal authority to enforce is.

Bringing the emergent definition of governance back to mind (the setting and enforcement of shared norms) this means that governance not only precedes law (as administered by government) but also outranges and succeeds it, particularly by additionally enclosing enforcement. This brings us, in the context of this workshop, from governance to government and back.

3. Conclusion

The preceding description provides for all the ingredients needed to explain the evolution of norm based behavior. Firstly, interaction is needed, in the form of action and reaction and a regular relationship between them describable by rules in the form of laws of nature. Secondly, a distinction between internal and external states of affairs is necessary to allow for the material rule, i.e. the relation between perception, representation (internal state) and action (resulting external state). The force of evolution selects organisms that are able to maintain or acquire internal and external states that allow them to procreate more effectively than other organisms. This is the foundation of values: the tendency to prefer certain internal and external states. Thirdly, self awareness is required to be able to distinguish different material rules of the organism itself and of other organisms, by

which the organism can be aware of alternatives, by which informal norms come into existence, meaning that the organism can anticipate its own behavior and that of others and even interpret this expectation as an instruction (formal norms). Communicating formal norms which are ultimately based on shared values combined with the shared impulse to realize the state which is preferred by these values brings governance into existence: the setting and enforcement of shared norms. Self awareness is also the basis (but not a sufficient condition) for decision making. Finally, the organism must develop the ability to express the material rules in external sources and to add instructions for their interpretation, in order for a formal rule to come into existence. The formal rule allows for actual decision making, because it is no longer the individual excitation and inhibition which decides what alternative material rule fires first but a formal proceeding in which all outcomes are attainable. It is a matter of convention (and therefore of the participants to the legal discourse) which part of these formal rules we call law. The interesting thing is that materialization of the formal norm as law allows us to study the law as a positive (material) phenomenon. We must however be aware that the study of one of the multitude of available and even constructible (because of the participation of the observer in his own domain of observation) conventional legal subsystems can be deceiving. On the one hand because the contents of the formal rules they comprise are not based on universal values. On the other hand because they share structures and proceedings which are not part of the law, but of the nature of their subjects.

The viability of this position has been proven by AI&Law research. The model based on the approach advocated in this paper allowed for the representation and processing of values (preferred states in the form of decision rules), informal norms (individual expectations about human behavior), formal norms (communicated instructions for human behavior) and formal rules (statutory law, a formal selection of formal norms).

The subject of the workshop this paper was prepared for is "Governance meets Law". The conclusions of the paper can have consequences for research into this subject. As has been concluded in the previous section governance is the setting and enforcing of rules of behavior. With that, governance precedes, outranges and succeeds law. So, abstract concepts that are dominant within particular fields of law, like "government" in public law are in fact subordinate to a more fundamental concept like governance. Consequently, research from a particular field of law should start with governance, then wander off to the subordinate concept and finally return to governance again.