

**RE-DESIGNING THE ROLE OF LAW
IN THE INFORMATION SOCIETY:
MEDIATING BETWEEN THE REAL AND THE VIRTUAL**

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I. THE AUTONOMY OF LAW: AN EPISTEMOLOGICAL PERSPECTIVE

The aim of my paper is to envisage how the role of law will be re-designed in relation to the evolution of information and communication technologies (ICT). The hypothesis proposed in this paper is that law will keep having an autonomous and central *epistemological* role in representing reality, namely, in providing a mediation which will enable us to bridge the physical and the virtual realms, the empirical convergence of which does not account by itself for the construction of a common epistemological ground.

This hypothesis is not intended to underestimate the change determined by the technological computer-based revolution, which tends to transform “the basic nature or the scope of the activity or institution”¹ to which technology applies. The transformation of reality resulting from technological developments is not only quantitative but also qualitative: the computer-based technological revolution not only widens the range of our own interrogations but it also changes the meaning of our questioning.² In more appropriate terms, this means that, even though transformation (which applies both to the world and to human beings)³ is a crucial key in order to understand the technological evolution, a qualitative analysis does not research, in the transformed phenomenon (object, activity, institution or human being), the explication of the transformation (the technical principle). Such explication is to be researched in the transformation of the inquiry through which this phenomenon is investigated and cognitively represented.

When reflecting upon a determined activity realised by means of a technological device, we first ask ourselves how efficiently the computer performs this activity. Once the technological application has become part

¹ J. MOOR, “What is computer ethics?”, in T. WARD BYNUM (ed.), *Computers & Ethics*, Malden Mass., Blackwell Publisher, 1985, pp. 266-275.

² In this perspective see M. DURANTE, *Il futuro del web: etica, diritto, decentramento. Dalla sussidiarietà digitale all'economia dell'informazione in rete*, Torino, Giappichelli Editore, 2007, pp. 28-29.

³ N. WIENER, *Cybernetics: or Control and Communication in the Animal and the Machine*, Cambridge (Mass.), MIT Press, 1948, and *The Human Use of Human Beings*, Anchor, Doubleday, 1954.

of the performance of such an activity, then we ask ourselves what are the nature and the value of this activity. This stratified inquiry governs how a phenomenon transformed by the technological evolution is progressively investigated and cognitively represented as being part of the technological reality. The evolution of technology not only plays a role in determining reality but also in shaping its representation and appraisal.

This is the reason why, when we reflect upon the consequences of the application of technology to the world of law, we end up wondering about the nature of law and the direction of its evolution of law, which is not only empirically but also conceptually absorbed within the ongoing technological revolution. This direction is necessarily connected with the direction of the technological revolution, which is mainly expressed by the ability to rapidly⁴ transform the world and determine, from an epistemological perspective, a specific reality made of both an analogical and a digital dimension. This line of evolution is focused upon a representation of the world as subject to continuous transformation: the world (which is the referent of the discourse about globalisation, *mondialisation*⁵) is considered more and more in its own possibility, in its virtual or possible states-of-the-world, rather than in its positive reality, namely, in its fixed or stable dimension. In more philosophical terms, it is the case of a (representation of the) world in which what is held as *stable* (what we can rely upon either to take a decision or to behave) is no longer determined nor explained by an ontology founded upon the positive existence of a material, real object, but by a different and new ontology, founded upon the non-contradictory content of an information that is concerned with the possible states-of-the-world. This ontology cannot be simply accounted for in terms of a digital ontology as opposed to an analogical ontology. Both of them are only epistemological descriptions of the world⁶, which cannot pretend to state what reality is (metaphysics) but only how reality can be experienced and conceptualised by an epistemic agent at a given level of abstraction (epistemology). In this line of research, it appears more promising, for instance, to envisage an *informational ontology*, according to which knowledge of the world is knowledge of its structures (intended as sets of data)⁷.

⁴ See on this point P. VIRILIO, *La vitesse de libération*, Paris, Galilée, 1995, and *Vitesse et politique*, Paris, Galilée, 1977. On this perspective see S. REDHEAD, *Paul Virilio: Theorist For An Accelerated Culture*, Toronto, University Press of Toronto, 2004.

⁵ J.-L. NANCY, *La création du monde ou la mondialisation*, Paris, Galilée, 2002.

⁶ A. LESNE, "The Discrete versus Continuous Controversy in Physics", in *Mathematical Structures in Computer Sciences*, 17 (02), pp. 185-223.

⁷ L. FLORIDI, "Against Digital Ontology", in <http://www.thephilosophyofinformation.com>.

II. LAW AS LEGAL SCIENCE: STABILIZATION OF EXPECTATIONS AND MEDIATION

Intended as legal science, law has always played a paramount role in the epistemological perspective, namely, in the representation of reality. Legal science has constructed the possibility to mediate between the real (*what is*) and the virtual (*what ought to be*) reality within the physical domain. The virtual reality of law (*what ought to be*) has never been only an infinite adjournment of the real world (*what is*) but it has always entailed a specific form of reality with its own language, consistency and categories (legal science). In addition to this, we should notice that law has not only served as a mediation between the virtual and the real world but it has also set the limits of representation of one term within the epistemological domain of the other, through the distinction between *de facto* (the phenomenon to be represented in legal terms) and *de iure* (the conditions of possibility of representation) questions.

However, this distinction belongs more to the epistemology of law than to a description of reality, that is to say that such a distinction accounts for a different and layered representation of how reality can be understood rather than for a description of how reality is: this does not mean that law produces its own reality (*constructivism*) but only the means to represent and understand it, precisely in the topological sense in which a map (that is both a mean and a piece of knowledge) represents a determined space, in order to reduce the complexity of such environment and allow people to orientate themselves within it (*ecological information*).

The evolution of law that stems from the technological computer-based revolution has, thus, to be considered primarily from a theoretical point of view, namely, from an epistemological perspective, rather than from a merely empirical one. As pointed out, we should never lose sight of the fact that law is not only concerned with the control of critical situations but is *epistematical* in itself, *i.e.* capable of producing a specific knowledge. Within the framework of the information society, where information is meant to entail an ordered series of possible states-of-the-world and therefore regularity, the evolution of law has to be thought of as the evolution of the science of what is *possible*, intended in a Kantian sense, as what possesses a *non-contradictory content* and it *conforms to the conditions of both intuition (de facto) and thought (de iure)*⁸.

⁸ See on this point, G. DICKER, *Kant's Theory of Knowledge. An Analytical Introduction*, Oxford/New York, Oxford University Press, 2004, p. 79: "For Kant, to say that something is possible is not to say only that it is logically possible or free of

Contradiction has always nourished law, which has also been conceived as the attempt to overcome contradiction. The possible contradiction between the functioning of the virtual and of the real world, *i.e.* the consistency of the digital and analogical reality, is likely to undermine or at least to menace the conditions of possibility of an ordered communication within the society of information. The question is not to oppose a disposition to change (technology) to a pretension to stability (law). On the contrary, it deals with the recognition of what can be taken for *stable* in what changes, in order to make the flow of information and communication ordered and effective. In other words, law is likely to be kept charged with the role of stabilisation of expectations, but we should wonder what it means now to stabilise expectations within the networked information society.

The role to be assigned to law cannot be limited in the networked society of information to the norm's predictive power, on the basis of which the norm is expected to foresee and measure human behaviours and to govern reality. How can law govern reality, when the latter is subject to continuous transformation? Law is not to be opposed to the technological evolution (both law and technology belong to, and thus stem from, the development of human culture) but is meant to progressively become part of the informational system. In our view, law will be (kept) charged with an essential role, namely, the role of *mediation* between the real and the virtual world.

III. THE CONCEPT AND ROLE OF MEDIATION

Mediation is the action of serving as intermediary between two terms: *i.e.* one term, from which the reasoning starts, and another term, to which the reasoning is leading, since the act of mediation is the condition for the representation of the second term within the epistemological realm of the first one.

The concept of mediation is based on a philosophical assumption, which is central to our analysis, namely that nothing is simply given as a stable, assured basis for something else. In epistemological terms, nothing is either immediately present in its conceptual meaning or is evident by itself in the thought process (neither the "real world" nor the "virtual reality").

contradiction: this is a necessary condition but not a sufficient one. Rather, to say that something is possible means that it conforms to the conditions of both intuition and thought; as Kant states it in the First Postulate: 'That which agrees with the formal conditions of experience, that is, with the conditions of intuition and of concepts, is *possible*'.

This was already affirmed as the fundamental principle of Kantian epistemology: intuitions without concepts are blind, concepts without intuitions are void.⁹ On the contrary, every phenomenon is to be represented and thought of by means of mediations. In this perspective, mediation is not conceived as a simple relation between two terms, since a relation compounds two already established terms. Mediation is intended as a dynamic process of thought (such as a legal reasoning) within which progressive connections represent and establish terms. Through the act of mediation, something (phenomena, terms or data) can be assumed as the stable basis for the representation and the comprehension of something else.

The concept of mediation denies abstract unrelatedness, and affirms the possibility of complex relatedness among phenomena. Therefore, mediation entails, from an epistemological perspective, a denial of a world (both real and virtual) of unrelated elements. On the contrary, it endows the world with the possibility of communication between the real and the virtual. A mediated world turns out to be more than the sum of static, empirical relations among agents of the real and the virtual world: it grows out of the communication process between epistemological stances and exists in the tension of their mutual becoming a *real* and a *virtual* world. In this perspective, the act of mediation is the condition of representation of the virtual reality within the epistemology of the real world and vice versa. This allows one term or entity of the real/virtual reality to be taken as the stable basis for the representation and comprehension of another term within the epistemology that describes how the real/virtual world can be experienced and conceptualised by an epistemic agent at a given level of abstraction.

For instance, while punishing the online theft of identity, made possible by the current informatics' technologies, we do not only judge a behaviour as being illegal, but we also endow the *virtual* identity with a *real* consistency, by delimiting to what conditions it is possible to rely upon the set of data concerning the online personal identity. In this perspective, as outlined

⁹ A significant interpretation of Kantian epistemology is offered by J. MCDOWELL, *Mind and World*, Harvard, Harvard University Press, 1996, p. 3: "The overall I am going to consider in these lectures is the way concepts mediate the relation between minds and the world. I shall focus the discussion in terms of a familiar philosophical outlook, which Donald Davidson has described as a dualism of scheme and content. That will get us quickly to Kant. One of my main aims is to suggest that Kant should still have a central place in our discussion of the way thought bears on reality". And p. 4: "So the picture is this: the fact that thoughts are not empty, the fact that thoughts have representational content, emerges out of an interplay of concepts and intuitions".

before, we end up qualifying, at least to some extent, *what is an online personal identity*, not only in strict, legal terms, but rather at the level of inter-subjective communication, *i.e.* of symmetrical and mutual reliance on information.

As a term can be represented and assumed as the stable basis for something else, this provides the epistemic agent with a predictive power. Such a predictive power shall be judged according to the interplay of the real and the virtual world within the information society. Since there is no prediction without representation, the conditions of possibility of representation set the structural limits of any predictive power. These conditions of possibility are to be considered within the epistemology of law, which assumes such conditions as the necessary presuppositions of the norm's predictive power.

The prediction set forth by the norm of positive law displays an informational content that enables us to stabilise our expectations. It allows us to behave in a free manner, namely, by foreseeing and measuring the predicted effects of our actions. This informational content appears to be, however, more and more static compared to the transformation of the world (this is an old argument renewed by the technological evolution) and to the flow of informational resources shared throughout the networks (this is a new argument determined by the information and communication technologies). The informational content of the norm is likely to rapidly become contradictory with the augmented reality of the infosphere, *i.e.* "the whole informational environment constituted by all informational entities (thus including informational agents as well), their properties, interactions process and mutual relations".¹⁰

In this perspective, law has to become part of the informational system; in contrast to a widespread opinion, this does not mean that law is either overcome or determined by technology. On the contrary, law keeps its own specificity, precisely thanks to its ability to mediate between the real and the virtual world. This act of mediation requires a translation of the *virtual* information displayed by technology, namely, the possibility opened and made available by the application of new ICT, into *real* information. The reality of information is no longer based upon the positive existence of a real, material object; actually, it is based upon the *non-contradictory* content of information, on which it is held reasonable to rely, in order to take a decision and behave.

¹⁰ L. FLORIDI, "A look into the future impact of ICT on our lives", <http://www.philosophyofinformation.net>, p. 3.

From this consideration a basic principle should be inferred and established as a firm premise of our line of reasoning: it is possible to set an ordered form of communication only on the basis of reliance upon relevant information,¹¹ shared at an inter-subjective level.¹² The inner rationality of the multi-agent system of the networked society of information is not to be found in a set of certainties (from which the legal order ought to be deduced) but in its attitude to cope both with the flood of information deriving from the upgrading of social networks and the structural *lack of knowledge*¹³ characterizing the asymmetry between environmental and systemic information.

IV. MEDIATING BETWEEN THE REAL AND THE VIRTUAL IN THE INFORMATION SOCIETY

According to our opinion, in the information society law will be thus mainly meant to play the role of mediation between the virtual and the real, namely, to ensure the conditions of reliance upon information in both directions: a) *from the virtual reality to the real world*: in this context, the concept of virtuality is endowed with a real content constituted by the idea of foreseeable consequences, whose importance and extension are progressively subject to the convergence of online and offline life. This delineates, according to many authors, the most relevant trend of the networked information society: “Nowadays, we are used to considering the space of information as something we log-in to and log-out from. Our view of the world (our metaphysics) is still modern or Newtonian: it is made of ‘dead’ cars, buildings, furniture, clothes, which are non-interactive,

¹¹ See T. MALDONADO, *Reale e virtuale*, Milano, Feltrinelli, 2007, p. 151: “Nessuno può ormai negare che la nostra percezione è satura di valori e disvalori, di giudizi e pregiudizi; sostenere però che essa non ci dica nulla di credibile sulla realtà mi sembra una conclusione abusiva. E il punto riguarda direttamente la questione del rapporto virtuale-reale. Perché, in ultima istanza, tutta la controversia sulla realtà del virtuale e sulla virtualità del reale è inseparabile dal problema dell’affidabilità (o meno) della nostra percezione del mondo reale”. See also T. BERNERS-LEE, *Weaving the Web. The Original Design and Ultimate Destiny of the World Wide Web by Its Inventor*, New York, Harper One, 1999.

¹² In this perspective see M. DURANTE, “What Model of Trust for Networked Cooperation? Online Social Trust in the Production of Common Goods (Knowledge Sharing)”, in T.W. BYNUM, M. CALZAROSSA, I. DE LOTTO, S. ROGERSON (ed.), “Living, Working and Learning Beyond Technology”, *Proceedings of the Tenth International Conference Ethicomp 2008*, Mantova, University Press, 2008, pp. 211-223.

¹³ See on this point U. PAGALLO, “Something Beyond Technology: Some Remarks On Ignorance And Its Role In Evolution”, in T.W. BYNUM, M. CALZAROSSA, I. DE LOTTO, S. ROGERSON (ed.), “Living, Working and Learning Beyond Technology”, *o.c.*, pp. 623-631.

irresponsive and incapable of communicating, learning, or memorizing. But what we still experience as the world offline is bound to become a fully interactive and responsive environment of wireless, pervasive, distributed, *aza* (anything to anything) information process, that works *aaa* (anywhere for anytime), in real time. This will first gently invite us to understand the world as something ‘alive’ (artificially live). Such *animation* of the world will, paradoxically, make our outlook closer to that of pre-technological cultures which interpreted all aspects of nature as inhabited by technological forces¹⁴ b) *from the real world to the virtual reality*: in this context, the concept of virtuality is endowed with a real content constituted by the idea of reliance on information. We have thus to shed light on this idea with regard to its pragmatic and gnoseological relevance. Reliance on information is a condition for a rational theory of decisions and actions. In order to decide or behave on the basis of rational criteria, I rely upon information: they are sensory data from reality (worldly ontology) or the content of knowledge (documental ontology) or instructions to behave (rules of conduct). According to Floridi, we can speak of information as reality; information on reality and information for reality.¹⁵ Deciding and acting on the basis of reliable information has (a) the pragmatic aim of rationally guiding our decisions or actions toward a determined goal (according to a degree of probability of success) and (b) the gnoseological aim of measuring our decisions and actions by reference with an assumed parameter given by available information. Providing decisions and actions with a set of information implies giving supplementary information to the system (in terms of positive or negative feedback): this information has both descriptive (the conditions of reliance) and normative content (the degree of coherence between information and the results of decisions or actions).¹⁶ The role of law as a mediation between the virtual and the real thus requires a more accurate analysis of the following conditions.

¹⁴ See L. FLORIDI, “A look into the future impact of ICT on our lives”, *o.c.*, p. 7.

¹⁵ The tripartite epistemological distinction of information can be found in L. FLORIDI, “Trends in the philosophy of information”, <http://www.philosophyofinformation.net>, p. 8. For an analysis of such a distinction and its relevance to law see U. PAGALLO, *Teoria giuridica della complessità. Dalla ‘polis primitiva’ di Socrate ai ‘mondi piccoli’ dell’informatica. Un approccio evolutivo*, Torino, Giappichelli, 2006, pp. 160-165.

¹⁶ See on this point M. DURANTE, “What Model of Trust for Networked Cooperation? Online Social Trust in the Production of Common Goods (Knowledge Sharing)”, in T.W. BYNUM, M. CALZAROSSA, I. DE LOTTO, S. ROGERSON (ed.), “Living, Working and Learning Beyond Technology”, *Proceedings of the Tenth International Conference Ethicomp 2008, o.c.*, p. 212.

1. *From the virtual reality to the real world*

Law displays its role of mediation from the virtual reality to the real world, by endowing the virtual reality with a real content that is able to be appraised in the physical domain. This happens by means of *terms of legal responsibility*: it is within the real world that I am responsible for (the effects of) actions displayed within the virtual reality. In other words, legal responsibility is meant to measure the friction that an action or operation performed through computers in the virtual reality generates out of the domain of its technological application.

The virtual reality is a representation (either by analogical or digital models) of reality through which some objects are substituted by some other 'objects'. In this perspective, the virtual reality is an autonomous reality since the new objects, which design a reality with an economy of means or with a novel arrangement of them, produce a new form of knowledge.¹⁷ The relation with the virtual reality is established by means of intuition (visual, acoustic perception of the new objects), conceptualisation (appraisal of the content of the new objects) or interaction (modification of the new objects by means of interactive technological devices). These types of relation are based on a specific epistemology, which does not explain what the virtual reality is but how it can be experienced and conceptualised by an epistemic agent at a given level of abstraction. This form of knowledge is necessarily and progressively elaborated on the basis of the sets of data (the new objects), which structure the *context* of the virtual reality: this context allows us to say that we behave and act *within* the virtual reality. In this perspective, how can we say whether and when the effects of an action performed within the virtual reality encounter the real world?

Coming back to the real world is only made possible out of the forms of relation with the representation of the (virtual) reality. Coming back to the real world requires translating the acquired knowledge within the epistemological realm where the effects of the actions displayed within the virtual reality are to be appraised and judged. One of the possible situations in which the effects of an action performed within the virtual reality encounters the real world is given by the factual circumstances where one is held responsible by someone else for those consequences within the real world. For one to be held responsible, it is required that the consequences of one's actions performed within the virtual reality were to some extent *foreseeable* within the epistemology describing how the real world can be experienced and conceptualised by an epistemic agent at a given level of abstraction. In such a perspective, law is entrenched with the

¹⁷ See C. CADOZ, *Les réalités virtuelles*, Paris, Flammarion, 1994, p. 93.

epistemic role of appraising in what terms the effects of an action performed in the virtual reality can be judged foreseeable and thus accountable in the real world. This requires the legal science to establish the conditions of the representation of one term within the epistemological realm of another one. The foreseeable effects of an action are to be appraised in *terms of legal responsibility*. This does not mean that legal categories immediately apply to the technological reality nor it means that the virtual reality regulates itself by means of technological devices. On the contrary, according to the aforementioned Moor's thesis, it means that, when technology concerns the question of prediction, law is entrenched with the epistemic role of explaining how the consequences of an action can be experienced and conceptualised, in legal terms, as *foreseeable effects* both in the virtual and in the real world.

Needless to say, in our opinion the role of mediation is mainly worked out by means of legal adjudication, which not only consists in hearing and settling a case by judicial procedure but also in stabilising epistemic expectations, which mediate between the virtual and the real world. This aspect of the role of mediation of law poses both a phenomenological and a hermeneutical problem.

From a phenomenological point of view, the progressive convergence of online and offline life displaces the concept of prediction, which is no longer entrenched exclusively with the aim of inferring a future behaviour from a past one, but is also more and more concerned with the attempt of appraising the cognitive limits of the agents' representation of reality and of their rational capacity of acting,¹⁸ which can enable us to correct our own predictions and to judge what can be held as a reasonable expectation.

¹⁸ See G. SARTOR, "Gli agenti software: nuovi soggetti del cyberdiritto", <http://www.cirsfid.unibo.it>, 2007, p. 81: "La conoscenza dei principi del funzionamento dell'agente e l'analisi del suo comportamento nel passato (l'agente può aver commesso errori) non offrono una base sufficiente per effettuare una previsione del suo comportamento futuro. Tale conoscenza può invece consentire di determinare i limiti delle capacità 'razionali' dell'agente, e quindi di individuare le ipotesi nelle quali l'agente può comportarsi in modo inadeguato. Combinando l'ipotesi della razionalità dell'agente con la conoscenza dei limiti di tale razionalità, siamo in condizione di prevedere e spiegare il comportamento dell'agente con sufficiente accuratezza. Non è diversa la strategia che adottiamo di regola nei confronti dei nostri simili: la nostra conoscenza dei limiti, delle idiosincrasie, delle attitudini di ciascuno non offre una base sufficiente per prevedere il comportamento altrui (tranne che nel caso di comportamenti dettati da riflessi automatici o da pulsioni incontrollabili). Tale conoscenza ci consente però di integrare e correggere l'ipotesi che ciascuno tenda a perseguire i propri scopi in modo razionale: possiamo spiegare e prevedere il comportamento umano combinando l'ipotesi generale della razionalità di ciascuno con la conoscenza dei limiti di tale razionalità nei singoli casi".

However, the progressive convergence of online and offline life does not displace the function of law, since there is still a difference between what is empirically held as a foreseeable effect and what is legitimately expected to be held, at an inter-subjective level, as a foreseeable effect.

From a hermeneutical point of view, the role of mediation of law by means of legal responsibility faces a different problem. In the ontology based on the physical reality the terms of legal responsibility are expected to be interpreted either within the context where the action took place or within the context where the action displayed its own effect (they often happen to be the same or at least to be both regulated by international law). What is the semantic context within which the actions or the effects of actions are to be legally interpreted within the networked society of information? The problem is not only concerned with legal boundaries (with the limits of both public and private international law) but also with symbolic universes: this is, in our opinion, the main problem that law has to face in its role of mediation between the real and the virtual, since data, phenomena, concepts, categories and the consequences of actions displayed within the virtual reality are likely to be culturally appraised in terms that refer to different symbolic universes.¹⁹ The activity of mediation, by means of which one term can be represented within the epistemological realm of another one, presupposes, as we said, the possibility of a complex relatedness among data, that is to say, a unified

¹⁹ See in this perspective S. MCROBB, Y. ORITO, K. MURATA, A. ADAMS, "Towards an Exploration of Cross-cultural Factors in Privacy Online", in T. WARD BYNUM, S. ROGERSON, K. MURATA (ed.), *Glocalisation: Bridging the Global Nature of Information and Communication Technology and the Local Nature of Human Beings*, vol. II, Global e-SCM Research Centre, Tokyo, Meiji University, 2007, pp. 380-385, at p. 381: "Most organizations and citizens in this domain share, due to their common linguistic and/or cultural heritage, assumptions that may not exist in non-Western cultures. Or, if they exist at all, they make take very different forms. By contrast, relatively little attention has yet been paid to the different meanings, values and behaviours associated with privacy in societies whose cultural compass points elsewhere than West". In the same perspective see also Y. ORITO - K. MURATA, "Rethinking the concept of information privacy: a Japanese perspective", in T. WARD BYNUM, S. ROGERSON, K. MURATA (ed.), *Glocalisation: Bridging the Global Nature of Information and Communication Technology and the Local Nature of Human Beings*, vol. II, *o.c.*, pp. 448-455, at p. 454: "Our proposal is made from a Japanese perspective. This may raise concerns about the effectiveness of the revised concept in the global context. However, because ICT is advancing on a global scale, the revised concept could become mandatory for a wide range of countries. Our proposal is the first step towards developing a globally acceptable concept of the right to information privacy that is appropriate for the modern information age. Societies could realise this concept through the integration of opinions about the right to such privacy based on local sociocultural and economic situations".

symbolic universe. In addition to this, we should notice that the development of the semantic web and formal ontology is an important but only partial answer to the problem, since this development mainly aims at coping with the interpretation of (legal) texts rather than with the present delimitation of (legal) contexts. While the information and communication technology (ICT) is advancing on a global scale, the role of mediation of law appears to be, often, linguistically and/or culturally located.

2. *From the real world to the virtual reality*

Law displays its role of mediation, furthermore, from the real world to the virtual reality, by giving a real content to the real world that can be appraised within the virtual reality, by means of *informational reliance*. It is within the virtual reality that I rely on informational data, in order to perform actions that are likely to produce (legal) effects within the real world. In other words, if the virtual dimension of information and communication technology (ICT) is to be found in its ability to transform the world in the content of an information, the virtual dimension of law (as a mediation from the real world to the virtual reality) is to be found in its ability to set the conditions according to which it is possible to rely on the content of information processed and exchanged within the networked information society. In order to rely upon information, epistemic agents have to either explicitly or implicitly set a *norm* which should allow them to recognise intersubjectively what is reasonable to believe in and expect. In the absence of such normative dimension, the communication spread in the networked information society is radically exposed to the chance of being disordered and ineffective.

In this perspective, law can play a fundamental role of mediation between the real and the virtual to the extent that it assures reliance upon information. This does not amount at saying that the virtual reality of the networked information society should be subject to ruling: in this line of reasoning, the mediation of law is called forth only by reference to its normative function of stabilisation of expectations. This aspect of mediation poses topological problems both with respect to (1) *information and communication technologies* and with respect to (2) *networked cooperation*.

a. Information and communication technologies

In relation to information and communication technologies (ICT) the *function-of-law* consists (a) in creating *filters of relevance and reliability*, in order to select relevant and reliable information (data and channels of information), and (b) in establishing *means of moderation and meta-moderation*, in order to ensure an ordered communication, without reaffirming forms

of control after decentralisation.²⁰

Filters of relevance and reliability

Communication in the networked information society has to be ordered²¹ to be effective. This requires to elaborating means by which it is possible to filter information in terms of relevance and reliability. Needless to say that the creation of filters of relevance and reliability is likely to suffer from problems of agency, *i.e.* any selection is by itself significant and thus possesses the normative power of conveying (more or less perceptible) values.

However, the elaboration of these filters in the networked information society does not depend necessarily on centred and hierarchical choices (related to the ownership of channels of information). On the contrary, it has been proved²² to depend on decentred and horizontal practices displayed by a plurality of users by means of distributed networks.²³ More precisely, there are at least two ways to create filters of relevance and reliability through the coordination of individual actions. This coordination can be either the result of the users' *cooperative will* or the outcome of their *spontaneous interaction*.

Internet users can voluntarily create means by which information is judged as relevant and reliable thanks to an assessment that has been progressively formed by the pronounces and/or the practices of a plurality of individuals, whose interaction allow them to reach a goal they would not be able to achieve by themselves. This is made possible by all technological filters of relevance and reliability created, in a distributed manner, in accordance with a *teleological hierarchy*. I define as such a hierarchy of values, the ordering of which is constructed with the scope of achieving a previously

²⁰ For a detailed analysis of this question, R.A. GALLOWAY, *Protocol. How Control Exists after Decentralization*, Cambridge (Mass.), MIT Press, 2004. See also R.A. GALLOWAY & E. THACKER, *The Exploit: A Theory of Networks*, Minneapolis, University of Minnesota Press, 2007.

²¹ The idea has been defended against criticism in M. DURANTE, *Il futuro del web: etica, diritto, decentramento. Dalla sussidiarietà digitale all'economia dell'informazione in rete, o.c.*, pp. 259-273.

²² See in this perspective, Y. BENKLER, *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, New Haven, Yale University Press, 2006, pp. 215-220.

²³ For a critical account of this notion see R.A. GALLOWAY & E. THACKER, *The Exploit: A Theory of Networks, o.c.*, p. 3: "In contrast to Lovink, we maintain that in recent decades the process of globalization have mutated from a system of control housed in a relatively small number of power hubs to a system of control infused into the material fabric of distributed networks".

shared goal of a common concern.²⁴

Internet users can, furthermore, elaborate filters of relevance and reliability as a result of a non-programmed action, that is to say in a spontaneous manner (cosmological order).²⁵ In this case, the coordination of individual actions is made possible by the specific configuration of networked interactions (according to topological models²⁶ that we cannot expound here), which tend to select information both in a relevant and ordered way. This process of selection is based on clusters of shared contents, common interests, and the presence of hubs, which filter and catalyse the informational resources distributed in the web. On the one hand, this may result, at a macroscopic level, as a *non-democratic*²⁷ distribution of information (*power law distribution*: very few websites has the majority of links and the majority of websites has very few links). On the other hand, this means that communication is made possible, at a regional level, since information is guided towards local communities by interests of common concern, as it is described by the topological effects of clustering, cross-linking and small worlds.²⁸

Means of moderation and meta-moderation.

²⁴ For such an idea see M. DURANTE, *Il futuro del web: etica, diritto, decentramento. Dalla sussidiarietà digitale all'economia dell'informazione in rete, o.c.*, p. 201: “[...] se di gerarchia si può ancora parlare, preferiamo allora qualificarla come *gerarchia orientata ad un fine comune*: è l’orientamento alla protezione del fine comune che designa il principio di misura e legittimità dell’atto d’autorità insito in ogni processo di revisione e accreditamento, per quanto esso sia orizzontale e decentrato”.

²⁵ The idea of a cosmological order has been suggested by F. HAYEK, *Law, Legislation and Liberty*, London, Routledge & Kegan Paul, 1982.

²⁶ See on this note n. 28. See also R.A. GALLOWAY & E. THACKER, *The Exploit: A Theory of Networks, o.c.*, p. 13: “By ‘thinking topologically’, we mean an approach that compares the abstract spaces of different structural or architectonic systems. Pyramidal hierarchy and distributed networks, for examples, have two different topologies of organizations and control”.

²⁷ See on this point A.L. BARABÁSI, *Linked*, Cambridge, Perseus Edition, 2002. See also C. SHIRKY, “Power Laws, Weblogs, and Inequality”, http://www.shirky.com/writings/powerlaw_weblog.html.

²⁸ For an account of networked topological effects, Y. BENKLER, *The Wealth of Networks: How Social Production Transforms Markets and Freedom, o.c.*, pp. 300-320. On the topological configuration of small worlds paradigm see in particular, D.J. WATTS – S.H. STROGATZ, “Collective dynamics of ‘Small-World’ Networks”, in *Nature*, 393, 1998, pp. 440-442; D.J. WATTS, *Small Worlds: The Dynamics of Networks between Order and Randomness*, Princeton, Princeton University Press, 1999; see also U. PAGALLO, “‘Small world’ paradigm in social sciences: problems and perspectives”, in T. WARD BYNUM, S. ROGERSON, K. MURATA (ed.), *Glocalisation: Bridging the Global Nature of Information and Communication Technology and the Local Nature of Human Beings, o.c.*, vol. II, pp. 456-465.

Communication in the networked information society implies inter-subjective interactions, which need to be moderated, in order to enable users to equally and fruitfully participate in the community of discussion. In this perspective, the *function-of-law* consists in establishing means of moderation, *i.e.* the social norms regulating the discussion, and metamoderation, *i.e.* the social norms regulating how the norms of discussion are to be chosen and applied.

We consider a community of discussion,²⁹ which does not adopt a process of selection of information that makes, *ex ante*, a distinction between what can be published and what has to be prevented from publishing. The process of publishing is based on an *ex post* peer review system of selection. This means that this community endorses both a principle of freedom and a principle of responsibility: the former asserts each participant's freedom to post whatsoever information, the latter requires the participants to establish shared means of moderation and metamoderation, in order to revise information.

The process of moderation, adopted by the community of discussion, is decentred and horizontal, as it is based on the distributed power of evaluation of each moderator selected by the community. Even if distributed, this normative power has to be subject to further control by means of metamoderation, which is also a decentralised and horizontal mechanism of revision. The concept of metamoderation consists in the idea that every judgement should be subject to further judgement. This does not necessarily entail an infinite regression, since metamoderation is implicitly judged by its ability to determine a fruitful and ordered discussion within the community.

The *legal constitution* of such a community deserves consideration. The community is neither constituted exclusively on inclusion nor does it on exclusion. Its constitution endorses both a norm including every statement in the discussion and a norm excluding some of them from there. The community does not formulate a judgement on what is included but asserts a judgement on what is excluded. This means that the community is not involved in the process of deciding what can be a priori conceived as *just*, but is indeed concerned with the process of establishing what can be a posteriori conceived as *unjust*, that is to say that cannot be accepted within

²⁹ We consider the example of moderation and metamoderation offered by the multilevel technological platform adopted by a community of discussion as Slashdot. See on this point D. TAPSCOTT -A.D. WILLIAMS, *Wikinomics: How Mass Collaboration Changes Everything*, New York, Portfolio, 2006, pp. 144-145.

the discussion.³⁰

b. Networked social cooperation

Networked social cooperation not only requires to relying on the information of others when deciding or behaving under the conditions of uncertainty resulting from the complexity of virtual environment, but also on someone's else behaviour (delegation). This raises a normative question as regards interpersonal interaction: must interaction be based on a previously established norm, in order to promote cooperation? Or is such a norm likely to grow out of the interpersonal interaction? Before trying to answer such a question, we should focus our attention upon the fact that the idea of establishing a norm regulating the interpersonal interaction already implies a certain degree of distrust (in the relations between agents).

The computer-mediated interaction or coordination between agents or groups may require thus different forms of normative mediation, either founded upon (a) distrust systems of mediation or upon (b) trust systems of mediation. The former is mainly concerned with technological and legal security (assured by means of rules, constraints, architectures, controls, and protocols), while the latter is mainly concerned with mental and social dispositions towards other agents.³¹ Technological or legal security is necessary in regards to online commercial transactions, privacy issues, and legal contracts, but it does not suffice to assure networked social cooperation. In fact, this is based on someone else's behaviour, on their willingness to cooperate with us that is never fully predictable. A trust system of mediation allows the trustier to evaluate the trustee's willingness and ability to fulfil expectations.

Distrust systems of mediation.

Internet users set norms or technological devices since they do not trust the agents to whom they delegate tasks. This system shows a negative attitude towards agents, since it applies when they do not fulfil expectations. When things are expected to go wrong, there is no particular concern for the goal to achieve. This system externalises concern for the goal, whose protection and fulfilment are attributed to a third party

³⁰ See in this perspective, even tough in the context of a different line of reasoning, what has been affirmed by P. RICŒUR, *Le juste*, Paris, Esprit, 1995.

³¹ This perspective has been widely expounded by C. CASTELFRANCHI & R. FALCONE, "Social Trust: Cognitive Anatomy, Social Importance, Quantification and Dynamics", *Proceedings of the first Workshop on Deception, Fraud and Trust in Agent Societies*, Minneapolis/St. Paul, 1998, pp. 35-49. More recently, see also of the same authors, "Trust Theory", 2007, <http://www.istc.cnr.it/T3/trust>, and "Socio-Cognitive Model of Trust: Basic Ingredients", 2008, <http://www.istc.cnr.it/T3/trust>.

(normative mediation): the authority. This consists of two elements: a) the norm (legal rules or technological devices) set before the trustier and the trustee enter into a relation; b) the institution that administers and applies the norm established to regulate the relation between parties. The system based on distrust is ultimately based on trust, since the trustier has to trust the ability of the norm to foresee when the agents will not fulfil expectations and, above all, the ability of the authority to apply the violated norm. This normative mediation entails high transaction costs³² in setting up an institutional authority to be trusted and feared and applying the norms regulating the interpersonal interaction.

Trust systems of mediation.

The trustier believes that the trustee will act according to predictions. This system internalises concern for the goal. A positive attitude is motivated by the Internet users' shared concern for the task to be fulfilled. This model applies when the desired outcome is produced. This system does not seem to refer to an institutional authority (normative mediation). However, it is a relationship based on a particular type of authority. This consists of two elements: a) the social norm set by the relation between agents. Trust itself sets a norm that grows out of the dynamic sphere of the communication process (interpersonal interaction): both the trustier and the trustee are aware of the fact that the latter is somehow indebted to the former, since the trustier has given the trustee some credit;³³ b) information concerning the trustee's behaviour. The act of trusting and the act of fulfilling expectations release mutual information that can be shared and processed within the web or a community (the system in relation to the virtual environment). The authority of trust lies in the possibility of tracking and sharing this information. It is a form of control

³² P. AIGRAIN, "The Individual and the Collective in Open Information Communities", *Proceedings BLED Electronic Commerce Conference*, 9-11 June 2003, <http://paigrain.debatpublic.net>: "Transaction costs are much more than the monetary costs attached to transaction. They include cognitive costs (for instance the cost of deciding whether or not to do an action that may lead to a charge), time and information costs (for instance navigating in the transaction management layers), privacy costs, uncertainty costs (when some rights are subject to further approval), locking-in (*i.e.* loss of freedom due to the fact that an information service will give you access only to specific sources, or will make it difficult for you to switch to another provider). In this sense [...] control aspects are more rejected than the cost itself".

³³ See N. LUHMANN, "Trust: a mechanism for the reduction of social complexity", in ID., *Trust and Power: Two Works by Niklas Luhmann*, New York, John Wiley & Sons, 1979, pp. 1-103, at p. 35, who affirms that the trustor "has the possibility to set the norm according to which his reliance should not be betrayed (...). The impossibility of enchaining trust within a legal disposition does not entirely exclude trust from the domain of norms".

by means of *information feedback*: negative feedback corrects an incorrect prediction; positive feedback supports the process of communication.

A trust system of mediation, built as a result of relations between agents and the stabilisation of their mutual expectations, determines a normative dimension that can reach beyond technological and legal security, since it is not affected by obsolescence (because it grounds expectations on the ongoing conditions of party relations) nor does it require full information (because it enables agents to deal with conditions of uncertainty and lack of knowledge), and thus high transaction cost, in order to be established.

V. CONCLUSIONS

The theoretical framework – within which we have analysed in what sense law can devise an act of mediation which determines the conditions of possibility of the representation of what is referred to as ‘virtual reality’ within the realm of what is referred to as ‘physical reality’ and vice versa – is thus structured by the *inter-subjective* computer-mediated interaction and communication between individuals or groups. The rationality of the interaction between agents (whether human or artificial) is not actually defined in terms of certainties or acquired knowledge but rather in terms of shared expectations and social norms, which grow out of the communication process.

The rational criteria of inter-subjective interaction have been settled thanks to the mediation of law along two directions: on the one hand, law is entrenched with the role of devising how to protect reliance on information, which assures an ordered form of communication between agents, by qualifying what is conceived as reliable information by means of legal responsibility. On the other hand, law is concerned with setting the conditions of the communication process, by means of which agents can devise what is reasonable to expect from other agents, both in terms of relevant and reliable information (filters and means of moderation and metamoderation) and in terms of trusting delegated tasks and behaviours (networked cooperation).

In both perspectives, the relation between agents can be judged as an inter-subjective interaction, since the parties are transformed by the interaction itself. To speak more properly, the communication process constitutes the parties in their own subjectivity. Whether human or artificial, subjectivity is conceived in epistemological terms as the ability to set the criteria assessing how (virtual and physical) reality can be experienced and conceptualised at a given level of abstraction. Since this ability grows out of the communication process, it is not possible to

determine, as a fixed certainty, what is to be taken for stable: the shared basis of our decisions and behaviours is the result of the reduction of complexity of the environment. The act of mediation of law between the real and the virtual plays a role in the process of reduction of complexity, which is not to be underestimated, if the interplay of intuitions (the phenomenon to be represented: factual question) and concepts (the conditions of possibility of representation: legal question) deserves to be preserved.