Legal Interoperability as a Comprehensive Concept in Transnational Law

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I. INTEROPERABILITY AND THE LAW

‘Interoperability’ is a multifaceted concept and it is normally viewed as a crucial and challenging technical issue. It is mostly related to Information and Communication Technology (ICT) where it signifies that two or more different systems or devices are able to communicate with each other and work together. On the webpage of the European Committee for Interoperable Systems (ECIS), one of the many interest groups concerned with the issue at the EU level, we read:

Interoperability is a cornerstone of the ICT industry. In today’s networked ICT environments, devices do not function purely on their own, but must interact with other programs and devices. A device that cannot interoperate with the other products with which consumers expect it to interoperate is essentially worthless.1

In this paper we maintain that the concept of interoperability, applied beyond the purely technical domain, can make an important contribution to the development of transnational law. Moving from the technical domain, we introduce the concept of cultural interoperability—which concept we then apply to the legal field, trying to use it as an instrument to deal with the present status of transnational law. We demonstrate the necessity and utility of such a new concept of legal interoperability, a concept that is able to encompass and explain aspects of the present legal experience that traditional disciplines are not able to do. A project of an international multilingual archive is then presented as a laboratory bench where the development of law can be in some way measured. It should be emphasised that this paper is a draft of a research project rather than the presentation of results. However, we do outline a possible research roadmap.

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1 Available at www.ecis.eu/ecis-interoperability (all websites accessed 11 May 2013).
II. TECHNICAL AND CULTURAL INTEROPERABILITY

Although no univocal definition of technological interoperability actually exists, two distinct components can easily be determined:

1. syntactic interoperability, ie the ability of diverse systems to communicate with each other and exchange data;
2. semantic interoperability, ie the ability to interpret and use those data and pieces of information in a significant way, useful to the end user.

Various technical and legal means can be implemented in order to increase interoperability between systems, such as intellectual property (IP) licensing agreements and/or the use of open standards.

Interoperability between systems within the ICT environment has undergone increasing development in recent years and it is generally considered a necessary step forward. Palfrey and Gasser stress that this is mainly because some potential advantages are already clear: in particular, innovation, competition, flexibility and openness might be greatly improved thanks to higher levels of interoperability. However, many drawbacks have been pointed out as well, both in relation to security and privacy issues, and in terms of the danger of excessive homogeneity and the so-called ‘lock-in problem.’ Numerous publications and projects concerning this thematic area are indicative of the growing interest raised by technical interoperability.

Interoperability: The European Context

Highlighting the fact that there is more to interoperability than technical connection, consider the European context, where a further level of interoperability has been the object of intense analysis and research: it is so-called ‘organisational’ interoperability, the aim of which is the automatic connection of business processes between different systems in order to improve e-government services within the EU’s borders. This yields four different layers of interoperability: (i) strictly ‘technical’, regarding signals between devices; (ii) ‘syntactic’, referring to the capacity to exchange data; (iii) ‘semantic’, related to the processing and interpretation of received data (the so-called information, as we

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3 Ibid.
4 Ibid.
5 For example, within the Seventh Framework Programme (7FP) of the European Commission, the Cloud4soa project (providing an open semantic interoperable framework for platform as a service) has been funded (www.cloud4soa.eu).
will see below); and (iv) ‘organisational’, acting inevitably also on a political stage, since it requires the linkage of different administrative procedures and institutional bodies.

On this basis, we note that a more general and simplified concept can be elicited from ‘interoperability’ in its technical sense and a sort of thread of continuity between different levels of communication can be drawn. In this light, interoperability embraces the idea of making systems (of any kind, not only those belonging to ICT) that are characterised by diverse dimensions and structures fit with one another and communicate, without losing their peculiarities. This basic concept lends itself to easy application in a broader sense: the challenge of interoperability so understood is first of all a problem of communication. Actually, behind sophisticated methods of ICT interconnections, there are only people and institutions that strive hard to communicate and work together.7

Generally speaking, communication is defined as ‘the activity of conveying information’.8 The Latin origin of the term ‘communication’ itself (communicare, normally translated as ‘to communicate’) implies a situation in which different individuals try to interact and establish a fruitful relationship among themselves, sharing something of their experiences and lives but necessarily dealing with, and preserving, their differences. However, under this term, two diverse concepts are usually included,9 one related to the out-and-out communication process, the other connected to the intrinsic property of the reality and the world of signifying something to the observer. This second concept is normally referred to as ‘signification’ and it does not require a sender to complete it, but only a receiver, who is able to draw, through inferential and probabilistic reasoning, meaningful information from the reality he perceives. Proper communication, on the other hand, requires at least the following elements: a sender, a message/text, and a receiver. Even if the role of the sender is important because it is the sender who composes the message in an accessible format, the reception is the act that qualifies the communication process: the message acquires meaning(s) for the receiver, and this happens thanks to his capacity to decode (and then interpret) the text. Suffice it to say that the message has to use a precise communicative channel (this term was first used by the mathematical theory of communication), to be expressed in a code and to be related to a certain real context, ie elements previously known and shared by the actors who are parties to the process.

7 The concept of cultural interoperability is mainly used in the field of crisis management and UN peace-building missions at the international level, where the problem of cultural differences is highly perceived (see Robert A Rubinstein, Diana M Keller and Michael E Scherger, ‘Culture and Interoperability in Integrated Missions’ (2008) 15(4) International Peacekeeping 540). Palfrey and Gasser (n 2) recognise, besides technological and data interoperability, two furthers layers, ie human and institutional, and hold as follows: ‘Just as it is essential that people work together, it is also frequently important that societal systems engage effectively. The legal system is one example of an institutional layer of interoperability (or its absence)’ (see the Introduction). See also Tommaso Agnoloni and Daniela Tiscornia, ‘Extracting Normative Content from Legal Texts’ (2010) MCIS 2010 Proceedings, paper 4, http://aisel.aisnet.org/mcis2010/4.
9 Ugo Volli, Manuale di semiotica (Laterza, 2007).
However, what enables experts in the field to consider together (obviously, only when they face this thematic area in general) both the signification and the out-and-out communication is the concept of information: indeed, both phenomena, albeit in different ways, convey information. But what is information? Information reduces uncertainty10 about the state of the world and, according to the mathematical theory of communication, it is possible to measure it in bits thanks to an equation (ie, \( \log_2(N) \) bits of information per symbol), which calculates ‘the average informativeness per symbol’. Thus, information is quantifiable, at least from a mathematical perspective. But, in our interpersonal relations, we experience every day the difficulty of considering information as something that can be so measured or quantified: the exchange of information between two or more interlocutors actually depends on shared amounts of knowledge and also on the language in which the ‘transmission’ of data is actualised.11

Luciano Floridi12 stresses that information is composed of data, which have to be ‘well-formed’—ie they must follow the syntactic rules of the chosen system, and meaningful—ie they must obey the semantics of the given system. So, evidently, philosophy of computer science shares with semiotics this fundamental idea that information must refer to a semantic content (that is, syntactically correct data have to bear a meaning for the receiver).

Starting from these preliminary remarks, language no doubt arises as a complex system of communication, since humans use it in order to transmit information amongst themselves. There are multifarious conceptions of language and its formation—for example, the behaviourist one, which holds that verbal behaviour is assimilated through imitation (first, the individual learns basic words, then he is able to associate them and compose more complex sentences); or the cognitivist approach, which stresses the role of the mind and its capacity to conceptualise; or the generative theory of language (Chomsky), according to which every human being has an innate knowledge of syntax and so on. Whether you side with any of these theories or not, one thing is clear: We pay much attention to (the) language, because it is one of the most refined methods of communication. It does not follow that communication is just a matter of language and linguistic assumptions. Rather, it is the result of the societal conditions in which people are born and actually live.

Communication refers to an intricate combination of issues that have a characteristic in common: the existence of a mutual understanding starting from different initial conditions. What we have just outlined about communication, information and language in their basic definitions and analysis helps us to identify seamless cross-references with interoperability, and also with the more general concept that we are trying to construct beyond it.

11 Volli (n 9) 7.
12 Floridi (n 10).
Indeed, what is really interesting about interoperability is exactly the necessity to identify shared values among people coming from different backgrounds (like common communicative channels with precise codes) and to find the best ways to cooperate without giving up their peculiarities. Interoperability, so understood, has stimulated our research precisely along this direction: if we assume that sharing a ‘core set of values’ guarantees a higher level of communication, but that this optimal level of sharing is rare, if not impossible, on a worldwide scale, then how is solid international cooperation conceivable even when the level of sharing is less than optimal? And, what is the critical point below optimal sharing at which communication is not possible? These kinds of questions are far from ‘academic’. For this kind of problem is very common in our society, where several systems, organisations and groups are required to connect and adopt common solutions that address problems on a global scale (e.g. environmental pollution, international terrorism, transnational organised crime, financial crisis, and so on).

The case of the European Union is one of the most significant examples of the usefulness of the concept of cultural (and political) interoperability. The EU could be seen as a project of well-rounded interoperability, especially after the Lisbon Treaty in 2009, which replaced the European Communities with the Union and increased the role of the Parliament within EU politics (in this way reassessing the Member States’ positions and promoting the development of a unique European people). As European citizens, we witness every day the scope of this challenge—a challenge that is quite demanding in terms of both the ability to adapt and the renunciation of predetermined opinions. Moreover, the EU is only just starting to attempt to implement technical interoperability between the public administrations of the Member States (also called ‘organisational interoperability’) and enhance operational forms of e-government. But it also represents a frontier for multilingualism (the EU is funding several projects on this subject) and what we are going to introduce as the idea of ‘legal interoperability’: the EU, as a Union of States with the ambition to shape a unique system of governance and politics based on a single market, has to keep a flourishing communication thread between people from different linguistic and legal backgrounds.

Words and Concepts: Dealing with Multilingualism

Although communication covers a wider conceptual area than natural language, it is unquestionable that language is the first component in the running once the debate on cultural interoperability is opened (once again, the EU seems to be a good example, as

13 Palfrey and Gasser (n 2).
14 The European Interoperability Framework (EIF) is a set of recommendations established in order to enable and guarantee continuous interaction between public authorities of the Member States, and Interoperability Solutions for European Public Administrations (ISA) have been created within the European Commission for the period 2010–15 with the target of working as action clusters in this area.
15 See above, n 6.
we will see further in section III): in the global society, people and, most of all, political institutions with different linguistic backgrounds try to engage in dialogue and establish methods of cooperation.

At this point two fundamental questions arise: on the one hand, how to deal with linguistic differences while trying to maintain the characteristics of several nationalities at best; on the other hand, how to express the same (or similar) concepts in different languages, provided that such a thing is actually feasible.

The meeting of two or more languages implies that different cultural systems can meet, and this cannot be ignored: so, dialogue with someone who speaks a different idiom necessitates facing diversity on various levels. Language is just one level of the dialogue, and the firm belief that to resolve the problem a good translator is enough immediately sounds like wishful thinking. Actually, starting from a semiotic perspective, we hold that linguistic signs (ie words) have two sides: the ‘signifier’ and the ‘signified’. The first is the phonic component of the word, while the second refers to the mental concept (not to be confused with the ‘referent’, ie the physical object existing in the world that the word indicates) behind those phonic sequences. This concept is a social construction, the product of stipulation. Therefore, within a particular linguistic system, the meaning of a word appears to be the fruit of conventions that have developed (maybe unconsciously) within that specific system: so, it is substantially arbitrary and it can theoretically change once we take into account another community or system. If this is generally valid in linguistics, these assumptions could specifically (and a fortiori) be considered valid when analysing a technical language, which serves the interests of a certain domain of knowledge and requires precision in terminology and use (eg law).

But, coming back to multilingualism, if we are to face it efficiently, we should pick out the best way to tackle many practical problems, taking into account what we have stressed above: identifying the meanings of words, inserting them in their specific context, and analysing whether and how a full communication between meanings/concepts drawn from different systems is then possible. In other words, we should work on reducing any possible conceptual misalignment behind the terminological one.

Within this broad spectrum, which necessarily covers the full range of human communication, there are certain areas in which multilingualism plays its role on an even more distinct level. One of these is the law. And it is on the law, and legal interoperability, that we now focus our attention.

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16 Volli (n 9); Ferdinand de Saussure, *Cours de linguistique générale* (1916, in Italian translation: Laterza, 1967).

III. LEGAL INTEROPERABILITY

We are going to try to answer precisely the following query: why is the law so unquestionably challenged by multilingualism and, potentially, so permeable to the concept of interoperability? Two main reasons can be identified. First, law can be mostly seen as a sort of word-made world where several different professions act. Legal practitioners are well aware of the relevance of the use of words in their daily work: while judges write their opinions through argumentative paths expressed in words, lawyers try to persuade the judges with their arguments in order to win the lawsuit. Also the common citizen is used to handling law in one way or another.

Secondly, and most importantly, multilingualism is an undeniable reality in our globalised world and forces law to consider itself as a double-edged sword. On the one side, it requires sorting out a problem of illusory (see above, section II) ‘mere translation’: everyone can experience this kind of problem at the international, supranational and transnational levels on a daily basis (eg when a legislative act has to be translated into one of the 23 official languages recognised within the EU). But, on the other side, it is arguable that when a legal translation is at issue, major problems come along in terms of the possibility of finding the same legal concept within another legal system—leading to the problem that, if there is no such concept, then a new concept is ‘transplanted’ into a different system.

Following this line of reasoning, the legal perspective presents itself as one of the most interesting facets of cultural interoperability, mainly because it entails the most questionable and controversial issue—namely, whether it is possible to conceive of a shared set of concepts, especially legal concepts, in a situation where:

(a) correspondent (even different) concepts do not necessarily exist;
(b) in the case of the transplant of a legal concept, the change in cultural background and ‘environmental’ conditions as well as the peculiarity of the receiving legal system and its local ‘body’ of law might produce unpredictable changes of meaning;
(c) the compresence of the situation described under (a) and (b) could imply that in some cases communication is quite impossible;
(d) in the case described under (c), the possibility of different conceptual approaches that allow communication has to be investigated.

Nowadays, transnational flows of legal standards make the reality of legal practice more difficult than in the past. The situations sketched under (a) or (b) have already hap-

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18 On the possibility of unspoken norms see Amedeo G Conte, ‘Where the Norm is Unspoken’ in M Fascicolo (ed), ‘Lexique et philosophie’ (monograph), 99(2) Cahiers de Lexicologie 189– (Classiques Garnier, 2011); see also Theodor Geiger, Vorstudien zu einer Soziologie des Rechts (Duncker & Humblot, 1947); Rodolfo Sacco, Antropologia giuridica (II Mulino, 2007).
pened: it has been pointed out that legal concepts stemming from one particular system could not be used to study and understand other legal systems, since they are the product of various historical, political and economic developments that cannot be compared. In other words, a dialogue between concepts would not be possible at all and whoever wished to identify or build relations among different legal systems would need to use meta-concepts able to describe the legal concepts, which are direct objects of their studies.\(^{19}\)

This thesis is partially sharable, because when we reach the conceptual stage behind the different linguistic expressions, we might need a meta-concept that helps us to understand what the various legal systems have actually in common and where they differ. Is it possible to discover a more profound similarity between different legal systems, reaching a core concept, and through it to establish unknown relations between them? The conversation between systems is actually possible and feasible only if we bear in mind that every concept is the fruit of a previous agreement, even if it may be unconscious,\(^{20}\) from which it follows that we have to choose what to take into account to construct relations between those concepts.\(^{21}\) Just to clarify this point, consider the following question: is the concept behind the words ‘agreement’, ‘contract’, ‘contratto’, and similar words, the same?

The problem is not a new one. Nonetheless, it still asks for a univocal (provided it exists) or at least feasible answer. The practical consequences of finding such an answer are multifarious: for example, the success of Semantic Web in the legal field strongly depends on the real possibility of finding that solution. Above, under (d), we alluded to the chance of deploying new conceptual tools. One of these could be fuzzy logic,\(^{22}\) which proposes to reason with approximate rather than exact concepts, pointing out where they could eventually overlap, and opening to a more complex scenario where the criteria of true and false (first-order logic) are substituted by a range of truth which can vary from 0 to 1.

Legal interoperability precisely arises from these critical remarks: given that it is not always the case that the common set of values—as wished for by legal professionals—will exist, it appears necessary to change perspective. As a consequence of the foregoing statements, one first point may be considered proved: legal interoperability (and the need for conceptual relations between different legal systems) is not simply a matter of linguistic differences, at least if by ‘linguistic difference’ we are merely referring to diverse languages. Indeed, three basic kinds of legal interoperability in three very different situa-

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\(^{20}\) See Searle (n 17).


tions can be described, and in two of them the language, *per se*, is not the *punctum dolens*. The situations are as follows:

1. Same legal system (or State) / Same language.
2. Same language / Different legal systems.
3. Different legal systems / Different languages.

Under the first category two examples can be given. The former concerns the experience in Italy after the promulgation of the Constitution in 1948, following the Second World War. The Constitution actually introduced a new legal frame and new legal principles that marked a rupture with the historical stratification of the Italian legal system. In particular, legal provisions that had been issued under the Fascist regime were suspected to be in contrast with the new Constitutional charter. Soon, the judges found themselves in a difficult situation in relation to the use of those pieces of legislation, even though they were aware of their suspected unconstitutionality. The turning point was then represented by the ‘constitutionally oriented’ interpretation (a sort of saving interpretation), introduced by the Italian Constitutional Court in order to give an answer to the problems caused by the coexistence within the legal system of normative contents belonging to different (potentially conflicting) historical periods. The rule was the same, in terms of linguistic expression, but the meaning had changed because of the reframing of the issue and the legal content that the new Constitution had introduced into the legal system.

The other example concerns the USA. Even the US legal system can be analysed from the transnational perspective. Indeed, while each State has its own legislative power and separate Constitution, at the same time the Federal Supreme Court and the judiciary are the place of a sort of continuous dialogue between lawmakers and judicial bodies of different states and federal institutions. The National Conference of Commissioners on Uniform State Law (NCCUSL), established in 1892, is exactly indicative of this trend: actually, it tries to favour the formation of a uniform state law that can be adopted by the majority of the US states. Clearly, uniform legislative measures were effectively taken in areas in which cooperation between states was necessary, such as the commercial field, where the demand for common ground and shared legislative solutions is greater.

The previous two examples help us to stress the relevance of transferring normative contents, whether in time or in space. The problem is similar in both cases: namely, how to make two substantially different legal systems, sets of rules and specific rules communicate with each other.

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The relationship between UK law and the law of the USA illustrates our second category: even using the same language, eg the English idiom, a problem of legal communication can occur. Consider the legal notion of ‘informed consent’. No doubt exactly the same words are used. But are the meaning and scope also the same? Significant nuances and differences can be isolated, as the existence of a national health system in the UK might perhaps explain.

Lastly, the European Union stands out as one of the most relevant instances of the need for legal interoperability in a multilingual context and it presents itself as the most suitable example of our third category. Within its territory, 23 official languages are recognised, three working languages coexist and about 60 unofficial indigenous languages are identified. Each legislative or administrative act is drafted in 23 languages and this process requires not only a proficient linguistic translation, but also the capacity to guarantee that all 23 authentic documents are equally legally coherent: roughly speaking, they have to say the same thing in a strict legal perspective. This is a considerable challenge—which, indeed, is just our point.

IV. WHAT CONCEPT OF LAW?

Before continuing with our exploration of legal interoperability as a feasible and fruitful conceptual tool, a preliminary clarification about law, in general and nowadays, is needed. Needless to say, the clarification is strictly related to the aspects linked to legal interoperability and it centres on a crucial question: is law a sort of tangible thing (whose existence and shape are uncontroverted), which is waiting to be interconnected? Of course the reply is no; and this is so for several reasons which we discuss in the paragraphs below.

About the Issue

The question about the concept of law requires some further specification:

• The huge legal literature on the concept of law is a clear, well-known demonstration of how many different ideas of law are present in national and international doctrine. Hence, the concept of law that is adopted strongly affects the concrete possibility of interoperability between two or more different rules and/or legal systems.
• In legal interoperability it has to be clarified whether the connection is between rules or legal systems.
• Interoperability between legal systems has traditionally been assured by public international law. International law, in its public branch, is the body of law that governs the legal relations between or among states/nations (that we assume here as
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Thus, it has long experience of dealing with the interoperability of national institutions and national legal systems as a whole. At first blush, this area does not seem to be affected by legal interoperability.

• Partially different is the case of private international law, which refers to that part of the law that is administered between private citizens of different countries or is concerned with the definition, regulation, and enforcement of rights in situations where both the person in whom the right inheres and the person upon whom the obligation rests are private citizens of different nations. It is a set of rules and regulations that are established or agreed upon by citizens of different nations who privately enter into a transaction and that will govern in the event of a dispute. Unlike public international law, private international law—to the extent that it deals with individuals and specific rules and regulations—might be affected by legal interoperability in the sense in which we are using it in this paper.

• Thus, our field of investigation can be confined to interactions between rules (whatever country they come from) rather than legal systems.

• One false problem should be eliminated at once. Somebody might object that legal rules from civil law and common law countries are intrinsically different and are simply not susceptible to being connected. Well, it is really easy to reply to this objection by pointing out that caselaw, despite the scandal that all this might provoke (especially if we consider that European countries are mostly of the civil law tradition) has gained an important position in the present EU reality. Indeed, in the preamble to the EU Bill of Rights, the caselaw of the European Court of Justice (ECJ) and of the European Court of Human Rights (ECHR) are recognised as a source of EU constitutional law. Of course, the ECJ and ECHR cannot be compared to any ordinary judge in the Union, but the clear provision (which is not common even at constitutional level) is enough (besides other symptoms) for saying that the taboo of civil law has been formally violated and that there is no reason for excluding the possibility that (under specific conditions: see below) legal interoperability might work when rules from civil law and common law countries are at stake.

Hereinafter some concepts of law, that might be relevant in the relationship between law and legal interoperability, are briefly discussed.

24 Even though somebody else might argue that there is no specific body of law which governs the interaction of all nations. There are treaties between countries, multi-lateral agreements, some commissions covering particular subjects, such as whaling, or copyrights, procedures and precedents of the International Court of Justice (“World Court”) which only has jurisdiction when countries agree to appear, the United Nations Charter, and custom. Copyright © 1981–2005 by Gerald N Hill and Kathleen T Hill (http://legal-dictionary.thefreedictionary.com/International+Law).

25 ‘In this respect, private International Law differs from public international law, which is the set of rules entered into by the governments of various countries that determine the rights and regulate the intercourse of independent nations.’ West’s Encyclopedia of American Law, edition 2 (The Gale Group, 2008).
Law as Technology

At first sight, the conception of law as technology seems to offer a feasible frame for legal interoperability.26 If we assume that political power or jurists can (as the theory of law as technology does) easily handle law, it should also be true that they could make law interoperable (if they wanted it). Needless to say, the question is more complex. In very general terms, we may recall that Carl Schmitt was one of the first legal theorists to recognise that law in modernity is another technology.27 Some authors, such as Kieran Tranter, also stress that ‘in regarding law as technology, what is disclosed is the nomology of sovereignty, which legal theory has charted as involving law as malleable rules emanating from a sovereign that, in the extreme moment, can violently reduce humans to animals to be used and sacrificed at will’.28

The issue of the relationship between the law and political power is an open and endless one. Here, we can simply notice that such an approach is not neutral in describing law. It assumes an instrumental idea of the law, as a tool which is ready to be used by the sovereign or any other powerful social actor (even jurists and judges), whatever their ends and aims. This idea is typical of positivistic scholarship29 and not universally accepted. We rather share theoretical approaches that stress the historical origin of law and its spontaneous order rather than the simple result of a political decision. The importance of historical stratification is stressed, in a very impressive way, in Joseph Weiler’s works where he says: ‘typically, a geological snapshot is taken and then the accumulated strata of the past are identified, analyzed, conceptualized. By stratifying geology folds the whole of the past into any given moment in time—that moment in which one examines a geological section.’30 And this is undeniably true in both civil law and common law systems, as even in systems based on the rule of precedent jurists and judges do not have any freedom to change at will the legal state of the art received from the past.

Finally, from a practical point of view, the idea of law as technology does not hold the promise to increase the level of (potential) interoperability. Indeed, law as technology is strongly connected with the idea of (national) sovereignty. Thus, assuming that idea, the interoperability between different (national) legal systems or between rules from different legal systems might become more complicated rather than easier, as everything is in the discrete hands of national sovereigns (or jurists).

28 Ibid.
Transnational Law

According to a completely different approach, the present experience of the flow of legal standards and concepts through national boundaries is crucial. As is well known, in 1956 Philip Jessup coined the expression ‘transnational law’ and included in it ‘all law which regulates actions or events that transcend national frontiers. Both public and private international law are included, as are other rules which do not wholly fit into such standard categories’. Nowadays such a flow is no longer a questionable issue, but rather an undeniable fact at the centre of a vivid discussion within the international community of jurists, scholars and courts.

Such a magmatic worldwide reality has challenged and crucially divided the attitudes of scholars in the international legal debate. Harold Hongju Koh argues that the distinction between nationalists and transnationalists has in the USA replaced the traditional one between nationalists and federalists. He argues that (amongst other things) transnationalist and nationalist philosophies differ, inasmuch as transnationalists tend to believe in the political and economic interdependence of nations, while nationalists focus instead on preserving US autonomy.

Although transnational phenomena are to some extent common to all fields of law, in some areas traffic is undeniably heavier. Law and biotechnology, law and converging technologies (biotechnologies, neurosciences, nanotechnologies, informational technologies and more), and law and economics are the most troubled fields. From the point of view of law this means that the question of legal regulation of conflicts arising from these areas immediately has a worldwide dimension.

We now have a vast literature describing the different aspects of legal globalisation and its transnational aspect. What has been relatively overlooked is the question of how to conceptualise the field in a way that will enable us to explain what is happening and to include it in a consistent body of principles and law. In our view, the really basic question is whether and how a thread of consistency can be found within the multifaceted and heterogeneous worldwide reality of transnational law. Looking at this reality through the old lens of traditional legal categories would lead us to write down a long list of exceptions and to increase our level of theoretical frustration. Indeed, if we turn our eyes to

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32 Hereinafter we take advantage of (and develop) previous researches that were reported in Amedeo Santossuoso, ‘The Disaggregation of Law into Elementary Particles and the Interactions Among Them’ [2011] *Jusletter IT*.

the Westphalian concept of sovereignty\textsuperscript{34} we might conclude that somebody has thrown us onto the wrong planet.

In short, we may say that the transnational approach represents a good description of the huge number of exceptions we can now register to the old idea of the nation state, even though it does not give a general consistent conceptual frame for those exceptions.

**Transgovernmentalism**

Indeed many progressive attempts to capture the complexity of the modern legal order have been made according to traditional disciplinary approaches. An incomplete and provisional list encompasses the Common Law, Global Common Law or General Common Law; Constitutional Law or Comparative Constitutional Law, and similar labels (such as Comparative Constitutionalism or Constitutional Comparativism). A further attempt comes from transnational approaches, transnational legal process, international law, natural law, general common law, \textit{ius gentium} or consuetudinary law. Among those approaches transgovernmentalism stresses that the state is not disappearing; it is rather disaggregating into its separate, functionally distinct parts (courts, regulatory agencies, executives, and even legislatures), which are networking with their counterparts abroad, creating a dense web of relations that constitutes a new, transgovernmental order.\textsuperscript{35}

Transgovernmentalism, as an approach stemming from international law, is very helpful and explicative with regard to institutions, subjects and agencies. Nevertheless, what we need now is a further step and an investigation within the field of legal systems, the sources of law and relations and hierarchies within them and their legal components. In other words, if transgovernmentalism deals with the disaggregation of the \textit{nation state} we focus on the disaggregating of \textit{law} sources, bodies of law and their internal hierarchies. The two issues, although closely related, are different in kind and require different conceptual tools and frames.

**V. THE NEED FOR A CONCEPTUAL FRAMEWORK**

The approach we propose attempts to get a step ahead by posing the further question about the conceptual frame, able to encompass the new symptoms and phenomena, and to explain them in a hopefully consistent way. Such a conceptual framework should be able to explain and encompass the following aspects of the present transnational legal experience:


• Being neither unified nor uniform, in space and time (fragmentation).
• Not being hierarchically organised, at least, in a stable and binding way.
• Not necessarily being directional (a crucial role being played by spontaneous
developments).
• Having many different actors with different legitimacy and nature.
• Being embedded in a highly technologised global environment.

A preliminary point is outlined below.

Legal Rules as Elementary Particles

As anticipated above, instead of dealing with the disaggregation of the nation state, as
transgovernmentalism does, we rather focus on the disaggregation of legal systems, bod-
ies of laws, sets of rules and their internal hierarchies. This way of putting the question,
as focused on rules rather than on institutions, may be seen as complementary, if not
opposite, to transgovernmentalism. This might be true if we accept the conceptual view
that keeps rules and institutions strictly separate. However, if we adopt (as we do) the
point of view that considers institutions as specific sets of rules, our approach might be
more comprehensive. Indeed it might be able to offer some explanations as to what is
happening in both legal systems and legal institutions.

The first question is as follows: may we say that legal systems are disaggregating (as
nation states are doing), and what does it mean?

If we think about civil law systems we know that since the early or late nineteenth
century their laws have been grouped into codes, based on the Napoleonic Code, which
was the model for the codes of law of more than 20 nations across the world. Codes
were conceived of (no matter whether always true in fact) as bodies of law organised in
a rationalistic way. Looking at the Common Law side we might notice that Commentar-
ies, too, are often inspired by a strong rationalistic approach, even though the rules come
from precedents and not from Acts of Parliament. Sir Edward Coke, the jurist whose writ-
ings on the English common law were the definitive legal texts for centuries, strictly ties
law and reason in his Commentary Upon Littleton of 1628:

[\textit{R}eason is the life of the law, nay the common law itself is nothing else but reason. \ldots This
legal reason \textit{est summa ratio}. And therefore, if all the reason that is dispersed into so many
several heads, were united into one, yet could he not make such a law as the law in England
is; because by many succession of ages it had been fined and refined by an infinite num-
ber of grave and learned men, and by long experience grown to such a perfection, for the
government of this realm, as the old rule may be justly verified of it, \textit{Neminem oportet esse
sapientiorum legibus}: No man out of his own private reason ought to be wiser than the law,
which is the perfection of reason.]

36 Edward Coke, Commentary upon Littleton 97b (1628), Charles Butler (ed) (Legal Classics Library, 18th
edn 1985).
Thus, in both the civil law and common law tradition, each piece of legislation, legal rule or judicial binding precedent was supposed to have a place (Code, Commentary or case book) where it had clear relationships with the system as a whole and other (broader or narrower, superordinate or subordinate) rules.

However, in both the civil law and common law tradition, different theoretical approaches are present, such as legal pragmatism or historical explanations. In a very well known passage of his *The Common Law*, Oliver Wendell Holmes Jr makes very clear the point of the role of reason in the field of law:

> The life of the law has not been logic: it has been experience. The felt necessities of the time, the prevalent moral and political theories, intuition of public policy, avowed or unconscious, even the prejudice which judges share with their fellow-men, have had a good deal more to do than the syllogism in determining the rules by which men should be governed.37

In civil law legal scholarship, Paolo Grossi is an important representative of the historical approach. He is very critical towards continental legal positivism: ‘the miserableness of positive law urges to look at a higher level … where the collective consciousness of which fed the historical development is preserved’. He maintains that it is necessary to look for a higher level of law where it is possible not to separate formal legality and justice, which legal positivism had hopelessly separated.38

Although very different from one another, legal pragmatism and historical approaches to law share the (non-rationalistic) assumption that the law and its development are not the result of a rational development—rather many forces, other than reason, determine law’s present status. Thus, if we adopt the point of view of the rationalistic/non-rationalistic divide, the conceptual distance between code-based legal systems and caselaw systems suddenly appears shorter than usually supposed. In this light we may say that the enduring opposition between rationalistic and pragmatic (or historical) approaches to law is probably the most important divide in contemporary law and, in an era when common law and civil law systems have lost many of their original features, crosscuts even the civil law—common law fields.

Moving from the theoretical level to the observation of present legal reality, in recent decades the situation has undergone very important changes because of, and in coincidence with, scientific and technological advances:

Rapidly advancing technology has enabled an information explosion oblivious of national boundaries, changing what we know and how we learn. Many aspects of life and society are affected by such changes, and law is no exception. Scientific and technological advances have presented courts around the world with questions that would be unthinkable in years past, such as whether a frozen embryo is a person, whether DNA is personal property, or how the Internet should be regulated. Age-old legal issues also continue to be debated, but the differ-

38 Paolo Grossi, *Prima lezione di diritto* (Laterza, 2003) 85, translation by the authors.
ence in this global era is that they are less jurisdiction bound than ever before. With access to information from around the world at their fingertips, courts facing important legal issues can read, assess, and learn from other courts’ opinions and discussions of similar problems. Many courts engage in this type of comparative analysis, asserting that their jurisprudence is enlightened and enriched as a result.39

In conclusion, we may say that a comparison between the claim for harmony, completeness and comprehensiveness of old codes and commentaries and the present status of law immediately shows that what has disappeared are not codes and commentaries per se, but, rather, their ability to ensure harmony, completeness and comprehensiveness. And, similarly, each piece of legislation, legal rule or judicial binding precedent has no more unquestionable a position (within Code, Commentary or case book) where it has clear relationships with the system as a whole and other (broader or narrower, superordinate or subordinate) rules. It seems as if nowadays (unlike in the past) each provision, legal rule and article has more lives. One life is regular (according to the place it was originally given in the code/case book/commentary) and other lives are adulterous. In these lives they acquire new meanings, new normative contents according to external sources of law, no matter whether they are constitutional rules, supranational treaties, foreign legal standards or case law and so on.

These intercourses, more frequent in boundary zones (as where science or economics affects law), are increasing every day. Moreover they tend to legitimate themselves by the mere fact of their existence, while a comprehensive theory of such flows and migration of legal standards and of such intercourses is urgently needed.

VI. LEGAL INTEROPERABILITY AS A CHANCE

We have seen that a problem of legal interoperability arises whenever a legal content or rule is shifted in time and/or space and that this may happen in three basic situations: (a) within the same legal system (or State) and the same language (in this case the shift is only in time), (b) between different legal systems that use the same natural language (in this case the shift is in space and, maybe, in time), and (c) between different legal systems that use different languages (here again the shift is in space and, maybe, in time).

One objection to the utility of legal interoperability might be the following: why should we introduce a new concept if all the above described situations are not totally new and legal doctrine and practice have long experience in dealing with them? Entire legal disciplines, such as comparative law (and its sub-disciplines), comparative constitutional law and international law have at their core the study of differences in laws, rules

and legal systems. In addition the art of legal interpretation is the art of dealing with differences and making sense of legal elements that, at first sight, are inconsistent due to a lack of coordination, differences in origin, kind and purposes, and so on. In short, what, if anything, is the real advantage that legal interoperability is able to offer?

A Step Ahead: Conveying Unexpected Dialogues between Fragmented Pieces of Law

In our view, a clear and unquestioned starting point might be synthesised as follows. The disaggregation of legal systems leaves on the ground a huge amount of single pieces of law, let us say of bricks or elementary particles (see above, section V), which, partially independently from their legal fields of origin (public or private law, constitutional or supranational, and so on), show some special properties. The most important is that they are able both to work in their original context (according to the intention, if any, of those who introduced that piece of law) and to refigure in different moments, whenever they come into contact with different legal sources or elements. Thus, what seems to be the main novelty in the transnational environment is not the subversion of the old legal system as a whole or its disappearing but, rather, the co-presence of the old system (which still works in non-boundary zones) and several different kinds of interactions (old and new), which correspond to different and unstable connections and hierarchies of laws.

It seems to us that traditional comparative disciplines (which certainly focus on similarities and differences between two or three legal systems but, in doing so, mainly try to lead to uniformity and to propose standardised answers to legal problems40) are not able to face all this huge quantity of differences and among so many legal systems. Instead, legal interoperability: (a) focuses on differences rather than on similarities; (b) has as its main goal putting in contact (and make operative) elements that naturally would be separated because of some conceptual or linguistic misalignment (beyond the pure false/true opposition: see section III); and (c) offers a vision of more than two legal particles/systems working together.

In practice, legal interoperability is able to explain some legal phenomena that are very different in kind and to encompass them in a unique conceptual frame. Let us consider the well-known problem of how to deal with foreign law and its value in internal legal systems, as the following examples can show better.

40 Comparative law is ‘the study of the similarities and differences between the laws of two or more countries, or between two or more legal systems. Comparative law is not itself a system of law or a body of rules, but rather a method or approach to legal inquiry’ (Morris L Cohen and Robert C Berring, How to Find the Law (West Publishing, 9th edn 1989). Comparative analysis has various functions: (a) historical understanding of a legal institution; (b) better comprehension of the structure of the legal systems; (c) starting point for legislative proposals (de iure condendo); (d) useful tools for judges when solving practical problems (de sententia ferenda); (e) harmonisation and unification of legislation at the supranational and international levels. See Giuseppe De Vergottini, Diritto costituzionale comparato (Cedam, 2011).
As a first example we may consider the case of foreign law, which used to be treated as a fact and not a legal entity, which is able to interact as a peer with internal rules. Edward K Cheng\(^{41}\) stresses how, even though Rule 44.1 (introduced into the Federal Rules of Civil Procedure in 1966) imposes on US judges the duty to consider foreign law as a question of law,\(^ {42}\) the judges are often reluctant to abide by this provision. In practice, they either prefer a ‘hybrid’ approach or mostly continue to rely on experts in the field in order to prove the content of foreign law and to ask the parties to fulfil their burden of proof. Moreover, Cheng recognises a strong similarity between foreign law and scientific facts in trials, since they both have the potential to provide general truths (that is, they can be applied to other cases) and are subject to external review. Dealing with scientific facts and foreign law, the same doubts arise as regards attitudes towards them:

Approaching them as factual questions neglects their status as generalized inquiries subject to external verification. Approaching them as legal questions ignores judges’ profound lack of expertise and experience in the substantive areas. Both inquiries thus fall into a no-man’s land between law and fact.\(^ {43}\)

Well, in cases like these, legal interoperability is able to recognise and establish the connection even though the internal and foreign laws are heterogeneous in kind, one having legal value and the other being a fact.

A second example is presented by Article 39 of the Constitution of the Republic of South Africa (1996), which explicitly authorises judges to ‘consider foreign law’ when interpreting the Bill of Rights. In this case, there is a constitutional provision (a real novelty in the worldwide landscape of national constitutions, a novelty of which South Africa is proud) that creates the possibility of internalising a foreign law and changing its nature so that it becomes a piece of internal law, provided that the judge gives a justification for this.

In the light of this paper we may say that, in the two examples, legal interoperability is again able to encompass heterogeneous legal phenomena within its conceptual frame, even though internal and foreign law still retain their own status.

The provisions of the Italian Constitution dealing with foreign law offer an example of a further level. In general terms ‘Italian laws conform to the generally recognised tenets of international law’ (Article 10) and ‘Italy … agrees, on conditions of equality with other states, to the limitations of sovereignty necessary for an order that ensures peace and justice among Nations’ (Article 11). Moreover ‘legislative powers shall be vested in the State and the Regions in compliance with the Constitution and with the


\(^{42}\) Rule 44.1: Determining foreign law. ‘A party who intends to raise an issue about a foreign country’s law must give notice by a pleading or other writing. In determining foreign law, the court may consider any relevant material or source, including testimony, whether or not submitted by a party or admissible under the Federal Rules of Evidence. The court’s determination must be treated as a ruling on a question of law.’

\(^{43}\) Cheng (n 41).
constraints deriving from EU-legislation and international obligations’ (Article 117). In a synthetic way we may say that the Italian Constitution is very open to interaction with international and supranational sources, provided that basic principles regarding the rights of the person and democratic principles are respected. This constitutional frame has allowed rich relations with EU legislation and normative sources. Once again, all this can be fully explained in terms of legal interoperability, albeit with the typical linguistic difficulties of the European plurality of languages.

At a further level, we can refer to the website ‘Europeanrights.eu’, which provides systematic monitoring of judicial, legislative and other materials related to the protection of fundamental rights in Europe and offers a huge repository of national and European caselaw. It offers an astonishing demonstration of how the protection of human rights in EU countries is something that goes beyond the legal values and hierarchy of their sources. In practice, European courts have started applying the EU Charter of Fundamental Rights (Charter of Nice) as though it is a legal source of law in internal legal systems (despite its formal legal value being limited to EU legislation, according to Article 52 of the Charter). This is no doubt a further, clear example of how the concept of legal interoperability can help us to identify all the nuances in the application of those provisions within different Member States also outside the usual borders of the hierarchy of law and pre-established rationality of legal sources.

This leads us to the questions Norman Dorsen put on the table of a widely known debate between Justices Antonin Scalia and Stephen Breyer, these enriching the list of possible interactions among laws:

When we talk about the use of foreign court decisions in U.S. constitutional cases, what body of foreign law are we talking about? Are we limiting this to foreign constitutional law? What about cases involving international law, such as the interpretation of treaties, including treaties to which the U.S. is party? When we talk about the use of foreign court decisions in U.S. law, do we mean them to be authority or persuasive, or rhetorical? If, for example, foreign court decisions are not understood to be precedent in U.S. constitutional cases, are they nevertheless able to strengthen the sense that U.S. assures a common moral and legal framework with the rest of the world? If this is so, is that in order to strengthen the legitimacy of a decision within the U.S., or to strengthen a decision’s legitimacy in the rest of the world?45

So, we may have the following kinds of interactions within the US legal scenario: (a) foreign constitutional law; (b) interpretation of treaties and foreign court decisions, as authority or persuasive, or rhetorical; and (c) precedent versus common moral and legal framework with the rest of the world. Such a list of questions might be accepted as universal, once the US is replaced with whatever other country. Obviously, each of the previous interactions falls under different disciplines and conceptual areas, but all of

44 www.europeanrights.eu.
them can be encompassed within the concept of legal interoperability and find a first level of explanation.

In conclusion, we may say that all the above reported levels and situations exhibit a wide variety of legal strength, legitimacy and value. Nevertheless, they offer a preliminary demonstration of the property of legal interoperability to connect fragmented, heterogeneous and dispersed elementary legal particles. And it does not seem to us that other approaches can show such a powerful encompassing property. What we need now is (a) to give an extensive demonstration of how legal interoperability can work and demonstrate its attractive ability toward dispersed legal materials, and (b) to show how the connection may be a working tool and contribute to a new shape of law. The first point is discussed in the following paragraph.

The Multilanguage Archive ALST: A Proof of Concept

The Multilanguage Archive on the Law of Science and New Technologies (ALST) is a project of the European Centre for Law, Science and New Technologies (ECLT)—University of Pavia. The idea underlying the ALST originates from the observation of the present state of legal sources at both national and supranational levels, which is strongly affected by the transnational flow of legal standards and the new shape of the law-making process. The archive has been conceived as a laboratory bench where the dynamics of the transnational flow of legal content and their aggregation can be observed under controlled conditions. It is presently at the level of a proof of concept of the ideas presented in this paper.

The basic assumption is as follows. Although cases and materials on science and law are normally available on the main international websites and databases, they tend to be spread around many different sites. What is more, each legal case is usually accessible only as an individual case in its own language. By contrast, the ALST aims to bring together cases and materials (cases, statutory legislation, regulations, the main scientific and legal literature and so on), and to organise and make them easily accessible to courts, scientists, jurists, lawmakers, regulators, firms and citizens. The archive collects the most relevant cases and materials, considering each of them as a piece of law and linking them immediately to similar pieces from different countries, sources and languages.

The main feature of the ALST is that it aims to address both the fragmentation of law and multilingualism within the law. Moreover, it is basically conceived as a case-based system: it adopts a practical approach to law and tries to adapt to the evolutionary changes that occur in daily practice. Once the user starts off a query within it, it establishes unpredictable connections and is able to provide the user with unexpected answers.

Four key concepts to understand how ALST is structured and works are:

46 For more information see www.unipv-lawtech.eu/lang1/alst-archive.html.
1. In ALST the word ‘law’ is used in its broader sense, as it is used in the caselaw of the European Court of Human Rights. The word ‘law’ covers not only statutes and Acts of Parliament, but also unwritten law (common law). Law, whatever its formal denomination, is any kind of provision and legal entity which is ‘adequately accessible and foreseeable, that is, formulated with sufficient precision to enable the individual to regulate his conduct’.47

2. ALST considers each ‘piece of law’ as a legal particle, which can establish several kinds of connections with a potentially unlimited number of similar legal particles. These connections may be different in kind, level and content: lexical, ontological, legalistic (established by an explicit provision), historical (established by tradition) or functional (whenever a connection ‘works’). As we stressed above (under section III), fuzzy logic, considered in its broader sense,48 might provide us with efficacious tools to face vagueness and ambiguity in legal language.49

3. Every piece of material (raw material) uploaded to the IT platform is linked to its own File Card. The File Card contains typical fields (‘metadata’ in IT terminology), depending on the kind of material they refer to. The File Card is drafted in English by expert jurists in the field of science and law (Editors) whose first language is that of the original raw material. The File Card and, in general, the IT platform use a combination of different tools whose aim is to test a methodology for dealing with the multilingual complexity of legal jargon, in particular in selecting legal terms/concepts for describing the normative content of texts. Natural Language Processing techniques (a methodology extracting meaning bottom up from texts) are perfectly suited to legal texts, as they allow links to be made between conceptual models and terminology extracted from normative statements. In order to capture the multi-layered structure of legal discourse, the framework should be able to link together both ‘local’ meanings, as defined within national systems (eg legislation), and extensional meanings inferred from caselaw or commonsense interpretations, while keeping distinct different levels of localisation (ie judgments, contract, etc). As a result, each piece of law can be retrieved through keywords entered in English and/or national languages through a user interface available on the internet.50

47 See the leading case of Sunday Times v UK (application no 6538/74), 26 April 1979; S and Marper v UK (application nos 30562/04 and 30566/04), 4 December 2008.
48 Hajek (n 22).
50 The archive, at the moment still in beta form, can be found at www.alst.eu. The Archive Project ALST has been nominated for the HiiL Innovating Justice Award—Innovative Idea 2013. See the presentation at www.innovatingjustice.com/innovations/legal-information-querying-across-different-languages.
4. The connection between legal concepts in different languages is possible thanks to a multilingual thesaurus linked to the archive which facilitates basic functioning through keywords.\footnote{PoolParty is a Thesaurus Management Tool (TMT) developed by Semantic Web Company (SWC), Vienna/Austria. The software of ALST has been realised in cooperation with DSMediaGroup srl.}

VII. CONCLUSIONS

In this paper, we first stressed the generative force of the concept of interoperability, once it moves from the purely technical domain to the cultural one. We then focused on the great importance it can have in the legal field. Making rules interoperable in space and time is a great challenge, requiring a preliminary conceptual clarification about what law is and will be in a world that becomes incrementally globalised. In the paper we have merely sketched some basic points outlining a tentative general view and have demonstrated, at least at a first level, the advantages that the concept of legal interoperability can offer in terms of dispersed legal items it is able to encompass. We have also reported on what can be considered a proof of concept of legal interoperability—the experimental Multilanguage Archive on the Law of Science and New Technologies (ALST). However, this is a work in progress whose next steps will involve both (a) a deeper theoretical clarification of the problems related to legal interoperability and (b) the creation of networks of scholars and professionals who work on the ALST in different areas and countries (a network on neuroscience and law is already in place and others are planned). Such work can fruitfully develop only if technical, theoretical and legal facets are all taken into account as essentially connected steps of the experimental phase. Our intention is to develop legal interoperability in this way.