

Ownership of data and the *numerus clausus* of legal objects

*Sjef van Erp*¹

1. Introduction

In 1974 Grant Gilmore wrote that contract was dead.² We now know that it was not. Recently, authors have written about the end of ownership and the beginning of the end of classical contract law.³ Again it is argued that traditional private law concepts, such as ownership and contract, are in crisis. Gilmore argued that contract was drowning in a sea of tort and pleaded for a new law school course on contorts.⁴ Law curricula did not change. Perzanowski and Schultz argue that due to the rise of the Internet of things, the sharing economy with its on-line platforms and digital rights management, we can see a paradigm shift from ownership to access: assets are no longer controlled (“owned”) by one particular subject, but accessed whenever needed.⁵ Savelyev confronts the traditional role of the state in the development and enforcement of private law with the rapidly evolving block chain technology and, closely connected with this, smart (i.e. algorithm governed) contracts. Will the state lose control and will algorithms govern us? In other words: algorithms as law instead of the rule of law over algorithms?⁶ Before we embark on another theory of “crisis”, let us first see if there really is a crisis or that we are, as we always have been, in a process of ongoing development of the law, only different from the past because of the speed of change and the growing complexity of legal sources given globalisation with its de-nationalisation, now, so it seems, more and more counter-balanced by growing re-nationalisation and localisation, which latter development makes the picture even more complex than it already was.

In the following paragraphs I will first make some introductory remarks on what is meant when reference is made to the “classical” model of private law. I will then discuss “data” as a new object of property law, whether these data can be included in, what I have called, the “*numerus clausus* of legal objects”, what the consequences are of accepting data as a new legal object for our understanding of ownership (more particularly ownership as the foundation of trade in a market economy).⁷ Finally, I will draw some tentative conclusions.

¹ Professor of civil law and European private law, Maastricht University. Member of the Executive Committee of the European Law Institute (ELI), Vienna.

² G. Gilmore, *The Death of Contract* (2nd ed.; Columbus: Ohio State University Press, 1995).

³ A. Perzanowski and J. Schultz, *The End of Ownership. Personal property in the digital economy* (Cambridge, Mass./London: MIT Press, 2016), with accompanying website: www.theendofownership.com; A. Savelyev, *Contract law 2.0: “Smart” contracts as the beginning of the end of classic contract law*, Basic research program working papers, series: law, WP BRP 71/Law/2016 (National Research University Higher School of Economics, Moscow), available at the Social Science Research Network (SSRN): <https://ssrn.com/abstract=2885241>.

⁴ Gilmore, *The Death of Contract*, p. 98.

⁵ Perzanowski and Schultz, *The End of Ownership*, p. 1 ff.

⁶ See L. Lessig, *Law regulating code regulating law*, *Loyola University Chicago Law Journal* 2003, p. 1 ff.

⁷ Cf. for a more traditional analysis of objects of property law (such as the human body, pecuniary claims, social security benefits, public law licenses), not discussing the question of new objects resulting from the impact of digitalisation on property law, A. Praduroux, *Objects of property rights: old and new*, in: M. Graziadei and L.

2. “Classical” private law

It is interesting to note that Savelyev refers to “classic” contract law. What is meant? Generally speaking, authors who refer to classical contract law mean contract law (or more generally: private law) as it was developed during the 19th century.⁸ When analysing this classical model of private law two layers can be distinguished. A first (formal) layer, consisting of values, policies, leading principles, ground rules and technical rules: the “type” of law that applies. A second (substantive) layer, focussing on subjects, objects and relations: the “living” law. I will refer to these layers when discussing the model. “Classical” private law was developed in 19th century Europe after the French Revolution, but before the rise of Marxism and before the Industrial Revolution. Consequently, it focussed on land as the most important source of wealth and the “*citoyen*”, the well-to-do citizen. The ideological framework underlying the model was based on the ideals of the French Revolution, particularly “*égalité*” (equality, no differences should be made based upon status such as being of nobility) and “*liberté*” (freedom, stressing the autonomy of the individual and a person’s free will), resulting in a liberal (and thus market based) approach to economic relations. The third ideal of the French Revolution “*fraternité*” was, so it seems, more of a moral than a legal nature. The model was also based on a clear division of power between the legislature and the judiciary. The primary law maker was the legislator, the judge was to follow and apply the law with only limited power to create (secondary) case law. Although in England the judge still was the person seen as the ultimate arbiter regarding what the law was, parliament was sovereign and consequently had the power to change the law, so also in England the legislator was stronger than the judge. During the period in which the classical model of private law was developed also the rise of the nation-state can be seen, a nation-state which not only had a territory in Europe, but also outside Europe. The nation-states were colonial powers. Law on the continent of Europe became based on national codes and thus petrified; in England the doctrine of “*stare decisis*” essentially had the same effect. It is remarkable to note that the inward looking approach never resulted in a complete closing of the mind towards “foreign” influence. Countries which took over the Napoleonic Civil Code, to give but one example, kept looking at the development of private law in France. While colonising other countries, the European nation-states tried to influence the law in the colonies by introducing (and imposing) their own law. This can be seen as a form of globalisation of the law in a period during which, remarkably enough, in Europe the law became more and more national. Today we see a resurgence of this inward looking trend when it is argued that a country (nation) should first look after its own interests and that international economic and legal cooperation is only a second best alternative. Lessons learnt in the 19th and 20th centuries – and organisations such as UNIDROIT and UNCITRAL are the direct outcome

Smith, Comparative property law. Global perspectives (Cheltenham/Northampton, MA: Edward Elgar, 2017), p. 51 ff.

⁸ As I already discussed the classical model of private law in earlier writings, for further references I would like to refer to J.H.M. van Erp, Contract als Rechtsbetrekking. Een rechtsvergelijkende studie (“Contract as a form of Legal Relationship. A comparative study”) (Zwolle: W.E.J. Tjeenk Willink, 1990), p. 1 ff., S. van Erp, Teaching law in Europe: From an intra-systemic, via a trans-systemic to a supra-systemic approach, in: A.W. Heringa and B. Akkermans (eds.), Educating European lawyers (Cambridge/Antwerp/Portland: intersentia, 2011), p. 79 ff., p. 81 ff. and S. van Erp, Lex rei sitae: The territorial side of classical property law, in: Chr. Godt (ed.), Regulatory property rights. The Transforming notion of property in transnational business regulation (Leiden/Boston: Brill Nijhoff, 2016), p. 61 ff.

of that experience - show that a tendency to (re)nationalise the law will always encounter barriers of economic interdependence and international trade.

Based upon this ideological framework the classical model of private law took as its starting point that we should, first of all, separate liability questions (rights "*in personam*") from questions of wealth (rights "*in rem*"). Liability (the law of obligations) was inter-personal; wealth (the law of property) was about a person and his assets or, to formulate it more precisely, legal relations between a subject vis-à-vis a substantial number of other subjects regarding an object. The law of property functioned against the background of contract law. Because property law gave citizens strong rights against "the world", these rights were seen as in need of strict mandatory regulation and also in need of strict justification, given that everyone was bound by these rights without personal agreement. In other words: contract law was the default regime, resulting in personal liability, property law was the regime of exception, resulting in creating rights about wealth "*erga omnes*". When it was attempted to create a property right and this attempt failed, the law of contract, being the default system, might still impose, albeit personal, liability. If parties wanted to create a servitude, but for some reason were unsuccessful, they still were bound among themselves by their agreement. Also personal liability was strictly separated into two categories, depending upon whether it resulted from a person's free will to enter into a legal relationship with another person of free will ("meeting of the minds", contract) or whether the liability was imposed by the law (especially tort and unjustified payment). Liability imposed by the law could only happen under very strict conditions. Broken down contract negotiations could, therefore, not result in liability: No contract had been concluded yet, good faith only had a limited impact and also tort law did not intervene with duties governing behaviour during negotiations. Of course, liability could have an impact on a person's wealth (positively, as creditor, or negatively, as debtor), but questions of wealth were still seen as separate from liability, given the *in rem* character of rights regarding wealth. Questions of wealth were governed by property law, which dealt with a person's shadow in the material world: the "patrimoine" or "Vermögen". A patrimony consisted of all of a person's assets: physical things (particularly land), but also immaterial assets such as monetary claims arising from inter-personal liability. Whereas these claims were qualified negatively from the perspective of liability law (in other words: they were qualified from the debtor's side) as "obligation", they were qualified positively (in other words: from the creditor's side) in the world of wealth. In some legal systems the separation was complete, as can be seen in German law with the two leading dogmas: "*Trennungsprinzip*" (principle of separation of the law of obligations and the law of property) and "*Abstraktionsprinzip*" (principle under which legal acts affecting property relations are independent from the impact of the law of obligations). In French law, however, this separation has never been this strict, given the rule that a contract of sale transfers ownership, at least between the parties and against third parties in good faith.

With regard to contract law this "classical model" can be found back in the theory that contracts come into existence after a "meeting of the minds", based on the ground rule that a contract results from the mechanism of offer and acceptance. Given the autonomy of the individual ("freedom of contract" becoming the leading principle in this area of the law), a policy choice had been made to only introduce a few filters to check whether the will had been really free. A contract could be avoided if, e.g., the will had been influenced by fraud. Justified by the autonomy of the parties the content of their agreement was in their hands, again with only a limited filter to check this: contracts violating public policy or good morals were invalid. However, the number of mandatory laws was

limited, and so was the possible impact of public policy. Good faith was a concept that continental legal systems did accept, but only with regard to performance and enforcement of contracts. A contract, once concluded without any defect regarding the parties' free will and without violating the limited reasons for invoking public policy or good morals, was binding, irrespective of changing circumstances afterwards.

It will be obvious that, although this classical approach still can be traced in today's contract law, many of the assumptions underlying the model are no longer accepted. Individual autonomy is frequently absent when looking at a party's free will not from a formal, but from a substantive viewpoint. This explains the rise of heteronomous rules to protect those renting a dwelling house, employees and consumers. Individual autonomy is almost completely absent when accepting general terms and conditions: these are "take it, or leave it" contracts, often regarding goods or services one cannot really do without. Good faith is more and more seen as an overall norm of behaviour, which may also govern contract negotiations. This, however, does not mean that contract law is "dead". It still does make a difference whether liability is contract based or tort based, because it does matter if the parties involved, albeit perhaps to a very limited degree, accepted liability or not. What about property law?

The "classical" model of private law also deeply affected property law. The main object of wealth in the 19th century was land. Before the French Revolution land was still governed by a legal structure which emanated from the feudal system with its "*duplex dominium*" (dual ownership) of "*dominium directum*" (ownership in the hands of those who were nominal owners) and "*dominium utile*" (ownership of those who actually lived on and benefitted from the land). Part of the feudal system were positive feudal duties, such as the duty resting on the holder of the *dominium utile* to pay part of the harvest to the holder of the *dominium directum*. No developed system of land registration existed and secret – even general – mortgages could be established.⁹ As a consequence of the French Revolution on the Continent of Europe this feudal system of land holding was abolished and dual ownership was replaced by a unitary concept of ownership, albeit in France less strict than in Germany.¹⁰ Ownership was seen as the ultimate expression of freedom, which had both a positive and negative effect. An owner was entitled to the use and benefits of assets, could do which the asset as he pleased and was free to transfer it. He could also stop anyone from interfering with his asset. English property law did not know this abolition of the feudal system and remained, at least in theory, based upon feudal notions. It also preserved its own approach to fragmentation of ownership as a result of the interplay between Common Law and Equity culminating in the concept of the trust with its "legal" and "equitable" entitlement. With the abolition of the feudal system, the acceptance of positive burdens, which could bind a successive owner by force of law, disappeared. Classical property law distinguished different degrees of property rights: primary rights (ownership in the Civil Law, freehold and title in the Common Law) and secondary rights (property rights of a lesser nature). To a rather limited extent, as this violated separating liability from wealth questions, tertiary rights were recognised: rights which are in between contract law and property law. Tertiary rights have

⁹ Cf. V.J.M. van Hoof, *Generale zekerheidsrechten in rechtshistorisch perspectief* (Deventer: Wolters Kluwer, 2015).

¹⁰ See W. Swadling and B. Akkermans, *Types of property rights: Immovables and movables in: S. van Erp and B. Akkermans (eds.), Ius Commune casebooks for the common law of Europe, Cases, materials and text on national, supranational and international property law* (Oxford/Portland, Or.: Hart Publishing, 2012), p. 211 ff.

effect against third parties, but not against everyone, such as the lessee who is protected against the consequences of sale of the leased premises by the owner/lessor.

In the development of “classical” property law France – understandably, in light of its revolutionary history – made the choice to first of all protect ownership. This explains the choice for a causal system of transfer, returning ownership to the seller in case of, e.g., avoidance of the sales agreement. Almost a century later, in the heyday of the Industrial Revolution (so under different economic circumstances than the drafting of the French Civil Code), the German legislator made a choice for protecting commerce by strictly maintaining the difference between the law of obligations and the law of property. It is interesting to note that English law seems to have made another policy choice, by not abolishing the feudal system and maintaining its duplex ordo of Common Law and Equity. By means of equitable doctrines English property law is able to give legal protection to economic interests. The beneficiary under a trust is, although not entitled to the trust property under Common Law, still “owner” under the law of Equity, because of his apparent need to see his economic interest protected by the law.

To buttress post-revolutionary property law and prevent any reintroduction of the feudal system, classical property law introduced three leading principles. First of all, the principle of “*numerus clausus*” of property rights, to protect the newly introduced concept of unitary ownership against a return of quasi-ownership rights under the cloak of creating new secondary property rights. This *numerus clausus* of property rights has both a substantive and a procedural side, because this principle not only limits the number and content of such rights, but also how these rights are created, transferred and extinguished. Following the *numerus clausus* principle, next to full ownership only property rights less than ownership (secondary or so-called “limited” property rights) could be created. These limited property rights are of three types: use rights (such as servitude), security rights (e.g. mortgage) and management rights (trust and trust-like devices). The *numerus clausus* of property rights was accompanied by the principle that property rights follow a hierarchy (to be found in such ground rules as that older rights have priority over younger rights) and the principle that property rights must be transparent (e.g. by registration in case of immovable property). It could be said that the feudal period under which secret mortgages were allowed, which from a present day perspective could be seen as the ultimate protection of a mortgagor’s privacy, was replaced by a period more focussed on providing information to third parties, under which full disclosure was demanded.¹¹

It is against this background that for a considerable period of time property law became a rather static area of the law, relatively unaffected by the tumultuous developments of contract and tort law. Of course, under the influence of modern financing German law accepted the transfer of ownership for security purposes, but changes like this remained within the outer limits of the existing classical system. This can be seen when looking at what I called the second layer of that system. Earlier I defined property law as the law which governs legal relations between a subject and a considerable group of other subjects regarding an object. Who, generally speaking, can be a subject

¹¹ Regarding access to land registration data, as we see it today, a clear conflict of interest exists between those who are registered as being entitled to a property right and who claim privacy protection, third parties who have the right to be informed about the existence of rights which can be invoked against them and the general interest, which may demand as much public access as possible to prevent falsification and corruption regarding entries in the land registry.

of property law did not change fundamentally: natural and legal persons (under both private and public law). The objects which property law recognises (“legal objects”) generally are physical (tangible) assets, such as land and movables and, although in some legal systems more explicit than in other legal systems, intangibles, such as monetary claims, to which can be added intellectual property. Classical property law does not recognise new legal objects quickly. This can be seen with regard to the acceptance of public licenses as tradable objects and concerning the acceptance of different types of market quota, such as emission rights and milk quota. In my view this approach can be qualified as a different type of *numerus clausus* doctrine, as the number and nature of legal objects is limited. This *numerus clausus* of legal objects buttresses the *numerus clausus* of property rights, as it limits the objects as to which a property right can be claimed. The definition of a property right might even contain the object as to which such a property rights is possible. Although the two types of *numerus clausus* are, therefore, linked to one another, each type fulfils a different function. The *numerus clausus* of property rights limits the number and content of these rights, without limiting the objects which can be protected by rights *erga omnes*. The *numerus clausus* of legal objects provides the limitation concerning the objects and by doing so separates the more restricted category of what can be an object of property law from a broader category of what can be an object of contract law.

From the perspective of traditional – or should I, from today’s perspective, say: “analog”? – property law, as briefly sketched above, the prime questions with regard to the proprietary nature of data are whether (1) they can be accepted as legal objects of property law, (2) whether this has an impact on the nature and content of any property rights regarding such content and (3) if we are really talking about the “end” of ownership, or perhaps even classical property law. These questions will be discussed in the following paragraphs.

3. Data as a new legal object

The term “data” covers an incredibly vast area of information. All information needs a carrier. This can be the human mind (a person’s memory), the human body (think of genetic information), but also a non-human physical carrier, such as a hard disk, usb stick or chip, either connected to your local computer or a (cloud) server.¹² It seems that courts are in agreement that if data cannot somehow be specified, data are seen as pure information which as such cannot be, at least without any further justification, an object of property law. Examples are the English Court of Appeal in *Your Response Ltd. v. Datateam Business Media Ltd* and the New Zealand Supreme Court in *Jonathan Dixon v. The Queen*.¹³ Another question is whether information can be seen as an object separate

¹² Cf. on genetic information already L.B. Andrews, Legal aspects of genetic information, The Yale Journal of Biology and Medicine, 1991, p. 29 ff.

¹³ Cf. *Your Response Ltd. v. Datateam Business Media Ltd.*, Court of Appeal of England and Wales [2014] EWCA Civ 281; *Jonathan Dixon v. The Queen* [2014] NZCA 329 (CA516/2013) and [2015] NZSC 147 (SC 82/2014). See the opinion by Floyd, L.J., in *Your Response v. Datateam*: “42. I would add only one observation in connection with the wider implications of Mr. Cogley’s (the lawyer arguing for Your Response, JvE) submission that the electronic database was a type of intangible property which, unlike choses in action, was capable of possession and thus of being subject to a lien. An electronic database consists of structured information. Although information may give rise to intellectual property rights, such as database right and copyright, the law has been reluctant to treat information itself as property. When information is created and recorded there are sharp distinctions between the information itself, the physical medium on which the information is recorded and the

from the carrier, in other words whether information is of a tangible or an intangible nature and can be the object of ownership independently from (ownership of) the carrier. The Louisiana Supreme Court ruled in *South Central Bell Telephone Co. v Barthelemy*, a tax case, that software was tangible personal property.¹⁴ The New Zealand Supreme Court took a different, less principled and more pragmatic, approach in *Jonathan Dixon v. The Queen*. The court ruled (Arnold, J.):

“[49] (...) In *Your Response Ltd v Datateam Business Media Ltd* the Court of Appeal held that it was not possible to exercise a common law possessory lien over an electronic database. While the Court did not rule out the possibility that such a database might be property, it said that it was at best intangible property and so, on the authorities (*OBG Ltd v Allan* in particular), did not represent “tangible property of a kind that is capable of forming the subject matter of the torts that are concerned with an interference with possession”.

[50] The key question for us is whether the digital files are “property” for the purposes of s 249(1)(a) (Crimes Act 1961, SvE) rather than whether they are tangible or intangible property, given that the definition of “property” in s 2 includes both tangible and intangible property. What emerges from our brief discussion of the United States authorities is that although they differ as to whether software is tangible or intangible, they are in general agreement that software is “property”. There seems no reason to treat data files differently from software in this respect. Even though the English Court of Appeal considered that an electronic database was not tangible property capable of being converted, it acknowledged that it might be property.

[51] (...) We consider that interpreting the word “property” as we have is not only required by the statutory purpose and context but is also consistent with the common conception of “property”.”

What does become clear is that, if information is not somehow specified, it cannot be an object of property law. This is in conformity with one of the leading principles of property law: transparency. The principle of transparency in a classical sense only had two aspects: the object as to which a property right was claimed had to be clearly described and delineated (requirement of specificity) and it had to be made public (possession could imply information, but also registration). This transparency principle, given the pre-Internet age in which it was developed, assumed (physical) barriers, for example that a person asking for information on immovable property had to present himself in person at a land registration office or that only those who had a legitimate interest would ask and be given the requested information. These barriers protected the holder of a property right

rights to which the information gives rise. Whilst the physical medium and the rights are treated as property, the information itself has never been. As to this, see most recently per Lord Walker in *OBG Ltd v Allan* [2007] UKHL 21, [2008] 1 A.C. 1 at [275], where he is dealing with the appeal in *Douglas v Hello*, and the discussion of this topic in Green & Randall, *The Tort of Conversion* at pages 141-144. If Mr. Cogley were right that the database could be possessed and could be the subject of a lien and that its possession could be withheld until payment and released or transferred upon payment, one would be coming close to treating information as property. That observation further underlines the significance of the step we were invited to take.”

¹⁴ *South Central Bell Telephone Co. v Barthelemy*, 643 S2d 1240 (La 1994). The court ruled (Hall, J.), 643 S2d p. 1250: “In sum, once the “information” or “knowledge” is transformed into physical existence and recorded in physical form, it is corporeal property. The physical recordation of this software is not an incorporeal right to be comprehended.” See S. Bagert, *South Central Bell v Barthelemy: The Louisiana Supreme Court determines that computer software is tangible personal property*, *Tulane Law Review* 1995, p. 1367 ff. and R. Dankner Goldman, *From Gaius to Gates: Can civilian concepts survive the age of technology?*, *Loyola Law Review* 1996, p. 149 ff. Cf. for a more general comparison K. Moon, *The nature of computer programs: tangible? goods? personal property? intellectual property?*, *European Intellectual Property Review* 2009, p. 396 ff.

against information requests from third parties with no legal interest and in fact gave the right holder a privacy-like protection. However, as a consequence of present day information technology developments, traditional barriers to acquiring information are disappearing and the risk increases that information is becoming too easily accessible to persons who cannot show any legal interest whatsoever. The two requirements which constitute the transparency principle (specificity and publicity) are, therefore, now more and more seen as requirements which have to be balanced against the requirement of privacy. The person holding a property right is seen as entitled to be shielded from publicity in situations where third persons do not have a legitimate interest in the information.¹⁵

Particularly the specificity requirement could guide us towards criteria to establish which (types of) information can be recognised as legal objects (i.e. objects of property law). Once information (data) is specific enough to be considered an object of property law, it can be qualified as a virtual asset and questions regarding the publicity requirement, balanced by the privacy requirement, will have to be answered. In this contribution I will focus on the requirement of specificity, as I consider this to be a preliminary question that has to be asked before the publicity requirement needs to be considered.

When analysing types of information to see if information could be qualified as a legal object, I will focus on information stored on a non-human carrier, although this limitation might be questionable, because a chip might be implanted in a human body.¹⁶ Already chips are implanted in animals, such as pets or cattle. Ownership of the carrier will be governed by classical property law, particularly because it is a physical, movable thing. This means that the traditional approach to property law can be followed: Property law begins where a subject enters into legal relations with a considerable group of other subjects regarding an object, which implies that property law requires the existence of objects outside the human body.¹⁷ In case of an implanted chip (for example as part of a pacemaker) this would mean that the distinction between subject and object is gone, as after implantation the chip has become part of the human body, not unlike an organ transplant. It could then be argued that the data in the chip are to be considered as data comparable to genetic information and should be treated as such, with the consequence that any data in the chip would no longer be governed by (intellectual) property law.

Generally speaking, questions regarding ownership of the physical carrier are seen as different from questions concerning ownership of the data on the carrier, even though data cannot exist without a carrier. With respect to such data we encounter, first of all, the impact of intellectual property law, for example the intellectual property rights regarding software. With software, however, users can create new things: Do these new things fall under the umbrella of the holder of the intellectual property right or did the user of the software create an asset independent from intellectual property

¹⁵ It is interesting to note that even before the Internet Technology Revolution the German land registration system already knew the requirement of legal interest if someone requested information on a registered immovable. See M. Hinteregger and L. van Vliet, Transfer systems, in: S. van Erp and B. Akkermans (eds.), Cases, materials and text on national, supranational and international property law, p. 844 ff.

¹⁶ Cf. P.M. Schwartz, Property, privacy, and personal data, Harvard Law Review 2004, p. 2055 ff., p. 2060 ff.

¹⁷ A question which has recently been raised by H. Eidenmüller is whether 'robots' could be given legal personality. That seems, at least for now, unlikely to happen, but the fact that the question has been asked is a sign of how rapidly the technological landscape is changing and how difficult it is for lawyers to evaluate these developments. See H. Eidenmüller, Robot's legal personality, Oxford Business Law Blog 8 March 2017, www.law.ox.ac.uk/business-law-blog.

law? An example is a car computer, which stores data about the technical functioning of the car (engine, brakes etc.) and might also store data about a driver's behaviour in traffic (your driving style); of course, your navigation system stores your destinations. Who owns the data about your car's engine, your driving style and your destinations? Could you argue that, because you "own" your car according to classical property law, you own the data, as they are information which you created yourself by driving in your own car? Or can your car manufacturer or the manufacturer of your navigation system claim ownership under its intellectual property rights? The answer to these questions is of incredible importance when looking at the marketability of data. From a classical property law viewpoint it is the owner who can transfer. In my view, given the personalised nature of the information, it is the car owner who is entitled to the information, not the holder of the intellectual property right concerning the software in the car. This means that, if the copyright holder of the software wants to have access to the personalised information it will have to be transferred and the car owner will be protected by privacy law.¹⁸

Looking at the example I gave above, three elements surface to decide if the information is specific enough to qualify as a legal object: (1) nature of the content, (2) the person creating the content and (3) purpose and use of the content.

3.1. Nature of the content

As to content various types can be distinguished: (a) content directly related to the human body, (b) user generated content for personal use, (c) user generated content targeting a specific group or person, (d) mass distributed user generated content (for commercial purposes or non-commercial purposes), (e) open content and (f) agreed upon (commercial) content.

3.2. Person creating the content

Next to this categorisation focussing on the type of content I would like to suggest that we also take into account if data have been created by (a) a specific natural person (private owner of a car or sender of a WhatsApp message), (b) private enterprises (Facebook or Google) or (c) a government body (footage resulting from CCTV surveillance by the police, land registration data administered by a government agency).¹⁹

3.3. Purpose and use of the content

If a person creates data to be used only for personal purposes, this would be an argument in favour of accepting a property entitlement in the hands of that person. However, if the data concerns open content (Wikipedia), the nature of the content is a clear counter-argument. When user generated content targets a specific group or person (WhatsApp), this creates a closer link between the person creating the content and the data then if the user generated data is mass distributed (Facebook). If the content is meant to be exploited for commercial purposes, the person creating the content creates a personal link between him and the content to avoid that others can make use of it freely.

¹⁸ Cf. C. Prins, Property and Privacy: European perspectives and the commodification of our identity, in: L. Guibault and P.B. Hugenholtz (eds.), *The future of the public domain. Identifying the commons in information law* (Alphen a/d Rijn: Kluwer Law International, 2006), p. 223 ff.

¹⁹ See for a comparable approach, but focussing on consumers' information G. Malgieri, Property and (intellectual) ownership of consumer information: A new taxonomy for personal data, *Privacy in Germany - PinG*, n. 4, 2016, p. 133 ff., available at SSRN: <https://ssrn.com/abstract=2916058>.

This also is an argument in favour of accepting a property entitlement, which will frequently be accepted in any case because of the impact of intellectual property law. However, commercially used digital content in a public private partnership setting might again be differently treated. If a national land registry, government owned and operated, with the assistance of a privately owned Internet technology company is converted from a more traditional (partly paper based, partly digital) registration system to a system completely based on block chain technology and smart contracts, ownership of the data by that company will be of a mixed public/private nature. The result may be that upon termination of its contract with the government this company could be obliged to also hand over its source code, to allow the government access to and control over the stored land data.

These three elements (nature of the content, person creating the content, purpose and use of the content) can be seen as policy weighing factors to decide if the information (the data) is specific enough to be considered an object of property law. Questions regarding publicity and privacy remain. Particularly if the specificity requirement has been fulfilled because of a close nexus between person and content, given the purpose and use of the content, privacy protection will frequently prevail and make the publicity requirement moot.

4. Legal objects as qualifier of ownership

The *numerus clausus* of property rights is one of the (not to say: the most important) constituent principle underlying a property law system.²⁰ What has often not been observed so far on a more general level of abstraction is that property rights are defined from the perspective of the object concerned. Particularly a comparative approach might be revealing. Ownership in the civil law and freehold in the common law are, at least historically, concepts which focus on land. Whether intangible property could be owned was (and still is) a debatable question, the answer to which is based upon age-old discussions about the nature of intangible property. Could it be “owned” as land or was, for example, the contractual source of a monetary claim so directly connected with the *in personam* right between creditor and debtor that the economic value of such a right was fundamentally different from the economic value of physical objects, particularly land?²¹ Let me give an example from the Dutch Civil Code, given its relatively recent enactment. The Netherlands Civil Code (article 5:1) defines ownership as follows:²²

1. Ownership is the most comprehensive property right that a person, the ‘owner’, can have to (in) a thing.

²⁰ See for an analysis from a comparative and European viewpoint: B. Akkermans, *The principle of numerus clausus in European property law* (Antwerpen: Intersentia, 2008).

²¹ Cf. for a comparative study about monetary claims: C. Lebon, *Het goederenrechtelijk statuut van schuldvorderingen* (Antwerpen/Oxford: Intersentia, 2010) and C. Lebon, *Property rights in respect of claims*, in: S. van Erp and B. Akkermans (eds.), *Cases, materials and text on national, supranational and international property law*, p. 365 ff. See also J.L. Bergel, *Les nouveaux biens, Rapport Général*, in: *La Propriété, Travaux de l’Association Henri Capitant*, Tome LIII (Paris: Société de Législation Comparée, 2003), p. 203 ff. ; V. Sagaert, *Nieuwe perspectieven op het eigendomsrecht na tweehonderd jaar Burgerlijk Wetboek*, in: B. Tilleman and P. Lecocq, *Zakenrecht/Droit des biens* (Brugge: Die Keure, 2005), p. 43 ff.; P. Berlioz, *La notion de bien* (Paris: LGDJ, 2007), p. 71 ff. ; Chr. von Bar, *Gemeineuropäisches Sachenrecht*, Band I (München: C.H. Beck, 2015), p. 318 ff. and B. Mallet-Bricout, *Bien et immatériel en France*, in: *L’Immatériel, Travaux de l’Association Henri Capitant*, Tome LXIV (Bruxelles: Bruylant, 2015), p. 149 ff.

²² Translation to be found on: www.dutchcivillaw.com/.

2. The owner is free to use the thing to the exclusion of everyone else, provided that he respects the rights and entitlements of others to the thing and observes the restrictions based on rules of written and unwritten law.
3. The owner of the thing becomes the owner of its separated fruits and benefits, except when another person is entitled to them.

Article 5:2 adds that the “owner of a thing is entitled to (re)claim it from everyone who keeps it without a right or title.” At the heart of this definition is not only the content of the right, but also its qualifier: the object, the “thing”. This is defined in article 3:2: “‘Things’ are tangible objects that can be controlled by humans.” In other words monetary claims and property rights themselves are not “things” and cannot be owned, although the person having the claim or the property right is entitled to it and can, to give but one example, transfer it.²³ What we see is that the definition of the right is directly connected with the object. In Dutch law, following the model of German law, the object must be of a physical, i.e. tangible, nature. Monetary claims cannot be “owned”, one can only be “entitled” to these claims. In other words – taking not so much a dogmatic, but a more functional approach – “ownership” of intangibles is different from “ownership” of tangibles, because the object is different. French law takes a more flexible approach here, but also cannot deny that intangibles are different in nature from tangibles. Mallet-Bricout, therefore, argues that property law concerning physical things is seen as a model for all other types of property entitlements: “Plus généralement, les biens corporels semblent être encore souvent vécus comme des corps étrangers qu’il faut assimiler aux institutions et catégories de notre vieux droit des biens.”²⁴ Under English law it is even clearer than under Dutch, French and German law, that the object fills the content of the right. The primary right regarding land (“ownership” in the Civil Law) is the “estate in fee simple absolute” or the “freehold”; with regard to receivables and personal property the primary right is “title”. This realisation brings with it that if we are willing to accept new types of legal objects such as data, and then ask the question: “who owns this property?”, we are already in the process of formulating a different type of ownership.²⁵ This is why, also from a comparative viewpoint, it should be realised that, depending upon the legal object concerned and in light a legal system’s historical development, a more pragmatic approach must be chosen to avoid unnecessary and non-productive academic debate based on sterile dogmatic analysis and preconceived 19th century paradigms. We must realise that ownership of physical things is not the same as ownership of a monetary claim or ownership of data. In each case the legal object is different and hence the qualifier of the primary right. Using the same term (“ownership”) is as such of course possible, as long as it is realised that by doing so that particular legal system accepts different types and degrees of ownership. Traditionally, common lawyers, given the *duplex ordo* of common law and equity, are more open to this approach than civil lawyers, who, after the French Revolution, were educated in a legal environment in which *duplex dominium* had been abolished and a unitary concept of ownership – focussing particularly on land – had been introduced. Of course civil lawyers accept that monetary claims can be transferred and pledged, very much like tangible property can be transferred and pledged, but monetary claims

²³ Cf. W. Loof, *Of Trustees and Beneficial Owners. An inquiry into the proprietary aspects of trusts and trust-like devices from a European Private Law perspective* (Maastricht: Datawyse/Universitaire Pers Maastricht, 2016), p. 8 ff.

²⁴ Mallet-Bricout, *Bien et immatériel en France*, p. 161.

²⁵ Cf. J.H.M. van Erp and W. Loof, *Eigendom in het algemeen: eigendom van digitale inhoud (titel 1)*, in: L.C.A. Verstappen (red.), *Boek 5 BW van de toekomst. Over vernieuwingen in het zakenrecht* (Den Haag: SDU, 2016), p. 23 ff.

cannot be revindicated, neighbour law does not apply, so claims cannot be owned. The protection of monetary claims is a matter for contract and tort law, in other words: the law of obligations, not property law.

The recent changes in the Luxemburg Commercial Code might prove to be a good example of this use of the term “ownership” in a setting where it does not mean ownership in the traditional sense. In 2013 a new version of article 567, paragraph 2, of the Luxemburg Commercial Code was enacted.²⁶ It now reads:

“Les biens meubles incorporels non fongibles en possession du failli ou détenus par lui peuvent être revendiqués par celui qui les a confiés au failli ou par leur propriétaire, à condition qu’ils soient séparables de tous autres biens meubles incorporels non fongibles au moment de l’ouverture de la procédure, les frais afférents étant à charge du revendiquant.”

The Official Comment explains that this provision was desirable in light of the need to allow reclaiming data from a cloud server in insolvency situations.²⁷ The aim of the provision is certainly clear, but can the same be said about the property terminology used? Let me start by saying that this attempt by a legislature to offer a practical legal solution in situations which are more and more frequent and where classical property law does not offer workable answers is certainly to be applauded. At the same time it does show how incredibly difficult it is to do this, using the classical framework of property law. The text mentions that the property (defined as: “*les biens meubles incorporels non fongibles*”) must be separable (“*séparable*”), they must either be in the possession of or be held by the bankrupt (“*en possession du failli ou détenus par lui*”) and the property can be revindicated by the person who entrusted it to the bankrupt or who is its owner (“*revendiqués par celui qui les a confiés au failli ou par leur propriétaire*”). This clearly is civil law terminology, more particularly civil law terminology in the French legal tradition. Given that the property may also include specific data (how else to understand movable, non-fungible, incorporeal goods?), the various aspects of specificity discussed above should be taken into account when deciding if data can

²⁶ The parliamentary history can be found on:

www.chd.lu/wps/portal/public/RoleEtendu?action=doDocpaDetails&id=6485.

²⁷ The Exposé des Motifs states (No. 6485, Chambre des Députés, Session Ordinaire 2011-2012, Projet de Loi portant modification de l’article 567 du Code de Commerce), p. 2/3: “Le nouvel alinéa 2 de l’article 567 proposé traite du cas des biens meubles incorporels non fongibles. Il a été jugé utile de traiter ce cas à part, dans une nouvelle disposition, étant donné que la revendication en matière incorporelle ne saurait être limitée aux cas du dépôt et de vente pour compte du propriétaire, comme elle l’est en matière corporelle.

Il existe en effet aujourd’hui des hypothèses auxquelles le législateur n’a pas pensé il y a 10 ans et qui sont plus que de simples cas d’école. Ceci est le cas notamment dans le cadre des prestations offertes de façon de plus en plus large, à la fois au public en général et aux professionnels en particulier, en matière d’outsourcing ou d’informatique dématérialisée, appelée communément informatique dans le nuage (*Cloud-computing*). Pour continuer avec l’exemple du Cloud, l’une des applications du *Cloud computing* consiste par exemple pour une entreprise, une association ou une personne privée à ne plus conserver ses données et fichiers voire logiciels sur son propre système informatique, mais de les faire stocker sur des infrastructures informatiques externes accessibles via Internet. Or, il faut faire en sorte que celui qui a recours à de tels services puisse en cas de faillite du prestataire récupérer les données et fichiers afférents, en ce inclus les traitements qui auront été effectués par le failli ainsi que les résultats de ces mêmes traitements.

Quant à la recevabilité d’une action en revendication, le texte ouvre le droit à la revendication tant à celui qui a confié les données au failli qu’au propriétaire des données lui-même. Dans certains cas, il s’agira de la même personne; dans d’autres cas il peut s’agir de deux personnes différentes, chacune d’entre-elles disposant dans ce cas d’une action en revendication.”

be qualified as a legal object, an object of property law, which can be revindicated from a cloud server. Taking the approach, advocated above, we should look at the specificity requirement from three angles: nature of the content, person creating the content and purpose and use of the content. I fully agree with the approach taken regarding the requirement that the data must be separable: Only well-defined data can be legal objects. But is it sufficient if the data are stored on a particular drive or in a particular folder, or is it enough to create separate files by using programmes as Word, Excel or Adobe pdf? This is what the specificity requirement is all about. I would argue, following the analysis discussed above, that in the case of e.g. a company's books, stored on a cloud server, we look at the nature of the content (a company's books are probably a mixture of user generated content for personal use and user generated content targeting a specific group or person and agreed upon (commercial) content), the person creating the content (probably only a company's employees or employees of a firm providing the company with bookkeeping services, which also offers cloud storage) and purpose and use of the content (is the purpose only storage or are the cloud services part of an overall book keeping package?). If the specificity requirement has been fulfilled, most likely also the publicity requirement has been put into effect as well, because in the world of intangibles physical signs (for example file names) are necessary to make separated data visible to the outside world. In the case that we are discussing here (a commercial setting and insolvency) the privacy requirement plays a lesser role, as it is the person owning or entrusting the data to the cloud server who revindicates those data. If any privacy protection should be upheld because this person is controlling data about other persons, the already existing privacy provisions will continue to apply. Article 567 Luxembourg Commercial Code also uses the terms "possession" and "hold". In the French legal tradition possession refers to controlling an object for yourself, holding means controlling an object for someone else (e.g. a lessee holds for a lessor). By using the phrase "*en possession du failli ou détenus par lui*" Luxembourg law in fact introduces a concept of controlling, thus replacing the old traditional distinction between possessing and holding. This does not mean that the German concept of possession has now been introduced, distinguishing two types of possession ("*Eigenbesitz*" and "*Fremdbesitz*", respectively possessing for yourself or for another person). It means that next to the concepts of possession and holding a new concept is being introduced, taking into account the nature of the legal object: data. With regard to data it is not the traditional concept of possession that is applied, but the concept of control as used in modern Internet technology. Finally, the text introduces "revindication" of data owned or entrusted by the person claiming the data from the cloud server. First of all: the English word "entrusted" is used here purely as a translation of the new term "*confié*". It is not the word trust as used in English trust law, although it does have a connotation that seems to imply that a person who cannot be seen as owner, but still has a legitimate interest, should also have the right to reclaim the data. I would argue that by introducing a combination of terms, mixing traditional with new terminology ("*revendiqués par celui qui les a confiés au failli ou par leur propriétaire*") Luxembourg accepts the reality of Internet technology that what would have been revindication in classical property law, now has become what is called "access". Article 567, par. 2, Luxembourg Commercial Code could therefore be reformulated as follows, and hence also be made applicable in other legal settings:

"Specific data can be accessed and taken under control if the person claiming access and control can show a sufficient link with such data, and if the data can be separated from other data at the moment of opening the insolvency procedure."

I would submit that discussing property law problems along the lines discussed above might very well offer practical solutions, acceptable also from a trans-systemic and supra-systemic approach. It will, however, require extensive comparative research and rethinking of traditional, classical private law by an interdisciplinary group of experts, consisting of lawyers and Internet technology specialists. UNCITRAL, given its broad experience in the field of international commercial law, would be an excellent platform for such an expert working group.

5. Concluding remarks

The classical approach to property law can still be applied to legal objects which have historically been accepted as such: physical things, particularly land and also movable property, monetary claims and intellectual property. Next to the *numerus clausus* of property rights, limiting their number and content, in the civil law strengthened by the unitary concept of ownership, the number and type of legal objects can also be characterised as a *numerus clausus*. The type of object is decisive for the type of applicable property right. I gave the example of Dutch law in which ownership is defined as the most complete right concerning a physical thing. Consequently, if the thing is not physical, that particular object cannot be “owned”. This does not mean that no primary right (in the sense of the maximum of powers, rights, privileges and immunities) exists, but it is not ownership, but entitlement. The legal object is therefore the qualifier for the property right to be applied. In classical property law, if an asset could be qualified as a legal object, still no property right could exist if not a second leading principle had been fulfilled: transparency, demanding a specific description of the object concerned and publicity (balanced by the demands of privacy). When looking at the cases discussed above and particularly analysing the new article 567, par. 2, of the Luxemburg Commercial Code, it seems that – perhaps more implicitly than explicitly and more hesitatingly than boldly – data have been accepted as a new legal object. The difficulties seem more to arise from the requirement of specificity than, among other problems, from the classification of data as tangible or non-tangible.

The approach advocated is of a highly pragmatic nature. Data as falling within the *numerus clausus* of legal objects can only be understood from the perspective of Internet technology. New fitting legal concepts will have to be developed: ownership and revindication must be replaced by control and access; perhaps – so it might be added – the concept of “transfer” should be replaced by “distribution”. Does this mean that classical property law is dead? Or even worse: Is ownership, in the words of the legal realist Felix S. Cohen, “transcendental nonsense”?²⁸ Certainly not when we look at the traditionally accepted categories of legal objects. What we see is that classical property law is functioning as a model upon which a new property law can be built. The development of different conceptions of legal objects, with as a result a different approach to property rights and the protection they offer, is nothing new. In the past decades we saw the rise of so-called “constitutional property law”: property law as developed in human rights cases, particularly flowing from the interpretation of provisions in international treaties and constitutions protecting citizens against unacceptable expropriation measures. The nature of the legal field (not private law, but constitutional law) resulted in accepting assets as legal objects, which would not have been qualified immediately as legal objects under classical property law (e.g. rights to payment of a pension by a

²⁸ F.S. Cohen, Transcendental nonsense and the functional approach, Columbia Law Review, 1935, p. 809 ff.

pension fund).²⁹ Another new field is European property law, developed by the institutions of the European Union (flowing from the European treaties, legislative measures and case law). Also here new legal objects have been accepted as part of the development towards European-autonomous property rights (e.g. emission rights).³⁰ The acceptance of data as a new legal object is therefore not revolutionary, but the outcome of the gradual development of property law during the last century in light of changing technological conditions.³¹ It can therefore hardly be argued that we see the end of ownership. We only see a changing conception of ownership, which arises from the acceptance of data as a new legal object and results in a new field of property law: digital property rights.

²⁹ For a leading study in the field of constitutional property law see A.J. van der Walt, *Constitutional property law* (3rd ed.), (Cape Town: Juta, 2011).

³⁰ Cf. for an overview of European property law E. Ramaekers, *European Union property. From fragments to a system* (Cambridge/Antwerp/Portland: Intersentia, 2013).

³¹ Cf. S. van Erp, *Fluidity of ownership and the tragedy of hierarchy. A sign of a revolutionary evolution?*, *European Property Law Journal* 2015, p. 56 ff.