

OWNERSHIP OF DATA: THE NUMERUS CLAUSUS OF LEGAL OBJECTS

SJEF VAN ERP*

INTRODUCTION

From a comparative viewpoint, “ownership” at a formal level (i.e., technical-terminological), but even more so at a substantive level, already has a wide variety of meanings. It ranges from the fullest right possible with regard to tangibles (thus excluding intangibles as in German law) to the fullest right possible with regard to both tangibles and intangibles (as in French law) to an exclusive right to possession (as in common law, where we should, furthermore, distinguish between “estates” in land and “titles” to personal property).¹ What has hardly been noticed is that the description of what is meant by ownership, although primarily aimed at delineating the content of that right, also characterizes the object of the right. The object of the right is thus a part of the right’s content. In other words, the right (ownership) and the object (tangible/intangible) have traditionally been connected; the object is a qualifier of the property right. This intersects with the civilian idea of a *numerus clausus* of property rights, which is thus buttressed by a *numerus clausus* of legal objects. The type of property rights is seen as limited, both with regard to number and content, and so is the type of objects related to those property rights. The digital revolution, with its rapid growth of digital data and incredibly fast expansion of interconnectedness and interoperability, thus makes us question both what can be recognised as a legal object (can it include “digital data” and if so, under which

* Professor of Civil Law and European Private Law, Maastricht University; Member of the Executive Committee of the European Law Institute, Vienna (<http://www.europeanlawinstitute.eu>). Professor van Erp is available at s.vanerp@maastrichtuniversity.nl. This contribution is a revised and expanded version of an article, *Ownership of Digital Assets*, originally written as a contribution to a Festschrift (Sjef van Erp, *Ownership of Digital Assets* (forthcoming)).

1. See Bram Akkermans & William Swadling, in IUS COMMUNE CASEBOOKS FOR THE COMMON LAW OF EUROPE: CASES, MATERIALS AND TEXT ON NATIONAL, SUPRANATIONAL AND INTERNATIONAL PROPERTY LAW 211 ff (Sjef van Erp & Bram Akkermans eds., 2012); cf. Caroline Lebon, *Property Rights In Respect Of Claims*, in IUS COMMUNE CASEBOOKS FOR THE COMMON LAW OF EUROPE: CASES, MATERIALS AND TEXT ON NATIONAL, SUPRANATIONAL AND INTERNATIONAL PROPERTY LAW 365 ff (Sjef van Erp & Bram Akkermans eds., 2012).

conditions?) and what the impact of the recognition of digital data as a legal object means for our understanding of ownership. Ownership of digital data seems very different from ownership of, for example, land. This will require a rethinking of existing traditional concepts, not only on an intrasystemic scale (e.g., only focussing on the common law or the civil law traditions) but also on a trans- and even supra-systemic scale, given that these developments are of a global nature. This rethinking may need to find a globally shared approach.²

I. SUBJECTS, OBJECTS AND RIGHTS

In a recent article in the *European Property Law Journal*, the South African property law scholar Jean Sonnekus wrote that for a legal scientist it is “tantamount to mental laziness” if license, copyright, and ownership are all seen as assets “bundled under the same nomenclature as ‘property.’”³ Is this really the case?

Let us first start by analysing what, from a comparative viewpoint, is meant when lawyers refer to a particular problem as belonging to the law of property. Generally speaking, they are discussing the legal relations between a subject vis-à-vis a considerable number of other subjects, regarding an object. These legal relations can be distinguished from relations between two or more specific subjects, arising from a contractual agreement or tort. In civil law the distinction is fairly strict: a property right must be *erga omnes*, that is, “against all” or “against the world.” The common law is more flexible and also calls the legal relation a property right if someone has the “better title;” in other words, if a person in her relation with another person has the stronger right to an object.

Traditionally, the focus of property lawyers (and comparative property lawyers) has been on the various types of relationships, their structure, and content. In the United States, the best example of such an approach was the famous analysis by Wesley Newcomb Hohfeld of property rights as an amalgam of rights, powers, privileges, and immunities, which was even taken as the foundation upon which the

2. Cf. Sief van Erp, *Teaching Law in Europe: From an Intra-Systemic, Via a Trans-Systemic to a Supra-Systemic Approach*, in *EDUCATING EUROPEAN LAWYERS* 79 (A.W. Heringa & Bram Akkermans eds., 2011).

3. JC Sonnekus, *The Fundamental Differences in the Principles Governing Property Law and Succession from a South African Law Perspective*, 3 *EUR. PROP. L.J.* 130, 136 (2014).

Restatement Property was built.⁴ However, the questions of who could be a subject of property law and what could be an object of property law were not asked. It was, so it seems, not really considered to be a problem.⁵

Traditionally, subjects of property rights could be natural and legal persons. Legal persons could be corporations, but also entities of public international law or entities of State. Ownerless property rights arising in a trust structure, such as exists in the Canadian province of Québec and—based upon the Québec model—the Czech Republic, were unknown.⁶ It was even unthinkable that “virtual” subjects might own something, as is the case with avatars in the virtual world of *Second Life*, or that objects might become autonomous through self-learning attributes—hence, “robots” with legal capacity.⁷ Also from a traditional viewpoint, objects of property were, first of all, physical things; particularly land, but also movables. It took some time before non-physical things (“intangibles”) were accepted as objects of economic value, such as monetary claims, which could be transferred and used as security for repayment of a loan. Questions concerning digital data were inconceivable. Information was seen as something which was so fluent that it could not be owned. Even in the United States it took some time before privacy, in the sense of information that was “yours,” was seen as something to which you could be “entitled” and that such an entitlement could be violated.⁸ To summarise and

4. Wesley Newcomb Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 YALE L.J. 16 (1913); Thomas W. Merrill & Henry E. Smith, *Why Restate the Bundle?: The Disintegration of the Restatement of Property*, 79 BROOK. L. REV. 681, 683 ff (2014).

5. See Kenneth J. Vandavelde, *The New Property of the Nineteenth Century: The Development of the Modern Concept of Property*, 29 BUFF. L. REV. 325 ff (1980) (citing Charles A. Reich, *The New Property*, 73 YALE L.J. 733 ff (1964)).

6. Cf. Alexandra Popovice, *Trust in Quebec and Czech Law: Autonomous Patrimonies?*, 6 EUR. REV. PRIV. L. 929 ff (2016) (Neth.).

7. Compare the recent intriguing report on robotics published by the European Parliament: Nathalie Nevejans, *European Civil Law Rules in Robotics*, Study for The European Parliament's Legal Affairs Committee, PE 571.379 (2016); and the European Parliament Resolution of 16 February 2017 with Recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)). See also *Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions “Building a European Data Economy”*, COM (2017) 9 final (Oct. 1, 2017).

8. Daniel J. Solove, *A Brief History of Information Privacy Law*, in PROSKAUER ON PRIVACY: A GUIDE TO PRIVACY AND DATA SECURITY IN THE INFORMATION AGE, ch. 1 (2006), http://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=2076&context=faculty_publications.

put it differently, the type and the content of objects in which a person could have a property right were closed. Property law was based on a *numerus clausus* of objects.

This rather static model of property law, as just described, is part of a nineteenth-century approach to private law that is frequently described as the “classical” model. From a property law perspective, it is aimed at creating *ex ante* secure legal relations, both from a retrospective viewpoint (what happened in the past should be accepted) and a prospective viewpoint (any future changes should follow established rules). I examined this classical property law model in a series of articles.⁹ This classical model of property law was developed in a period when the law was in the process of being (or had just been) codified on the continent of Europe, and the doctrine of *stare decisis* was developed in England. Both developments, at least initially, had the same background and the same effect. In a period of growing nationalism, the law was made an expression of a nation’s self-identity, with the effect that lawyers became more introvert by only discussing legal questions within a relatively small group made up of the same nationality or spoken language. Furthermore, petrification of the law took place because the legal mind began to close itself to new ideas from outside national sources and even ceased to reevaluate existing legal concepts in light of social and economic changes.¹⁰

That makes it understandable why this classical model was based on a rather close-fitting view of what could be an object of property law. It also explains why intellectual property law developed (and had to develop) into a separate legal area next to general property law. The creative products of the human mind just did not fit in the world of “real” things. Property lawyers seemed inclined to forget how their conceptualisation of ownership was influenced by their focus

9. SJEFF VAN ERP, EUROPEAN AND NATIONAL PROPERTY LAW: OSMOSIS OR GROWING ANTAGONISM? (Wouter Devroe et al. eds., 2006); cf. Sjeff van Erp, *European Property Law: A Methodology for the Future*, in EUROPEAN PRIVATE LAW: CURRENT STATUS AND PERSPECTIVES 227 ff (Reiner Schulze & Hans Schulte-Nölke eds., 2011); Sjeff van Erp, *Can European Property Law Be Codified? Towards the Development of Property Notions*, in TOWARDS A CHINESE CIVIL CODE: COMPARATIVE AND HISTORICAL PERSPECTIVES 153 ff (Lei Chen & C.H. Van Rhee eds., 2012); Sjeff van Erp, *Lex rei sitae: The Territorial Side of Classical Property Law*, in REGULATORY PROPERTY RIGHTS: THE TRANSFORMING NOTION OF PROPERTY IN TRANSNATIONAL BUSINESS REGULATION 61 ff (Christine Godt ed., 2016).

10. Cf. Stephen Jacobson, *Law and Nationalism in Nineteenth-Century Europe: The Case of Catalonia in Comparative Perspective*, 20 LAW & HIST. REV. 307 ff (2002).

on particular (especially tangible) objects. They concentrated on their own niche in the web of relations, governed by private law. General property lawyers declared property law to be fundamentally different and therefore separate from intellectual property law, thus enabling them to maintain thought patterns that were sometimes ages old and based on societies in which land was the most valuable asset a person could have. Intellectual property lawyers, on the other hand, did exactly the same by assuming that their legal area focused on immaterial things and therefore could and should be analysed independently from general property law. Of course, the two legal areas were never wholly separate (certainly not in legal practice), but the attitude of both general and intellectual property lawyers seemed to be inclined towards separation. As an unfortunate result the awareness at an overall level that a connection exists between object and right has been lost. Let me elaborate on this somewhat further.

In the classical model of property law, the default position is that a right is in personam, unless it qualifies as a right in rem. It can only qualify as a right in rem if it passes two tests: the numerus clausus test and the transparency test. The numerus clausus test implies that only a limited number of rights can be recognised as rights in rem. The creation, content, transfer, and extinguishment of those rights is governed by strict rules of a mandatory nature, leaving only limited freedom to the parties who must be directly involved. The transparency test concerns the interests of third parties, who should have an adequate possibility of finding out whether any property rights exist for a given object and what the impact might be for that particular third party. Transparency implies that the object of a property right is clearly described (principle of specificity) and that any property rights regarding the clearly described object are accessible at least for those who have a legitimate interest in being informed about such rights (principle of publicity). The nature and types of object to which a property right can be claimed are, as defined, part of what constitutes a property right, particularly the right of ownership.

Let me take as an example the still fairly recent Netherlands Civil Code (the *Burgerlijk Wetboek*). By defining ownership as the “most comprehensive right which a person can have in a thing” and defining “things” as “corporeal objects susceptible of human control,” the Netherlands Civil Code at the same time limits the number of objects

that can be owned and, by doing so, the scope and ambit of the right of ownership.¹¹ Only physical things can have an owner. However, next to things the Netherlands Civil Code also accepts other objects in which a property right (such as usufruct) can exist. A person's estate is comprised of all physical things and all patrimonial rights.¹² However, a patrimonial right (e.g., a right arising from a contract) cannot be "owned." A person can only be "entitled" to it, although "entitlement" in economic terms comes very close to ownership.

The system of the Netherlands Civil Code shows, in fact, the importance of what the law considers to be a legal "object." Next to defining who can be subjects of private law, it is the foundation upon which the Code is built. The Code begins by answering the question of who can be subjects of private law (Book 1 on family law and Book 2 on legal persons); then continues by deciding which objects are a part of a person's legal patrimony (Book 3 on patrimonial rights, the first part containing general provisions); follows with rules regarding the passing of a whole patrimony (Book 4 on succession), ownership (Book 5), the creation of voluntary and involuntary duties (Book 6 on obligations, Book 7 on special contracts, and Book 8 on transport). The Code finally ends with rules on the application of Dutch private law in an international case (Book 10 on private international law).¹³ Interestingly enough, Book 9 (intellectual property) still has to be enacted. This structure makes it clear that, after having established

11. Art. 5:1 Burgerlijk Wetboek [BW] [Civil Code](Neth.); Art. 3:2 BW (Neth.). I refer to the English translation of the NETHERLANDS CIVIL CODE: PETER HAANAPPEL & EJAN MACKAAY, NETHERLANDS CIVIL CODE—BOOK 3, PATRIMONIAL LAW IN GENERAL (English-French) (1990), [hereinafter HAANAPPEL & MACKAAY, PATRIMONIAL LAW IN GENERAL], <https://ssrn.com/abstract=1737823>; and PETER HAANAPPEL & EJAN MACKAAY, NETHERLANDS CIVIL CODE—BOOK 5, REAL RIGHTS (English-French) (1990) [hereinafter HAANAPPEL & MACKAAY, REAL RIGHTS], <https://ssrn.com/abstract=1708925>.

12. Art. 3:1 BW (Neth.).

13. Books 1–8, 10, BW (Neth.). For the English translation of Books 3, 5, 6, 7, and 8, see HAANAPPEL & MACKAAY, PATRIMONIAL RIGHTS IN GENERAL, *supra* note 11; HAANAPPEL & MACKAAY, REAL RIGHTS, *supra* note 11; PETER HAANAPPEL & EJAN MACKAAY, NETHERLANDS CIVIL CODE—BOOK 6, GENERAL PART OF THE LAW OF OBLIGATIONS (English-French) (1990), <https://ssrn.com/abstract=1737848>; PETER HAANAPPEL & EJAN MACKAAY, NETHERLANDS CIVIL CODE—BOOK 7, SPECIAL CONTRACTS (English-French) (1990), <https://ssrn.com/abstract=1737849>; and PETER HAANAPPEL & EJAN MACKAAY, NETHERLANDS CIVIL CODE—BOOK 8, TRANSPORT LAW (English-French) (1990), <https://ssrn.com/abstract=1778425> or <http://dx.doi.org/10.2139/ssrn.1778425>. For an English translation of all Books (including Book 4, Succession, and Book 10, Private International Law), see DUTCH CIVIL LAW, <http://www.dutchcivillaw.com/civilcodegeneral.htm> (last visited Aug. 16, 2017).

who the subjects of private law are, the immediate follow-up question is, what can be an object of private law? Only after these two questions have been resolved, can a legal system deal with the question of which legal relations may exist between subjects regarding these objects. These relations can then exist both between two or more specific subjects, rights in personam, or between a person and a considerable group of third persons, rights in rem.

It is important to realise that legal systems, before they can deal with the legal relations between people regarding the objects in the world around them, must first focus on the questions of who can be a legal subject and what can be a legal object. Under Dutch civil law, if the object is of a physical nature (a “thing,” particularly land), a right of ownership can exist regarding such object. However, concerning objects of an intangible nature (“patrimonial rights”), only certain property rights can exist but ownership cannot. With regard to the results of a person’s creative work, I already remarked that the rights concerning this type of object were separated from general property law to avoid disturbing the general framework of the classical property law model.

From the perspective of today’s society, in which the virtual economy is almost becoming more important than the “real” economy, the classical approach to property law must be revisited and re-evaluated for digital assets. Otherwise, we are creating a lawless virtual reality where the rule of technology governs instead of the rule of law.¹⁴ What I am wondering about is how, following Jean Sonnekus’s call for academic clarity and precision in legal analysis,¹⁵ we should revisit the classical conception of private-law objects in light of the digital revolution. Can we adapt the existing *numerus clausus* of objects to fit the new virtual reality, or should we create a separate area of property law (very much as intellectual property law was created next to traditional property law) focussing only on digital assets?¹⁶

14. See Sijf van Erp, *Ownership of Digital Assets?*, J.EUROPEAN CONSUMER & MKT. L. 73, 74 (2016).

15. Sonnekus, *supra* note 3.

16. I leave aside the question of whether we should even consider creating a whole new area of general private law, dealing not only with the property aspects of the digital revolution, but also the contractual and extracontractual aspects of virtual reality.

II. DIGITAL ASSETS: A NEW CATEGORY IN THE NUMERUS CLAUSUS OF LEGAL OBJECTS?

A. *Introductory Remarks*

Before we can begin analysing the impact that the digital revolution has on current property law, we need first to examine which new, possible objects of property law have already been distinguished. In 1980, a then young academic legal researcher, Kenneth J. Vandeveld, wrote a challenging article on “new property,” building upon a seminal article from 1964 by Charles Reich.¹⁷ Reich had advanced the argument that in a society in which government plays an ever-increasing role, government benefits create new forms of wealth (“new property”). In his article, Vandeveld took a legal-historical approach, focussing on the nineteenth and beginning of the twentieth centuries, and argued that with regard to older types of new property (e.g., business goodwill and trade secrets) the “protection of value rather than things—the dephysicalization of property—greatly broadened the purview of property law.”¹⁸ His conclusion was somewhat bitter:

From [the jurist’s] perspective, the process of expansion and transformation of the concept of property accomplished two things. First, it demonstrated that there was nothing inevitable about the definition of property. That is, property law could not be logically deduced from the nature of things. Second, the broad and variable nature of the new property destroyed the fixed meaning of the concept, so the results of cases could no longer be deduced from the nature of the property rights.¹⁹

Vandeveld’s analysis shows that dephysicalisation or dematerialisation is a development that has taken place over several centuries and that, I would add, is now culminating because of the ever broadening and deepening of the Internet’s virtual reality as well as the still-increasing impact of digitalisation. His warning, however, should be heeded. We should not, too soon, abandon existing property law without first having tested whether it can withstand the stress of

17. Vandeveld, *supra* note 5, at 325 ff.

18. *Id.* at 329 ff.

19. *Id.* at 366 ff.

having to deal with digital assets. This is why in a position paper on digital content as a “thing,” which I co-authored and also presented during the 2016 annual meeting of the Netherlands Royal Society of Notaries, I kept looking for footholds in existing law. My co-author and I took the view that, at least from a theoretical-analytical viewpoint, an analogy could be drawn between digital content and the existing law on physical things—but the analogous application of the rules on ownership should be very carefully considered.²⁰ We, therefore, advised against adding a provision introducing ownership of digital content to the Netherlands Civil Code because the impact of such a decision would be too uncertain. It is this careful, searching approach that I now explain.

B. Uncertainty of Terminology: Data, or Digital Assets?

First of all, a preliminary remark about terminology has to be made. Which new objects are we discussing? In both legal literature and draft legislation various terms can be found, such as “data,” “digital data,” “digital content,” “virtual property,” and “digital assets.”²¹ All of these terms relate, in one form or another, to information. What can be said from the outset is that pure information will not find protection easily.²² Cases that show this are *Your Response Ltd. v. Datateam Business Media*, decided by the Court of Appeal of England and Wales, and *Jonathan Dixon v. The Queen*, decided by the Supreme Court of New Zealand (quashing the decision by the New Zealand Court of Appeal).²³ I am, therefore, focussing on those data types that can be specified (and therefore can be more easily equated with

20. J.H.M. van Erp & Willem Loof, *Eigendom in Het Algemeen: Eigendom Van Digitale Inhoud (titel 1). Over Digitale Inhoud Als Zaak*, in BOEK 5 BW VAN DE TOEKOMST: OVER VERNIEUWINGEN IN HET ZAKENRECHT 23 ff (L.C.A. Verstappen ed., 2017) (Neth.).

21. Cf. also W. Erlank, *Finding Property in New Places—Property in Cyber and Outer Space*, 18 POTCHEFSTROOMSE ELEKTRONIESE REGSBLAD [POTCHEFSTROOM ELEC. L.J.] [PER/PELJ] 1760 (2015) (S. Afr.), <http://www.ajol.info/index.php/pelj/article/view/130767>; W. Erlank, *Introduction to Virtual Property: Lex virtualis res ipsa loquitur*, 18 PER/PELJ 2525 (2015), <http://www.ajol.info/index.php/pelj/article/view/131481>.

22. For a rare example in which (so it seems) pure information was protected (concerning investment advice in a column written for *The Wall Street Journal*), see *Carpenter v. United States*, decided by the U.S. Supreme Court on November 16, 1987, 484 U.S. 19.

23. *Your Response Ltd. v. Datateam Business Media Ltd.* [2014] EWCA (Civ) 281 (Eng.), <http://www.bailii.org/ew/cases/EWCA/Civ/2014/281.html>; *Jonathan Dixon v. The Queen* [2014] NZCA 329 (CA516/2013) (N.Z.) and [2015] NZSC 147 (SC 82/2014) (N.Z.), <http://www.nzlii.org/nz/cases/NZCA/2014/329.html>.

nonrivalrous objects) and that have economic value separate from their carriers—such that in economic life these data are treated as tradable assets (albeit digital or virtual). Let me, first of all, discuss in greater detail the two cases just mentioned, which will make clear that data, in as far as it is pure information, can never be given legal (including proprietary) protection.

C. *Your Response Ltd. v. Datateam Business Media*

In *Your Response Ltd. v. Datateam Business Media*, the facts were as follows. Your Response was a publisher of magazines. Data concerning the subscribers (name, address, and publication subscriptions) was held in electronic form. In March 2010 the publisher agreed with Datateam Business Media that it would hold and maintain Your Response's database. The essence of the agreement was laid down in an email. The email did not specify what to do with the database when the contract came to an end. During the summer of 2011 the business relationship was terminated by the publisher, giving the database manager one month's notice. Then, the database manager sent the publisher an invoice for fees due. An impasse followed, with the database manager refusing to release the database to the publisher, and the publisher refusing to pay the fees.

One of the questions that needed to be decided was whether the database manager could exercise a possessory lien over the database. The Court of Appeal of England and Wales denied this. It might be instructive to quote from the decision by L.J. Moore-Bick:

23. Although an analogy can be drawn between control of a database and possession of a chattel, I am unable to accept Mr. Cogley's (the barrister representing Datateam Business Media, SvE) argument. It is true that practical control goes hand in hand with possession, but in my view the two are not the same. Possession is concerned with the physical control of tangible objects; practical control is a broader concept, capable of extending to intangible assets and to things which the law would not regard as property at all. The case of goods stored in a warehouse, the only key to which is held by the bailee, does not in my view undermine that distinction, because the holder of the key has physical control over physical objects. In the present case the data manager was entitled, subject to the terms of the contract, to exercise

practical control over the information constituting the database, but it could not exercise physical control over that information, which was intangible in nature. For the same reason the withholding of the database by the data manager could not, even if wrongful, constitute the tort of conversion.

....

31. Before he can exercise a lien at common law a bailee must have obtained a continuing right of possession which he is entitled to exercise against the bailor. Thus a racehorse trainer cannot exercise a lien over a racehorse for his fees if the contract reserves to the owner (expressly or by implication) the right to decide the places at which and the jockeys by whom it is to be raced: see *Forth v Simpson* (1849) 13 Q.B. 680. Likewise, one reason given for denying to a keeper of livery stables the right to exercise a lien for his charges is that he is obliged to give possession of the horse to the bailor whenever requested: see *Scarfe v Morgan* (1838) 4 M. & W. 270. (Another is that feeding and stabling does not improve the horse: see *Judson v. Etheridge* (1833) 1 Cramp. & M. 743 and *In re Southern Livestock Producers Ltd.* [1964] 1 W.L.R. 24.) Although the contract in the present case contained no express provision for the publisher to have access to the data, neither did it contain any provision, express or implied, excluding him from it and the fact that the data manager did in fact make access to it freely available by the provision of a password is in my view inconsistent with the conclusion that he was in fact exercising the kind of exclusive control that would equate to the continuing possession required for the exercise of a lien. In view of the other conclusions to which I have come it is not necessary to reach a final decision on this point, but if necessary I would hold that in this case the data manager did not exercise the degree of control necessary to entitle it to exercise a lien.²⁴

The argument used to deny the database manager the ability to exercise a lien was, therefore, that control over a database is not the same as possession of a physical asset and that the control of Your Response's database was not to the full exclusion of the publisher. It shows how difficult it is to analyse problems in this digital era, with legal concepts inherited over centuries and dating back to societies

24. *Your Response Ltd.* [2014] EWCA (Civ) 281 [23], [31] (Eng.).

where land (not even personal property) was the most valuable legal object. In this case, it was the object that created problems for the court. As the object was problematic, the court felt unable to apply traditional property concepts, such as possession. The court used the wide open term “control,” which is then considered to be of a non-legal nature. The court’s reasoning suggests that the object in this case had already been qualified as not belonging to the *numerus clausus* of property law objects. Thus, any rights regarding this object might be of an economic, social, or even psychological nature, but could not be given protection under the law. Digital assets, however, do have economic value, do play an increasingly important role in our society, and are seen by people as things which belong to you and are therefore “yours.” The law, however, is caught up in looking at the reality around us as a physical reality, despite recognizing the rights of monetary claims arising from contracts and despite accepting intellectual property rights. Courts who understand all this clearly face a dilemma, but they do not know how to develop the laws to embrace virtual reality.

This feeling of being confronted by a dilemma can be found in L.J. Floyd’s opinion in *Your Response Ltd. v. Datateam Business Media*:

42. I would add only one observation in connection with the wider implications of Mr. Cogley’s 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 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.²⁵

The basic problem for the Court of Appeal was whether data in a database should be seen as “pure” information (and consequently, too broad a category to be accepted as a legal object) or instead as separate enough from other data that it could fit within the specificity requirements of property law. The court ruled that it was pure information. As we shall see later, a very different conclusion could also have been drawn.

D. Jonathan Dixon v. The Queen

Although this is a criminal case, the considerations of the court are still highly revealing. Can digital assets be stolen? This is a question that the Netherlands Supreme Court decided in the 2012 *RuneScape* case.²⁶ In that case a boy was forced to release a virtual amulet and mask, part of the Internet game *RuneScape*, to another boy, under the threat of physical violence. The supreme court ruled that such a virtual amulet and mask can come under the de facto and exclusive control of one person and can therefore qualify as property that can be stolen. The virtual amulet and mask had real value, which had been created by spending time and effort in game play.

However, this approach was not taken by the New Zealand Court of Appeal in *Jonathan Dixon v. The Queen*. In that case a security guard (“bouncer”) heard that in the bar where he worked an incident had taken place between the captain of the English rugby team, Mike Tindall, and a female patron. The security guard, Jonathan Dixon, knew that Mr. Tindall had married Queen Elizabeth II’s granddaughter, Zara Phillips. He realised that the incident between Mr. Tindall and the female patron must have been recorded on the closed circuit

25. *Id.* at [42].

26. Netherlands Supreme Court [HR] 31 januari 2012, NJ 2012/536. The Netherlands Supreme Court also decided that when standard software is being transferred for an unlimited period and against payment this must be seen as sale of property, irrespective of whether the software is delivered on a data carrier or by downloading it: HR 27 April 2012, NJ 2012/293 (*Beeldbrigade* case). The court also accepted the seizure of digital assets in order to preserve evidence in HR 13 September 2013, NJ 2014/455. All cases can be found in electronic format on <https://www.rechtspraak.nl/Uitspraken-en-nieuws/Uitspraken>.

television (“CCTV”) of the bar and asked a receptionist to download the footage onto the computer in the reception area, which she did, thinking that Mr. Dixon was requesting this in his capacity as a security guard. Mr. Dixon then copied the footage on a USB stick and tried to sell it. When this failed he uploaded it to a video-sharing site. As a result the footage received wide publicity in New Zealand and the United Kingdom. Could this incident qualify as breaking into a computer to “obtain any property”?²⁷ The court of appeal answered this question negatively, and I am including a somewhat lengthy quote to show how the court struggled with the question. After having discussed the legal nature of confidential information and agreeing with the orthodox view that such information is not property, the court considered whether digital footage may be seen as different from confidential information. The court ruled:

[31] After careful consideration, however, we have reached the view that electronic footage stored on a computer is indistinguishable in principle from pure information. It is problematic to treat computer data as being analogous to information recorded in physical form. A computer file is essentially just a stored sequence of bytes that is available to a computer program or operating system. Those bytes cannot meaningfully be distinguished from pure information. A Microsoft Word document, for example, may appear to us to be the same as a physical sheet of paper containing text, but in fact is simply a stored sequence of bytes used by the Microsoft Word software to present the image that appears on the monitor.

[32] Accordingly, we consider that if confidential information is not property digital footage also cannot be.

[33] That leaves the question of whether we should depart from the orthodoxy that confidential information cannot be property. It is true that the confidential information cases have attracted some criticism. In particular, the distinction drawn between the information itself (not property) and the medium on which it is contained (property) has been said to be illogical and unprincipled.

[34] However, the courts have essentially taken the view that any illogicality is outweighed by the strong policy reasons that militate

27. Crimes Act 1961, sch 249, cl 2 (N.Z.), <http://www.legislation.govt.nz/act/public/1961/0043/latest/DLM330422.html>.

against recognition of information (whether confidential or otherwise) as property. The concern is that if the law were to recognise confidential information as property and so afford it the full protection of property law, that would be likely to have a damaging effect on the free flow of information and freedom of speech.

[35] We accept that legal concepts of property are constantly evolving to reflect societal changes and new developments. We acknowledge too that at the same time as it created new computer-related offences (including the one with which Mr Dixon was charged), the New Zealand Parliament amended the definition of property. However, as noted above, the amendment was limited. It consisted only of the addition of money and electricity. Parliament must be taken to be aware of the large body of authority regarding the status of information and in our view had it intended to change the legal position, it would have expressly said so by including a specific reference to computer-stored data.²⁸

It seems to me that the court is mistaken when it uses free-flow-of-information arguments in a property law discourse. Free flow of information has to do with freedom of speech and freedom of the press. This case instead involves the question of whether information can qualify as an object to which property rights can attach if exclusive control can be exercised. A journalist is given the freedom, albeit within certain limits, to write. He may gather and disseminate information. However, the article he writes is protected by copyright, and the file containing his article can be stolen, irrespective of whether it is on a (hard) disk, USB stick, or stored on a cloud server. It can therefore, in my view, not come as surprise that, on appeal, the New Zealand Supreme Court quashed the decision by the New Zealand Court of Appeal. It said:

[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

28. *Jonathan Dixon v. The Queen* [2014] NZCA 329 (CA516/2013) at [31]–[35] (N.Z.) (footnotes omitted).

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) [of the Crimes Act 1961] 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”.²⁹

The New Zealand Supreme Court limits its decision, above, to the interpretation of a particular statute. However, it cannot be denied that the New Zealand Supreme Court seems to show more willingness than the New Zealand Court of Appeal to accept that data, if contained on a file, can be considered an object of property law.

E. The Failed Attempt to Reify Data

A clear problem regarding data is its so-called “nonrivalrous” nature: it can be copied infinitely, making it difficult to specify which data, which is a fundamental requirement for anything to qualify as an object of property law.³⁰ The statement “I own” is meaningless if not followed by a description of what you own. This is what is meant by the requirement that any object of property law must be specific (or at least sufficiently specifiable). To solve this problem, sometimes a court may resort to reify data. An example of this is a decision by

29. *Jonathan Dixon v. The Queen*, [2015] NZSC 147 (SC 82/2014) at [49]–[50], [51] (N.Z.) (footnotes omitted).

30. Cf. Joshua A.T. Fairfield, *Virtual Property*, 85 B.U. L. REV. 1047, 1057 ff (2005); Charles Blazer, *The Five Indicia of Virtual Property*, 5 PIERCE L. REV. 137 ff (2006).

the Louisiana Supreme Court, which ruled in the tax case *South Central Bell Telephone Co. v. Barthelemy* that software was tangible personal property.³¹ The court, under Justice Pike Hall, stated, “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.”³²

This does not actually solve the problem, as all data needs a carrier. By approaching the problem of the nonrivalrous nature of data in this way, the court attempts to connect data, as an object, to the existing category of tangible objects. The question, however, remains whether data can be seen as an object separate from its carrier.³³

F. The Qualification of “Data” as “Digital Assets”

From the above analysis of the decisions in *Your Response Ltd. v. Datateam Business* and *Jonathan Dixon v. The Queen*, it is becoming clear that, although pure information will not find immediate protection in the law, we should not be too quick in qualifying “data” as pure information. Follow-up questions will have to be asked. Is the data in electronic (digital or virtual) format? If so, the argument that pure information cannot receive protection no longer conclusively answers the questions whether data can be the object of a lien or whether data can be stolen. If the data is in an electronic format, we will have to distinguish the information contained in the digital format from the digital format itself and its information carrier. If an electronic file is stored on a hard disk or USB stick, the disk or USB stick are physical objects and, as such, fall within the traditionally accepted categories of the *numerus clausus* of legal objects. Does possession of the USB stick also imply possession of the files on that stick and, as a consequence, possession of the information in those files? Or does the word “possession” have too many connotations

31. S. Cent. Bell Tel. Co. v. Barthelemy, 94-0499 (La. 10/17/94), 643 So. 2d 1240.

32. *Id.* at 1250.

33. See further on this decision in Suzanne Bagert, *Recent Development: South Central Bell v. Barthelemy: The Louisiana Supreme Court Determines that Computer Software is Tangible Personal Property*, 69 TUL. L. REV. 1327, 1367 ff (1995); and Ruhama Dankner Goldman, *From Gaius to Gates: Can Civilian Concepts Survive the Age of Technology?*, 42 LOY. L. REV. 147, 149 ff (1996). For a more general comparison, see Ken Moon, *The Nature Of Computer Programs: Tangible? Goods? Personal Property? Intellectual Property?*, 31 EUR. INTELL. PROP. REV. 396 ff (2009).

with physical things, and should we use the word “control”? If so, we should no doubt define the term “control” more precisely so it can be used as a term of art to avoid, as when it is used too quickly to discard the whole debate on the application of property law concepts in the virtual world.

These are hard questions to ask and a simple answer cannot be given. From the perspective of the *numerus clausus* of legal objects, what results is a complicated “whole” comprised of the physical information carrier (e.g., a hard disk, USB stick, or server), the electronic format (the bits and bytes such as in a document), and the information created in that format (e.g., a deed of transfer). But the complexity does not stop there. We also have to distinguish the value from the amalgam of contracts and activities in the virtual world. Examples of the latter include domain names, email accounts, social media accounts, and statuses in Internet games. I would propose to use the term “digital assets” as an overarching concept to define economically valuable data, sufficiently specific to be qualified as a legal object, and as recently defined by the U.S. Uniform Law Commission in its Uniform Fiduciary Access to Digital Assets Act (“UFADAA”). This model act allows fiduciaries the right to manage digital assets as if they were tangible assets and financial accounts; it allows custodians of such assets to deal with fiduciaries. Section 2 of UFADAA gives the following definitions:

(10) “Digital asset” means an electronic record in which an individual has a right or interest. The term does not include an underlying asset or liability unless the asset or liability is itself an electronic record.

(11) “Electronic” means relating to technology having electrical, digital, magnetic, wireless, optical, electromagnetic, or similar capabilities.³⁴

Other definitions can also be found elsewhere, but given that this model Act is now being considered for enactment by several states in the United States it might be a good starting point for further analysis.

34. REVISED UNIF. FIDUCIARY ACCESS TO DIG. ASSETS ACT § 2 (UNIF. LAW COMM’N 2015), http://www.uniformlaws.org/shared/docs/Fiduciary%20Access%20to%20Digital%20Assets/2015_RUFADAA_Final%20Act_2016mar8.pdf.

G. Is the Civil Law More Accommodating than the Common Law?

It is interesting to note that the civil law tradition, perhaps remarkably enough, is sometimes even more willing to adapt to the new virtual reality than common law practitioners might expect. The civil law with its tradition of legal dogmatic scholarship and codified law (the main exceptions being South Africa and Scotland where uncodified civil law applies) is often seen by common lawyers as unable to react flexibly to societal changes.³⁵ A good example of how civil law is very well able to reconsider its approach to the *numerus clausus* of legal objects is the law of Luxembourg. In 2013 the Luxembourg legislature considered whether one should be able to revindicate (claim as owner) data from a cloud server. For example, should a business whose financial administration is only available in an electronic format stored on a cloud server be able to revindicate its financial administration from its insolvent bookkeeper? It seems that the English Court of Appeal would deny this, looking at its decision in *Your Response Ltd. v. Datateam Business Media*. The Luxemburg legislature, however, saw no problem and enacted a new version of article 567, paragraph 2 of the Luxembourg Commercial Code, which now states:

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.³⁶

35. On the relative value of distinguishing between common law and civil law, compare: Jean-François Gaudreault-DesBiens, De la pertinence relative de la dichotomie droit civil/ common law dans la réflexion sur les rapports entre le droit comparé, le droit du développement et le droit vivant. Quelques observations à partir du cas de l'Afrique, 4 REVUE DE LA RECHERCHE JURIDIQUE, DROIT PROSPECTIF 2095 (2014) (Fr.), translated in *On the Relative Pertinence of the Civil Law/Common Law Dichotomy When Reflecting on the Relationship Between Comparative Law, Development Law and Living Law. Some Observations in the African Context* (2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2948564.

36. Loi du 9 juillet 2013 portant modification de l'article 567 du Code de commerce [Law of 9 July 2013 Amending Article 567 of the Commercial Code] (Lux.). The text can be found electronically at <http://eli.legilux.public.lu/eli/etat/leg/loi/2013/07/09/n2> [<http://data.legilux.public.lu/eli/etat/leg/loi/2013/07/09/n2/jo>].

The English translation follows:

Incorporeal, non-fungible movables, which are in possession of or held by a person who is insolvent, can be revindicated by the person who has entrusted them to the insolvent party or who is their owner, provided that these movables are separable from all other incorporeal, non-fungible movables at the moment of opening the procedure; applicable costs to be charged to the person who revindicates.³⁷

The Official Comment accompanying this new provision explicitly refers to problems encountered in situations where data has to be recovered from cloud servers during insolvency.³⁸

37. I have provided my translation of Paragraph 2, article 567 of the Luxembourg Commercial Code.

38. 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, at 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.

My English translation of the *Exposé des Motifs* is as follows:

The new proposed paragraph 2 of article 567 concerns non-fungible, incorporeal movables. It has been considered useful to deal with this situation separately,

What is also interesting to note is that the subject of the right to revindicate can be both the owner of the data or the person who entrusted the data to the cloud server. What we see here is that the acceptance of data on a cloud server as a new legal object raises not only the question whether traditional property remedies can be applied here, either directly or by analogy, but also the question of the capacity in which legal subjects can act. It may be obvious that revindication in traditional civil law is only possible by an owner of a physical thing. The Luxemburg legislation seems to allow a non-owner, someone who entrusts the storage of data on a cloud server, to revindicate. In other words, the civil law, with its systematic and robust structure, shows an intriguing strength and confidence in dealing with the new virtual reality by accepting digital assets as a new category in the *numerus clausus* of legal objects.

CONCLUDING REMARKS

Traditionally, property law systems have accepted physical things (land and personal property) and certain categories of intangibles (such as rights to payment) as legal objects. The objects which result from human creativity (“intellectual property”), although accepted as legal objects, were classified as being outside traditional property

in a new provision, given that revindication regarding incorporeals could not be limited to cases of bailment and sale at the account of the owner, as is the case with regard to corporeals.

Today, in fact, cases exist that ten years ago the legislator did not think of and that are more than simple textbook cases. This is particularly so within the framework of services, more and more offered to the general public and especially professionals, concerning “outsourcing” or dematerialised computing services, generally called “cloud computing.” To continue with the example of the cloud, one of the cloud-computing applications for an enterprise, association, or a private person consists of not storing data, files, or even software on their own computer systems but storing these on external computer systems accessible via the Internet. Well, we must ensure that someone who has access to such services can, in case of insolvency of the service provider, get these data and files back, including the—results of—data processing by the insolvent.

As to the admissibility of revindication, the text creates the right of revindication both for him who has entrusted the data to the insolvent and for the owner of the data himself. In certain cases, this will be the same person; in other cases, these could be two different persons, any of whom could avail himself of the action of revindication.

law. New property law objects do not seem to get accepted easily. An example is emission rights, a public law license to pollute that can be traded on an exchange as commodity. With the astoundingly fast development of the Internet and electronic data exchange (in other words, the digital revolution), we are now confronted with the question, can we accept data (and more specifically, digital assets) as a new category within the *numerus clausus* of legal objects? Legislation is slow, courts hesitate, and legal scholars ponder, but technology does not wait for lawyers, who find it difficult to understand this new virtual world in which they live and seem more inclined to look backwards than forward. Of course, we should be careful when adapting the law to the new virtual reality. The warning of Kenneth Vandavelde, against making the concept of ownership meaningless with the acceptance of new forms of property, should not be ignored. At the same time we should not be afraid to develop the law further than what we inherited. Next to the “real” world, we now have the “virtual” world, which is just as realistic as the physical world around us. This virtual world demands a rethinking of classical property law, particularly the *numerus clausus* of legal objects.

The outcome of such a process of revisiting well-established concepts, notions, and principles of property law will probably depend on the legal area that we are discussing, the type of object, and the person claiming to have a property right. Unlike property law, contract law has always been very open to accepting what the parties want as a valid object. Even future activity can be the object of a contract, such as a labour agreement. Property law has been far more strict, although even there things are changing, especially in what is now called constitutional property law.³⁹ What belongs to the category of objects that a government cannot take without proper justification and reasonable compensation (in other words, due process of law) does not, as a consequence, have to be an accepted object of property law outside the constitutional realm. Whether we can accept new objects as private property will most likely depend upon weighing a whole variety of factors: the personal nature of data and the privacy protection flowing from that personal nature, the economic value and transferability of data (particularly when we talk about anonymized “big” data), the setting in which data has been provided (private communication or a requirement for getting access to a website), and the

39. Cf. AJ VAN DER WALT, *CONSTITUTIONAL PROPERTY LAW* (3d ed.2011).

person claiming entitlement to the data (a private person, a social media corporation, or the government). It will, no doubt, take some time before definite answers can be given, but we cannot wait too long. Developments simply move too fast to sit back and wait for guidance by courts or legislators. Comparative legal scholarship can play a pivotal role here also, given the global nature of the problems to be solved.

