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METHOD RECONSIDERED

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Abstract

Building on systems theory and the economics of law, this paper argues that evolutionary models can explain certain features of common law reasoning, in particular the way that the doctrine of precedent operates to combine stability with change. The common law can be modelled as an adaptive system which coevolves with its environment, which in this context consists of the political and economic systems of a given society. The common law responds to signals from the economy and from politics ('cognitive openness'), while retaining its distinct mode of operation ('operative closure'). A version of the variation, selection, retention algorithm operates at the level of legal decision-making. Theories of legal evolution which stress selection and variation at the expense of inheritance describe only part of the process of legal change and are prone to teleological accounts of evolution to efficiency. Focusing on inheritance or retention helps us to see that the common law can only be qualifiedly adaptive, at best, and that many inefficient rules will persist and survive even in the face of selective pressures. The relevance of this approach is illustrated by an examination of the leading decision in the English (and Scottish) law of tort (or delict), *Donoghue v. Stevenson*, and its implications for some influential accounts of legal evolution, including legal origin theory, are explored.

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1. Introduction

The aim of this paper is to consider the relationship of evolutionary thought to the development of the English common law, and in doing so to examine a theme which is in some ways the inverse of the first, namely the idea of the common law as an illustration of or model for wider evolutionary processes at work in society. A theory can be thought of as ‘evolutionary’ if it does one or more of a number of things: in particular, if it shows how information is stored and transmitted over time through certain forms; how those forms respond to changes in their environment, in the process altering the content of the information that they preserve; and how the resulting process lead to a series of alignments between function and form, on the one hand, and form and environment, on the other. The Darwinian theory of evolution, in the version associated with the modern evolutionary synthesis in the biological sciences, explains how information which equips organisms for survival in the natural world is embedded in and replicated through genetic material (DNA); how organisms’ differential survival rates lead, in the course of a number of generations, to the persistence of certain physical traits and, consequently, certain genetic structures, at the expense of others; and how, through such ‘natural’ selection, organisms, and by implication the genes they carry, become adapted to their physical environment.¹ The process is self-generating in the presence of mechanisms of retention or inheritance (the storing and replication of genetic information contained in DNA), variation (which could, at its simplest, be generated through random ‘errors’ in the copying process when DNA is transmitted across generations, but could be more systematic) and selection (the influence of environmental factors on the differential survival and reproduction rates of organisms). When mutations which survive the selection process become heritable by some means, the cycle begins again.

The process of evolution through variation, selection and retention (‘VSR’) is not unique to the natural world.² We know from the foundational contributions to systems theory that it occurs in the social realm³

and specifically within legal systems, where it is present in juridical practices and language.⁴ Exploring the evolutionary aspect of juridical thought is interesting not just because it provides an opportunity to study the operation of the VSR ‘algorithm’ in a societal, as opposed to a natural, setting, but because it may tell us something about the social ontology of law, that is, the nature of law as a social discourse and practice.⁵

The first step in the analysis is to consider how far common law method, as applied by the English judges, can be said to be evolutionary in the sense just described. Explicit reference to theoretical paradigms drawn from outside legal analysis is rare in English judicial practice, as it is elsewhere, but the language used by English judges reflects their perception of the need to reconcile stability with adaptability in the development of the common law, an essentially evolutionary perspective on the law. Another idea which the English judges have recognised and have from time to time attempted to realise through their judgments which has an evolutionary dimension is that the common law is embedded in and responds to social practice. Section 2 below explores these themes, using as a case study the use of evolutionary language in arguably the most significant instance of judicial innovation in modern English private law, the 1932 decision of the House of Lords in *Donoghue v. Stevenson*.⁶

In section 3 the focus shifts to the uses made of the common law as a model of an evolved social order in contemporary economic and political theory. The common law has been variously identified with beneficial properties of ‘spontaneous order’ (Hayekian political economy), ‘evolution to efficiency’ (neoclassical law and economics) and ‘legal origin’ (new institutional economics). Influential as these theories are, they often seem far removed from the everyday empirical reality of the common law, which consists just as much of the unruly growth of the ‘bramble bush’⁷ as it does of an optimally well-adjusted social order.⁸ If the theoretical idealisation of the common law seems to lack a firm empirical foundation, perhaps it is also the case that these accounts of legal evolution have failed to come to terms with the contingency which is present

in modern evolutionary theory, as it is of the common law itself. Section 4 develops this theme and section 5 concludes.

2. Evolution in the common law: judicial language and practice

A working definition of common law method is that legal rules emerge from the decisions courts reach and the reasoning they use in the course of resolving particular disputes. The process of rule formation is by no means completely spontaneous if that is taken to mean unstructured or undirected. It rests on the meta-rule of ‘precedent’, or *stare decisis*: like cases must be decided alike. This is both a principle of justice, implying equal treatment under the law, and a basis for enabling the law to evolve in response to social change.

The doctrine of precedent, so described, is multi-functional. It allows both for the stabilisation of legal rules (in evolutionary terms, ‘retention’ or ‘inheritance’), and also for their modification (evolutionary ‘variation’). As Karl Llewellyn observed, the common law doctrine of precedent somehow accomplishes ‘at once stability and change’.⁹

As Llewellyn explained, precedent is a flexible tool. It allows the court to disapply or narrow down a rule on the grounds that the facts of the case before it are materially different from those of earlier cases that are claimed to be relevant authorities. Llewellyn called this the doctrine of precedent in the ‘strict’ sense and it is associated with the technique of ‘distinguishing’ decisions by reference to their factual content.¹⁰ The rule generated by a decision is specific to and delimited by the facts which are deemed to be critical to the determination of the case, initially by the court deciding the case, but subsequently by later courts, which may take a different view of which facts were critical, in so far as they are allowed to by the rule of hierarchy which states that a lower court should generally defer to a higher one. Either way, the rule is coterminous with the

grounds of or basis for court's decision, the *ratio decidendi*. In a sense, the rule generated by a case *is* the *ratio*.

Precedent may also enable a court to extend a rule to meet the circumstances of the case before it. Llewellyn called this the 'loose' view of precedent, and argued that it often worked simultaneously with the 'strict' version when a court was disposing of a case. The conjunction of the loose and strict views allowed the common law to maintain its continuity while also adjusting to new fact situations:

'What I wish to sink deep into your minds about the doctrine of precedent [...] is that it is two-headed. It is Janus-faced. That it is not one doctrine, or one line of doctrine, but two, and two which applied at the same time to the same precedent, are contradictory of each other. That there is one doctrine for getting rid of precedents deemed troublesome and one doctrine for making use of precedents that seem helpful. That these two doctrines exist, side by side. That the same lawyer in the same brief, the same judge in the same opinion, may be using the one doctrine, the technically strict one, to cut down half the older cases that he deals with, and using the other doctrine, the loose one, for building with the other half. Until you realise this you do not see how it is possible to avoid the past mistakes of courts, and yet to make use of every happy insight for which a judge in writing may have found expression.'¹¹

The common law may be said to be 'adaptable' in the sense of accommodating new fact situations. When applying the loose version of precedent, a judge can work with the reasoning and language of earlier judgments even, on occasion, 'wholly without reference to the facts of the case which called the language forth'.¹² However, it is not *endlessly* adaptable. The common law court is constrained by the meta-rule of precedent to find a way to fit a novel decision as far as possible into an existing concept or principle. Even or especially when a rule is varied or a new rule articulated, it is necessary to justify that step by drawing on

the language of an earlier decision. In this way the doctrine of precedent seeks to ensure the continuity of the common law. 'Inheritance' or 'retention' in the evolutionary sense of these terms implies such continuity. At the point when a rule is applied to a given set of facts, the conceptual language underpinning the rule is carried over into the new decision. The rule may change, but the modification must be consistent with, and justifiable by reference to, the conceptual material which the court has available to it from earlier decisions.

There are almost countless examples of the doctrine of precedent in action that could illustrate the evolutionary character of the common law. The decision of the House of Lords in *Donoghue v. Stevenson*¹³ is familiar to students and practitioners of the English (and Scottish) common law, but its multi-layered judgments may repay further analysis, when considered from the point of view of an evolutionary analysis. Prior to this decision, English law did not recognise a general principle of liability in tort for physical harm caused by a negligently manufactured product (the Scottish law of delict followed the same approach). There were a few isolated instances in which manufacturers of products deemed 'dangerous in themselves', such as loaded guns, had been held liable for injuries to third parties, but the point of these categories was the supposedly exceptional nature of the products concerned.¹⁴ Also standing in the way of a successful claim was a doctrine formulated in the course of the nineteenth century, according to which the rule of privity of contract prevented any action against a manufacturer or other supplier of goods or of premises, such as a builder or landlord, by a third party for loss arising from a breach of the original contract of sale or lease.¹⁵

The facts of *Donoghue v. Stevenson* clearly raised the issue of the availability of a tort-based claim for damage caused by a defective product, which in this case took the form of contaminated food (the celebrated bottle of ginger beer with a snail inside it) which was purchased for the use of the plaintiff or, more precisely (as this was a Scottish case), the pursuer, by another. She suffered physical harm (gastro-enteritis) as a

result of drinking the contents of the bottle before realising that it was poisoned (the bottle was opaque and she drank part of the contents before pouring the rest into her glass). The case was argued on assumed facts, one of which was that the manufacturer must somehow have been at fault in the preparation of the product. The House of Lords held in favour of the appellant (as she was at this stage in the proceedings) by a bare majority, and only two of the three majority judges articulated the principle of the manufacturer's duty of care to the ultimate consumer in the terms which were later to become well established.¹⁶

Lord Buckmaster's dissenting opinion lays out precisely the argument for continuity in the application of the law. He begins by denying that the common law can be modified simply to meet the needs of policy:

'The law applicable is the common law, and, though its principles are capable of application to meet new conditions not contemplated when the law was laid down, these principles cannot be changed nor can additions be made to them because any particular meritorious case seems outside their ambit.'¹⁷

Later in his judgment he points out the inconsistency with earlier decisions which would arise if the court were now to find in the appellant's favour:

'Were such a principle known and recognized, it seems to me impossible, having regard to the numerous cases that must have arisen to persons injured by its disregard, that, with [one exception], no case directly involving the principle has ever succeeded in the Courts, and, were it well known and accepted, much of the discussion of the earlier cases would have been a waste of time [...]'¹⁸

Additionally, he points to the conceptual clarity of the established position, which is based on maintaining a clear division between claims in contract and claims in tort:

‘The principle contended for must be this: that the manufacturer, or indeed the repairer, of any article, apart entirely from contract, owes a duty to any person by whom the article is lawfully used to see that it has been carefully constructed. All rights in contract must be excluded from consideration of this principle; such contractual rights as may exist in successive steps from the original manufacturer down to the ultimate purchaser are *ex hypothesi* immaterial. Nor can the doctrine be confined to cases where inspection is difficult or impossible to introduce. This conception is simply to misapply to tort doctrine applicable to sale and purchase.’¹⁹

Conversely, doctrinal inconsistency would flow from a decision for the appellant, stemming from the difficulty of setting any limit to the liability which would thereby be created:

‘The principle of tort lies completely outside the region where such considerations apply, and the duty, if it exists, must extend to every person who, in lawful circumstances, uses the article made. There can be no special duty attaching to the manufacture of food apart from that implied by contract or imposed by statute. If such a duty exists, it seems to me it must cover the construction of every article, and I cannot see any reason why it should not apply to the construction of a house. If one step, why not fifty?’²⁰

At no point in his judgment does Lord Buckmaster refer directly to economic arguments, based on the likely costs to defendants or the wider social cost to the community of introducing a novel form of liability, for rejecting the claim, except to refer to an earlier Scottish decision in which a judge had described the idea that manufacturers of products should be liable to members of the public as ‘little short of outrageous’.²¹ Aside from this, Lord Buckmaster’s only reference to policy considerations is the passage, quoted above, in which he refers to the claim as ‘meritorious’

only to reject this as insufficient grounds for a holding in the appellant's favour.²²

The leading majority judgments of Lords Atkin and Macmillan are notable for presenting what was clearly a radical departure in the content of private law as an entirely natural development which was prefigured in earlier judgments.²³ According to Lord Atkin, none of the earlier judgments appearing to negative liability covered the case before the court, since the necessary elements of a duty of care of negligence were, in one way or another, absent. This part of his judgment consists of narrowing down the earlier authorities (precedent in its 'strict' sense):

'It will be found, I think, on examination that there is no case in which the circumstances have been such as I have just suggested where the liability has been negated. There are numerous cases, where the relations were much more remote, where the duty has been held not to exist. There are also dicta in such cases which go further than was necessary for the determination of the particular issues, which have caused the difficulty experienced by the Courts below. I venture to say that in the branch of the law which deals with civil wrongs, dependent in England at any rate entirely upon the application by judges of general principles also formulated by judges, it is of particular importance to guard against the danger of stating propositions of law in wider terms than is necessary, lest essential factors be omitted in the wider survey and the inherent adaptability of English law be unduly restricted. For this reason it is very necessary in considering reported cases in the law of torts that the actual decision alone should carry authority, proper weight, of course, being given to the dicta of the judges.'²⁴

Lord Macmillan, similarly, refers to decisions whose 'facts were very different from the facts of the present case, and did not give rise to the special relationship, and consequent duty, which in my opinion is the deciding factor here'.²⁵ In his judgment, decisions rejecting liability are

dismissed as disclosing no clear principle, or, alternatively, a principle which, in the light of the facts of the current case, can no longer be regarded as coherent: thus the distinction between cases ‘where the thing is dangerous’ and those in which it ‘belongs to a class of things which are dangerous in themselves’ is rejected as meaningless.²⁶ Both he and Lord Atkin are able to sidestep the ‘privity of contract fallacy’ without much difficulty.²⁷ Each judge then goes to some length to show that a principle justifying a finding of liability in the present case can be discovered from earlier case law (Llewellyn’s ‘loose view’ of precedent).²⁸ US decisions²⁹ and legal treatises are also relied on.³⁰

There is nothing especially unusual about the analysis of judicial precedents in *Donoghue v. Stevenson*. What marks it out as an exceptional decision from the point of view of common law method is the explicit consideration of the law’s capacity to evolve, that is, to display adaptiveness in the face of a changing technological and social environment. Lord Atkin is completely aware that the court is being called on to develop the law in a way that will make it responsive to social change. Thus the question of whether a manufacturer owes a duty of care to an ultimate consumer of a product with the potential, if defective, to cause injury to health, is, he suggests, ‘important both because of its bearing on public health and because of the practical test which it applies to the system under which it arises’³¹ – this elliptical expression apparently referring to the legal system itself being tested. He later refers to the law itself suffering from a ‘grave defect’ if the claim in the present case should be rejected, and to the desirability of finding a remedy ‘where there is so obviously a social wrong’.³² Lord Macmillan, similarly, refers to the law developing ‘in adaptation to altering social conditions and standards’; legal principle must ‘adjust and adapt itself to the changing circumstances of life’.³³ But such innovation is still to be understood, he suggests, in terms of the ‘principles applicable to this branch of law which are admittedly common to both English and Scottish jurisprudence’,³⁴ that is to say, it must be mediated by conceptual considerations.

In *Donoghue v. Stevenson* as in other great cases of the common law, there are elements of both ‘stability’ and ‘change’, but what is stable and what changes are not exactly the same. Pursuing the evolutionary logic of the VSR algorithm, we might say that what is retained is the underlying conceptual structure of the law, which preserves its essential continuity even as the rule which it underpins is being altered. This is analogous to the idea that in biological evolution, genetic structures change relatively little even as the physical traits common to a population of organisms defined by common membership of a species change over time in response to environmental pressures. Of course, genetic structures do change but only as a result of ex post selection processes. So, in the same way, legal concepts are often left relatively unmodified, even as rules themselves are being fundamentally altered. The selection process only operates indirectly on the concepts themselves; they are modified as particular rules are selected or deselected against the criterion of their compatibility with the environment.

To see how environmental selection works in the context of legal evolution, the subsequent history of *Donoghue v. Stevenson* is illustrative. The decision itself can be thought of as just one mutation or variation among many, although admittedly an important one in the sense that a considered judgment of the highest appellate court will have a certain salience for later decisions. Even a decision as important as this one will only survive, however, if later courts accept it as an authority for a given proposition or set of propositions. In principle, all courts are bound by a decision of the highest appellate court, but in practice it is up to successive judges to determine for themselves the *ratio decidendi* of the decision:

‘The express *ratio decidendi* is prima facie the rule of the case, since it is the ground on which the court chose to rest its decision. But a later court can reconsider the case and can invoke the canon that no judge has power to decide what is not before him, can, through examination of the facts or of the procedural issue, narrow

the picture of what was actually before the court and can hold that the ruling made requires to be understood as thus restricted.’³⁵

In particular, the wider proposition associated with *Donoghue v. Stevenson*, Lord Atkin’s ‘neighbour principle’, has not survived, being whittled down in later decisions by reference to different categories of harm, ‘pure economic loss’ being treated differently from physical injury and property damage, and the nature of the relationship between the parties, pre-tort relationships generally being more likely to generate a duty of care than relations between strangers.³⁶

While certain rules falling under the wide statements of principle made in *Donoghue v. Stevenson* have been accepted in later decisions,³⁷ others have been discarded.³⁸ As that process has unfolded, the conceptual core of the decision itself has been modified and refined; as certain rules have survived, the particular concepts they embody have gradually come to prevail over alternative formulations. But this process is only apparent with the benefit of hindsight. Environmental pressures may operate more or less directly on rules, but only inferentially or at one remove on the concepts or principles which form the core of juridical language.

Thus it is too simplistic to say that juridical language directly informs social practice, or a particular policy. It would be more accurate to say that, over time and across a large enough population of decisions, a degree of congruence between legal evolution and social change can be identified. At any given moment, however, the law may appear to be in a state of flux as different rules compete for influence, rules may seem to be inadequately matched to social needs, and concepts may appear incapable of supporting the changes in the law that policies enjoying wide support in society seem to require.

It would also be going too far to say that legal evolution straightforwardly reflects social change. Selection pressures such as those arising from litigation can be expected to give rise to the adjustment of legal rules to

their social context over time. Thus the rise of industrial economies can, over the long run, be expected to lead to some alteration in the content of private law, in order to deal with risks and costs associated with such societies, including the harms arising from mass production of consumer goods. The volume and pattern of later citations to *Donoghue v. Stevenson* suggest that the decision might have had survival value because the proposition it advanced concerning manufacturer's liability for defective products was broadly compatible with developments in society which made the rule a workable one. The idea that enterprises should absorb certain costs arising from their activities is one which came recognized to be in this part of tort law as in other areas of private law in the middle decades of the twentieth century, at the point when vertically integrated industrial firms acquired the capacity to control the risks of production through managerial techniques and the ability to diffuse their liabilities through insurance.³⁹

However, care is needed when referring to the effects of ex-post selection in such terms. The timing and detail of change may turn on random events. Why English (and Scottish) law should have taken a decisive turn in 1932 as opposed to 1912 or 1952 is not clear until some contingent aspects of *Donoghue v. Stevenson* are borne in mind. The courts react to the disputes which come before them, and it took the determined persistence of a Glasgow-based claimants' law firm to set in motion the process which brought *Donoghue v. Stevenson* before the House of Lords, only after earlier attempts by the same law firm to bring the matter to the attention of the appellate courts had ended in failure.⁴⁰

If the timing of legal change is often a matter of chance, the direction which the law takes may, nevertheless, be structured in a more systematic way, that is to say, by the path on which existing decisions have previously set it.⁴¹ The process of selection in the common law works ex post; it can only operate on the existing stock of precedents, that is to say, on mutations or variations thrown up by earlier decisions of the courts. One of these mutations, or a group of them, may end up being selected for

survival by a later court because it fits the needs of the time, as reflected in the facts of the case which the court must now decide. But the range of mutations is not infinite. It is constrained by the need for stability and continuity in the law. Mutations only occur round a relatively narrow set of doctrinal issues, leaving the conceptual core of the law mostly intact. If this were not the case, it is not just the stability of the law which would be lost. The law's autonomy, that is to say, its separation from the political and economic environment, would be undermined.

To see the problem this way is to appreciate the role of boundary conditions in the law. The legal system must have criteria for judging what is a legal rule and what is not, for differentiating between legal norms on the one hand and social or economic policy on the other, if the continuity of the legal order is to be maintained. In systems-theoretical terms, the law must be 'operationally closed' if it is not to be dissolved into an alternative social system such as that of the economy.⁴² Thus a new rule, a 'mutation', can only be selected for survival if it is one which can be explained in terms of established doctrinal structures of juridical thought. Concepts, in this sense, are the institutional or linguistic equivalent to genetic material in the biological realm.⁴³

Finding a doctrinal justification for a new rule and maintaining the autonomy of juridical thought in the face of external political or social forces are two sides of the same coin, as Lord Buckmaster's complaint in *Donoghue v. Stevenson*, that the majority was in danger of modifying the content of private law merely because it thought the claim was 'meritorious',⁴⁴ makes clear. It is open to question whether the doctrinal solution found by the majority judge was really as obvious or as well established as they claimed it to be, and over seven decades of highly contested case law since the decision in that case are ample testimony to the conceptual uncertainties which it ushered in. A concept as open-ended as 'duty of care' may be useful for allowing the law maximum flexibility to adapt to social change.⁴⁵ However, a legal concept such as this, which even makes an explicit but unexplained reference to 'policy' as part of its definitional

structure,⁴⁶ provides very a thin veil of protection indeed for legal autonomy. There is a certain irreducible trade-off between the adaptability and autonomy of the common law.

3. Legal evolution as a model for social order

How does the practice of the common law compare to the way it has been theorized in contemporary social thought? Three currently influential theories – Hayekian political economy, neoclassical law and economics, and new institutional economics – present the common law as an evolved social order with beneficial properties. These properties derive from what is seen as the spontaneous and non-directed nature of change in the common law. The common law is seen as the natural complement to market-based systems of economic organization and hence to the promotion of economic efficiency, as well as to the preservation of personal freedom and autonomy in economic decision making.

3.1 Hayek's theory of the common law as spontaneous order

In *F.A. Hayek's* account of the legal system and its relationship to the economy, private law and the market are both instances of a 'catallaxy' or 'spontaneous order'.⁴⁷ A catallaxy, which is contrasted to a 'made order' or 'taxis', is an order constituted by the decentralized interaction of its constituent elements. One definition of such an order is that it is 'a state of affairs in which a multiplicity of elements of various kinds are so related to each other that we may learn from our acquaintance with some spatial or temporal part of the whole to form correct expectations concerning the rest, or at least expectations that have a good chance of being proved correct'.⁴⁸ There is no centralized direction or command; the individual parts act on the basis of their own autonomous motivation or impulse. This in itself implies a certain regularity and predictability: 'the formation of spontaneous orders is the result of their elements following certain rules in response to their immediate environment'.⁴⁹ Macro-level

patterns and structures can emerge but do so in an open-ended way, which cannot be foreseen in advance. The virtue of a catallaxy is that it permits the mobilization of private knowledge for the benefit of all actors: ‘very complex orders, comprising more facts than any brain could ascertain or manipulate, can only be brought about by forces including the formation of spontaneous orders’.⁵⁰

In a market order, prices emerge as a result of the spontaneous interaction of supply and demand, that is to say, on the basis of individual decisions to buy and sell. There is no need for a central planner to set prices, and if one attempted to do so it could not improve on the allocation made by the market. A made order, which is purpose orientated and involves conscious planning, cannot mobilise the private knowledge of actors to the same degree as a spontaneous one. Price-fixing, in so far as it interferes with autonomous action, would actively undermine the operation of the market, in the sense that prices would not reflect actors’ private knowledge to the same extent.

The common law is also a catallaxy because rules emerge spontaneously from the decisions of courts deciding particular cases. Just as centralized regulation prevents the market from working, so the intervention of consciously planned law (‘thesis’) into the spontaneous order of the common law (‘cosmos’) reduces the informational content of legal rules. The effect is to reduce the effectiveness of the law as a mode of coordination.

Hayek combines his accounts of the common law and the market to suggest that as spontaneous orders, they are mutually supportive. The market depends on the rules of private law, the ‘abstract rules of just conduct’, the rules of contract, property and tort, to protect the autonomy of market actors.⁵¹ *Hayek* accepts the need for a state with the powers to enforce its norms through coercive force, but such coercion is justified by the need to maintain private autonomy and freedom of action. Some purpose-orientated law making is permitted if it has the effect of upholding or codifying the abstract rules of just conduct.⁵² Such an effect, however, is

to be distinguished from the role played by ‘public law’ in seeking to reverse the effects of market allocations through regulation or redistribution.⁵³ Similarly, attempts to ‘improve’ market outcomes through targeted regulatory intervention are generally counter-productive.⁵⁴

Hayek’s theory is evolutionary in the sense, firstly, of identifying the knowledge-retention properties of spontaneous orders as one of their principal features. Secondly, it proposes a set of mechanisms by which order or stability at a macro level can emerge without the need for centralized direction. As a normative theory, Hayek’s account implies that rules which grant freedom of action to individual agents are not just compatible with effective macro-level coordination, but are inherently more likely to produce enduring social order than rules which purport to direct outcomes from a position of centralized authority.

In *Law, Legislation and Liberty*, his last major work and his most extended treatment of the theory of social order, Hayek contrasted ‘public law’ to ‘private law’, not the ‘common law’, and his remarks about consciously created private law are consistent with the idea that the civil law codes could have been just as important as the English judge-made law in giving expression to the abstract rules of just conduct at the point when they supported the emergence of industrial market economies in the nineteenth century.⁵⁵ The association of the idea of spontaneous order with the common law as such was made by later authors purporting to apply Hayek’s theory.⁵⁶

If we take Hayek’s account of private law to refer at least in part to the judge-made common law, there are many elements that we can recognize from empirical observation or experience of the English common law. Hayek did not attempt to portray spontaneous orders as rule-free. The common law method is structured by the meta-rule or doctrine of precedent, which has itself evolved, but is a source of stabilization precisely because of the regularity it imposes on judicial decision making.

Order produces further order. However, in doing so, it can lock the law into an evolutionary path that is far from optimal. Hayek's theory, no matter how elegant, does not come to the terms with the historical reality of a common law system which has produced any number of evolutionary dead ends. Throughout its history, the path of the common law has had to be redirected by legislative interventions, and statutes, in turn, have repeatedly acted as catalysts for the development of judge-made law.⁵⁷ In areas of the law governing economic activity, such as employment law and company law, the interaction of common law with statute, rather than the isolated evolution of judge-made law, is the norm.⁵⁸ A case can be made for saying that systems which combine the emergent legal order of judge-made law with periodic statutory interventions have an evolutionary advantage over those which rely exclusively on the courts. In practice all legal systems of developed economies, whether of common law or civil legal origin, combine judge-made law with codes or statutes in some way or another.

3.2 Neoclassical law and economics: the evolution to efficiency of the common law

For writers in the neoclassical law and economics tradition, it is a given that the common law produces efficient rules, whereupon the issue arises of how to explain this outcome. The assumption is questionable if not simply false, yet in part because of influence of certain foundational works,⁵⁹ it has shaped a significant literature.⁶⁰ The largely circular and in any case methodologically questionable argument that the common law is efficient because judges 'prefer' it to be so⁶¹ appears to have fallen by the wayside. A more convincing and also more theoretically coherent argument is that the common law process contains an inherent tendency to produce efficient rules.

Explanations in this vein focus on the tendency for inefficient rules to be litigated away, leaving a core of efficient ones. George Priest's model along these lines applies a version of the VSR algorithm. Judges are as-

sumed to decide cases at random or at least stochastically, producing a stock of precedents containing numerous potentially useful mutations, but also less useful ones. Those which are inefficient are, on average, more likely to be challenged through litigation. Litigation operates as a mechanism of ex-post, environmental selection; the efficient rules are those which survive the selection pressures.

Within the terms of Priest's model, it is not clear why litigation should select out those rules which lead to net welfare losses for society, or 'social costs' in the sense used in Pigovian⁶² and Coasean⁶³ welfare economics. It seems more plausible to model litigation as selecting out rules which minimize *private* costs, that is, rules which undermine the interests of the litigants. The common law is inherently more likely to produce rules which favour the interests of well-resourced litigants and repeat players such as insurers and business firms than those of society at large.⁶⁴

A separate criticism is that *Priest's* assumption that judges decide cases at random is misplaced. It should be borne in mind, however, that this is a simplifying assumption, designed to enhance the traction of the model; even if judges decided randomly, the model would still predict efficient outcomes. It is not strictly necessary for an evolutionary theory to assume random mutations. As we have seen, the evolutionary algorithm can work just as well with a directed or structured pattern to variation. What matters is that there is sufficient variation within the system; selection can only act on the set of available mutations.

The missing link in Priest's theory, instead, is the absence of any account of inheritance or retention. His model assumes that the common law is capable of producing an infinitely large set of mutations on which selection acts. In terms of the VSR algorithm, this is implausible. The need for continuity in the application of the common law, as an institutional equivalent to 'retention' in its biological sense, limits the possible set of variations. Mutations are possible on the margins of legal doctrine but

frequent and fundamental changes are unlikely, unless the process of inheritance breaks down completely, which would happen if legal rules became indistinguishable from social norms or political directives. In that case it would no longer be possible to speak of legal evolution in any meaningful sense.

The logic of the VSR algorithm predicts a path-dependent process of legal change, with the content of the stock of precedents shaped by the type of cases litigated in the past. The persistence of inefficient rules is therefore likely. Without the corrective influence of legislation, the common law would stagnate and degenerate. Legislative rules, conversely, depend on judicial interpretation to give them meaning in particular contexts, and if they are adjust to changing social and economic contexts. Legislation rarely blocks off judicial creativity; rather, statutes operate as catalysts for new thinking.⁶⁵ Thus a combination of corrective statutes and adaptive judicial rule-making would seem to be more likely than judge-made law operating in isolation to lead to efficient rules.

3.3 Legal origin theory: the common law and economic growth

The third theory to promote the common law as a model of social order is legal origin theory. This theory argues that common law legal systems are more likely to produce market-supporting legal rules, and hence economic growth, than their civil law counterparts.⁶⁶ Legal origin theory stems from an initially empirical literature which reported evidence of systematic differences in the content of rules governing property rights and market regulation across the civil-law, common-law divide. Common law systems, led by English and American law, appeared to be more likely to generate rules protecting shareholder and creditor rights⁶⁷, on the one hand, and favouring employers in the labour law context,⁶⁸ on the other. Because protection of shareholder and creditor rights was linked to differences in corporate ownership structures and to the availability of external finance to firms, it was thought that institutions supposedly associated with the common law as distinct from the civil law, including

judicial independence and respect for judge-made law, were likely to be responsible for superior economic outcomes.⁶⁹ Since the first legal origin studies appeared in the late 1990s, it has been shown that there is no systematic link between legal origin and economic growth,⁷⁰ and claims made for the superior properties of common law systems in the context of labour market regulation have, similarly, not been sustained.⁷¹ These empirical findings, however, were arrived at after many economists had come to accept the economic superiority of the common law as a stylised fact, in need of a theoretical explanation.

A number of possible explanations have been offered which are consistent with the broadly new-institutionalist orientation of the legal origin literature. In contrast to the emphasis in neoclassical models on equilibrium and efficiency, the new institutionalist paradigm recognizes the role of lock-in effects and path dependencies in shaping legal change. The nature of a given country's legal institutions may be shaped by contingent events or choices from the past, including the effects of colonization and conquest, and decisions to adopt a particular code or country model at a pivotal stage in the host state's economic development. Because, for most countries, legal practices and methods were imposed from outside or adopted under circumstances where their long-run effects could not be anticipated, legal origin can be understood as a rare example of a truly exogenous institutional influence on the economy.⁷²

Two specific explanations for the supposed superiority of the common law are the so-called 'adaptability' and 'political' channels. According to the first of these, the common law is likely to produce more efficient rules because judge-made law is more responsive to changing social needs than legislation is.⁷³ This is essentially a reworking of *Hayek's* arguments about the experimentalist nature of judge-made law, or rather of his perceived arguments, since in his later work he explicitly accepted that planned legal change could be a valid means of giving institutional support to the abstract rules of just conduct, a position which would ac-

cept the role played by the private law codes of the civil law world in underpinning market-based economic activity.

The second explanation is based on public choice theory, and posits that systems in which rules are derived mostly from judge-made law are likely to present fewer opportunities for rent-seeking.⁷⁴ The assumption that litigation is driven by efficiency whereas legislation is concerned with redistribution carries over some of the logic of the neoclassical model of evolution to efficiency, and is equally contentious in this context. At the very least the claim should be open to empirical testing rather than being asserted as an axiomatic truth.

The fundamental problem with the ‘adaptability’ and ‘political’ explanations is that they assume a binary divide between the common law and civil law systems which is a long way removed from the way they operate in practice. Common law *systems* (to be distinguished from the common law as judge-made law) are, in reality, considerably shaped by legislative norms, while judicial innovation is, conversely, a significant factor in the development of private law and commercial law in civil law systems. This is not to say that common law and civil law modes of reasoning are identical, simply that we have no convincing grounds for believing that common law methods are inherently *superior* to those of the civil law in underpinning economic development and growth.⁷⁵

4. The legal system as an evolved social order: limits and potential of an idea

If we are to take seriously the idea that legal systems have evolutionary properties, we need to engage with the models of evolution which have been developed in the natural and behavioural sciences. The purpose of this exercise is not confined to exploring the possibility of metaphor or analogy, useful as that is. It is intended to throw light on the ‘social ontology’ of law,⁷⁶ and, in so doing, to contribute to a general theory of evolution, of which law provides one particular instance or illustration.⁷⁷

In nature, genes code for physical properties of organisms which have survival value in a given environment. Organisms are carriers or vehicles for genes across successive generations. Over time, genes which instruct successful physical adaptations on the part of organisms are more likely to persist than those which do not. There will therefore be a matching of the instructions contained in the genetic code to the physical features of organisms, on the one hand, and to those of the environment, on the other. As we have seen,⁷⁸ for the process to work there must be a mechanism for the inheritance of traits (retention), a degree of mutation in the copying of the code at the point of retention (variation), and sufficient environmental pressures to give rise to differential survival rates (selection). The resulting order is self-sustaining only when each of the three elements is present and when they operate together in repeated cycles of interaction.

When analogies are drawn between natural and societal evolution in the social sciences, the focus tends to be on the process of selection, with competition in markets most often being compared to environmental selection in nature.⁷⁹ A very few studies consider possible analogies to variation, in the form, for example, of the random mutations in judicial decision making which form part of Priest's model.⁸⁰ Even fewer analyses consider what the societal equivalents to retention or inheritance might be. Yet if the evolutionary model is to have any traction at all to the analysis of social order, a mechanism of inheritance must be identified.

In the case of legal evolution, it is not sufficient simply to point to the existence of stable legal rules. The issue is to explain how it is that rules are reproduced, for the most part, with fidelity and consistency, at the point when they are applied in individual instances. The answer appears to be that in legal discourse, rules are produced and reproduced by means of higher-level abstractions – 'concepts', 'principles', or 'dogma' – which give the system as a whole a degree of stability and consistency which it would otherwise lack.⁸¹ Higher-order concepts ensure that oth-

erwise differentiated and individuated rules are linked together to form a coherent body of doctrine.

Genetic material consists of coded information that instructs adaptive physical traits. Pursuing the analogy between legal and biological evolution, legal concepts code for rules with adaptive societal properties, that is to say, rules which have proved useful in solving recurrent problems of social coordination. Concepts represent this information in a 'condensed' form.⁸² Legal interpretation involves retrieving and applying ('decoding') this information in particular instances. The legal system is less a series of commands than a cognitive resource which underpins societal coordination.

To see the legal system as a cognitive resource is to present a type of 'existence theorem' which tells us some important things about the nature of legal rules, but leaves many more issues open for further investigation. It predicts that legal rules will co-evolve alongside changes in the economy and the political system and will be approximately aligned with them. Legal rules are likely to be generally adaptive in the sense of assisting societal coordination. However, the degree of fit between law and other social systems will be a loose one, thanks to the need for each system to maintain its own autonomy and boundary conditions.

Whether the legal system is in equilibrium with its environment at any given point is an open question. Disequilibria can be generated by stochastic events from outside the system, which reduce the adaptive value of earlier adjustments, and internally, as systems become detached from their environment through lock-in effects and path dependence. Evolutionary dead ends are entirely possible and may have to be corrected by targeted legal interventions through codes and statutes which may re-frame the context of case law and alter its direction.

A further feature of an evolutionary model of law is that it says very little of the time period over which adaptation occurs. At any particular junc-

ture the set of mutations will contain a certain proportion of ‘errors’ with limited adaptive value. How effectively and how quickly they are selected out will depend on the intensity of selective pressures, but this cannot be predicted or assumed a priori; it will be a function of more or less stochastic or contingent features of the external environment.

Moreover, it cannot be assumed that the optimal number of errors is zero or close to it. A sufficient range of mutations is needed in order to generate the variations on which selection can act. In a stochastic environment, a wide diversity of potential legal solutions to coordination problems offers a better prospect of evolutionary success.

In the light of these uncertainties, it seems wide of the mark to associate the evolutionary model of law with any particular substantive content for the contemporary systems of private law. The evolutionary model can just as well explain developments in the middle decades of the twentieth century which saw private law systems adjust to the context of modern welfare states and vertically integrated business firms, as it can legal responses to more recent trends towards polycentric models of governance and the fragmentation of the forms of production. Evolutionary theory can accommodate a role for legal origin in shaping economic development, but acknowledges the existence of multiple pathways to economic growth. The association of English-origin, common law systems with superior, in the sense of more pro-market, economic outcomes is as theoretically groundless as it is empirically unsupported. Evolutionary thinking may stress the limits of.

Attempts to use theories of evolution to justify particular normative programmes of law reform may be a distraction from more fundamental issues. The idea that legal evolution bears a family resemblance to the processes underlying the evolution of living systems is a compelling but challenging one. Is the resemblance anything more than conjectural? How might the claim be tested or verified? What are its implications for legal and social theory, on the one hand, and for evolutionary theory

more generally, on the other? These questions cannot be answered here, but to pose them in this form is to suggest the possibility of a research project in which legal scholarship and research could be meaningfully engaged, as part of a wider effort involving the natural and behavioural sciences. This project would proceed on the basis that social evolution in general and legal evolution in particular may share certain structural features with the evolution of living systems, but cannot be understood solely in terms of genetic causes. The field of evolutionary studies might benefit from a closer study of developmental processes in contemporary societies and in recent historical periods for which data on societal environments are widely available, in contrast to periods for which such environmental data are almost completely lacking but which are intensively studied by reason of their assumed significance for human genetic evolution.⁸³

5. Conclusion

This paper has argued that evolutionary models can explain certain core features of common law method, in particular the way in which common law reasoning combines stability and change. In the common law, order emerges from a mass of individual decisions in litigated cases. The common law thereby exhibits a general property of adaptive systems, which respond to signals from their environment, while retaining their autonomy and distinctive mode of operation. In contrast to models which stress the role of selection through litigation as the driving force behind the emergence of order in the common law, the analysis presented here has placed an equal emphasis on legal equivalents to variation (diversity of outcomes in judicial decision-making) and retention (conceptual continuity) within the evolutionary process.

This more complete analysis of the operation of the ‘variation-retention-selection’ algorithm in its legal setting has generated some important modifications of claims made for the efficiency of the common law. Common law rules may be approximately adaptive to their setting or

context, but inefficient rules may persist, and disequilibria may be generated by lock-in effects, internally, and stochastic events, externally. This perspective helps to explain why, within common law systems, correction of error through legislation is often needed, even if that legislation, in turn, is often simply a catalyst for a further development of case law. It also suggests that scepticism concerning claims of the supposed economic advantages of common law method over civil law modes of reasoning is justified. Common law and civil law systems are all, to some degree, hybrids in which case law operates alongside codes and statutes. Additionally, claims to ground particular economic or legal policies in evolutionary thinking can be seen to be misplaced. Evolutionary models do not predict a particular path for economic development, and are compatible with a wide range of approaches to regulation and governance.

Stripped of unwarranted normative connotations, evolutionary models of law have the potential to contribute to a wider interdisciplinary project, spanning the natural and behavioural sciences, which would aim to explain the origins of social order. This is a project to which legal scholars should seek to contribute, since legal systems provide a rich data source for studies of evolution in real time or in recent historical periods for which archival and documentary sources are widely available. The integration of legal analysis into evolutionary theory and into empirical studies of evolutionary change could thereby achieve wider benefits.

Notes

¹ The clearest statements of the modern synthesis are those by Richard Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1976), and *The Blind Watchmaker* (New York: Norton, 1986). Dawkins built on the more formal, mathematical analyses of William D. Hamilton, in particular, ‘The genetical evolution of social behaviour, I’, (1964) 7 *Journal of Theoretical Biology* 1-16, and ‘The genetical evolution of social behaviour, II’ (1964) 7 *Journal of Theoretical Biology* 17-52, and George Price, ‘Fisher’s “Fundamental Theorem” made clear,’ (1972) 36 *Annals of Human Genetics* 129-140 (the ‘Price equation’).

² D. Campbell, ‘Blind variation and selective retention in creative thought as in other knowledge processes’ (1960) 67 *Psychological Review* 380–400.

³ N. Luhmann, *Soziale Systeme. Grundriß einer allgemeinen Theorie* (Frankfurt am Main: Suhrkamp, Frankfurt am Main, 1984), published in English as N. Luhmann, trans. J Bednarz Jr., and D. Baecker, *Social Systems* (Stanford, CA: Stanford University Press, 1995).

⁴ N. Luhmann, *Das Recht der Gesellschaft* (Frankfurt am Main: Suhrkamp, 1993); published in English as N. Luhmann, trans. K. Ziegert, ed. F. Kastner, R. Nobles, D. Schiff and R. Ziegert, *Law as a Social System* (Oxford: Oxford University Press, 2004); G. Teubner, *Recht als autopoietisches System* (Frankfurt am Main: Suhrkamp, 1989), published in English as G. Teubner, trans. Z. Bankowski and R. Bankowska (1992), *Law as an Autopoietic System* (Oxford: Blackwell).

⁵ T. Lawson, ‘Ontology and the study of social reality: emergence, organization, community, power, social relations, corporations, artefacts and money’ (2012) 36 *Cambridge Journal of Economics* 345-385.

⁶ *Donoghue v. Stevenson* [1932] AC 562.

⁷ K. Llewellyn, *The Bramble Bush* (New York, Oceana: 1930).

⁸ This is not to condone a counter-hypothesis, that the common law lacks any semblance of order or system. The evolutionary nature of the common law will generate certain systematising tendencies; see below, sections 2 and 3. On this see more generally, G. Postema 'Law's system: the necessity of system in common law', UNC Legal Studies Research Paper No. 2324438. Available at SSRN: <http://ssrn.com/abstract=2324438> (2013).

⁹ Llewellyn, *The Bramble Bush*, at p. 78.

¹⁰ *Ibid.*

¹¹ *Ibid.*, at pp. 73-74.

¹² *Ibid.*, at p. 73.

¹³ [1932] AC 562.

¹⁴ *Dixon v. Bell* (1816) M. & S, 5, 198; *Langridge v. Levy* (1837) M & W, 2, 519; *Dominion Natural Gas Co. Ltd. v. Collins* [1909] AC 640, 646 (Lord Dunedin).

¹⁵ *Winterbottom v. Wright* (1842) M & W 10, 109; *Cavalier v. Pope* [1906] AC 424.

¹⁶ Lord Thankerton decided the case on the narrow ground that 'the respondent, in placing his manufactured article of drink upon the market, has intentionally so excluded interference with, or examination of, the article by any intermediate handler of the goods between himself and the consumer that he has, of his own accord, brought himself into direct relationship with the consumer': [1932] AC 562, 603.

17 [1932] AC 562, 567.

18 [1932] AC 562, 578.

19 [1932] AC 562, 577.

20 [1932] AC 562, 577.

21 [1932] AC 562, 578, citing *Mullen v. Barr & Co.* 1929 SC 661, 479 (Lord Anderson).

22 [1932] AC 562, 567.

23 There was only one authority clearly on point which had been decided in the plaintiff's favour, *George v. Skivington* (1869) LR 5 Ex 1, of which Lord Buckmaster said, 'few cases can have lived so dangerously and lived so long' ([1932] AC 562, 570).

24 [1932] AC 562, 583-4.

25 [1932] AC 562, 612.

26 [1932] AC 562, 612-17.

27 [1932] AC 562, 588-9 (Lord Atkin), 610-11 (Lord Macmillan).

28 Lord Atkin ([1932] AC 562, 584-5) refers to dicta in minority judgment (on this point) of Brett MR in *Heaven v. Pender* (1883) 11 QBD 503, 509, three cases involving a variant of employer's liability in which contractors or other third parties were held liable for workmen's injuries (*Hawkins v. Smith* (1896) 12 Times LR 532, *Elliott v. Hall* (1885) 15 QBD 315 and *Oliver v. Saddler & Co.* [1929] AC 584), and a case in which a rail passenger was injured when a bridge collapsed (*Grote v. Chester and Holyhead Railway* (1849) 2 Ex 251). None of

these was what would now be called a product liability or consumer case. Lord Macmillan focuses on *George v. Skivington* (1869) LR 5 Ex 1 and *Heaven v. Pender* (1883) 11 QBD 503. In the critical passage in his judgment in which he states the ‘principles applicable to this branch of law’ upon which the case is to be decided in favour of the appellant, however, he cites no cases at all ([1932] AC 562, 618-21). For discussion of Lord Macmillan’s approach and the influence of his Scots law (and hence civil law) training, see A. Rodger, ‘Lord Macmillan’s speech in *Donoghue v. Stevenson*’ (1992) 108 *Law Quarterly Review* 236; R.V.F. Heuston, ‘*Donoghue v. Stevenson* in retrospect’ (1957) 20 *Modern Law Review* 1-24 at p. 3, records that the ‘Celtic’ origin of the majority judges (Lords Thankerton and Macmillan were Scottish; Atkin was born in Ireland) was seen in some quarters as a reason for doubting the decision (*Kirby v. Birk* (1944) IR 207; P. Landon (1945) 61 *Law Quarterly Review* 146).

²⁹ *Thomas v. Winchester* (1852) 6 NY 397; *MacPherson v. Buick Motor Co.* (1916) NY 217, 382. See [1932] AC 562, 598-9 (Lord Atkin), 603 (Lord Thankerton), 617-18 (Lord Macmillan).

³⁰ [1932] AC 562, 610 (Lord Macmillan, citing the 13th edition of Pollock on Torts as the work of a ‘very distinguished English writer on this subject’ (F. Pollock, *Law of Torts* (Philadelphia: Blackstone, 1887)).

³¹ [1932] AC 562, 579.

³² [1932] AC 562 583.

³³ [1932] AC 562. 619.

³⁴ [1932] AC 562 618.

³⁵ Llewellyn, *The Bramble Bush*, at p. 72; Heuston, ‘*Donoghue v. Stevenson* in retrospect’, at pp.7 -9.

³⁶ See generally, S. Deakin, A. Johnston and B. Markesinis, *Tort Law* (7th. ed.) (Oxford: Clarendon Press, 2013).

³⁷ E.g. the rule governing the liability of public authorities for certain failures of care affecting private parties: *Home Office v. Dorset Yacht Co.* [1970] AC 1004.

³⁸ E.g. the rule providing for recovery of purely financial losses from remote third parties: *Junior Books Ltd. v. Veitchi Co. Ltd.* [1983] AC 1, 520.

³⁹ See S. Deakin, ‘Tort law and workmen’s compensation legislation: complementary or competing models?’ in T.T. Arvind and J. Steele (eds.), *Tort Law and the Legislature: Common Law, Statute and the Dynamics of Legal Change* (Oxford: Hart, 2012).

⁴⁰ Including *Mullen v. Barr* (1929) SC 461.

⁴¹ On path dependence in law, see M. Roe, ‘Chaos and evolution in law and economics’ (1996) 109 *Harvard Law Review* 641-668.

⁴² Luhmann, *Law as a Social System*, at p. 400: ‘the separation of the systems prevents the automatic reception of the economic approach into the legal system (despite all the theories of ‘economic analysis of law’). See also *ibid.* at p. 476: ‘point-to-point relations between the system and its environment are feasible in neither a positive nor a negative sense, because this would reduce the difference between systems and environment to that of being a mirror image of each other.’

⁴³ *Ibid.* at p. 340 et seq.

⁴⁴ [1932] AC 562, 567.

⁴⁵ T. Weir, 'The staggering march of negligence,' in: P. Cane and J. Stapleton (eds.), *The Law of Obligations: Essays in Honour of John Fleming* (Oxford: Clarendon Press, 1998).

⁴⁶ In the so-called *Caparo* test: *Caparo Industries plc v. Dickman* [1990] 2 AC 605.

⁴⁷ F.A. Hayek, *Law, Legislation and Liberty: A New Statement of the Liberal Principles of Justice and Political Economy* (London: Routledge, 1982); previously published in three volumes as *Rules and Order* (1973), *The Mirage of Social Justice* (1976) and *The Political Order of a Free People* (1979).

⁴⁸ Hayek, *Rules and Order*, at p. 36.

⁴⁹ *Ibid.*, at p. 33.

⁵⁰ *Ibid.*, at p. 38.

⁵¹ *Ibid.*, at pp. 85-6; Hayek, *The Mirage of Social Justice*, at p. 140.

⁵² Hayek, *Rules and Order*, at pp. 45-6.

⁵³ *Ibid.*, at p. 132.

⁵⁴ *Ibid.*, at p. 51.

⁵⁵ The 'spontaneous character of [private law] must therefore be distinguished from the spontaneous origin of the rules on which it rests, and it is possible that an order which would still have to be described as spontaneous rests on rules which are entirely the result of deliberate design', Hayek, *Rules and Order*, at pp. 45-46. In *The Mirage of Social Justice*, at p. 140, Hayek refers to the abstract rules of just conduct as 'the essential content of all contemporary systems of private law' (emphasis added).

⁵⁶ R. Sugden, 'Spontaneous order', in P. Newman (ed.), *The New Palgrave Dictionary of Economics and The Law* (London, Macmillan, 1998); P. Mahoney, 'The common law and economic growth: Hayek might be right' (2001) 30 *Journal of Legal Studies* 503-25.

⁵⁷ See generally, T.T. Arvind and J. Steele, *Tort Law and the Legislature: Common Law, Statute and the Dynamics of Legal Change* (Oxford: Hart, 2012).

⁵⁸ S. Deakin, 'Evolution for our time: a theory of legal memetics' (2003) 55 *Current Legal Problems* 1-42.

⁵⁹ R. Posner, *Economic Analysis of Law* (Boston: Little, Brown & Company, 1973), at pp. 321-27.

⁶⁰ See in particular, P. Rubin, 'Why is the common law efficient?' (1977) 6 *Journal of Legal Studies* 51-64; G. Priest, 'The common law process and the selection of efficient rules' (1977) 6 *Journal of Legal Studies* 65-82.

⁶¹ Posner, *Economic Analysis of Law*, at pp. 325-27. See the discussion of Priest, 'The common law process,' at pp. 80-81.

⁶² A.C. Pigou, *Wealth and Welfare* (London: Macmillan, 1912).

⁶³ R.H. Coase, *The Firm, the Market and the Law* (Chicago: University of Chicago Press, 1988).

⁶⁴ M. Galanter, 'Why the "haves" come out ahead: speculation on the limits of legal change' (1974) 9 *Law and Society Review* 95-151.

⁶⁵ See Arvind and Steele, *Tort Law and the Legislature*.

- ⁶⁶ R. La Porta, F. Lopez-de-Silanes and A. Shleifer, 'The economic consequences of legal origins' (2008) 46 *Journal of Economic Literature* 285-332.
- ⁶⁷ R. La Porta, F. Lopez-de-Silanes, A. Shleifer and R. Vishny, 'Law and finance' (1998) 106 *Journal of Political Economy* 1113-55.
- ⁶⁸ J. Botero, S. Djankov, R. La Porta, F. Lopez-de-Silanes and A. Shleifer, 'The regulation of labor' (2004) 119 *Quarterly Journal of Economics* 1340-1382.
- ⁶⁹ Mahoney, 'Hayek might be right.'
- ⁷⁰ La Porta et al., 'The economic consequences of legal origins'.
- ⁷¹ S. Deakin and P. Sarkar, 'Assessing the long-run economic impact of labour law systems: a theoretical reappraisal and analysis of new time-series data' (2008) 39 *Industrial Relations Journal* 453-487; S. Deakin, J. Malmberg and P. Sarkar, 'How do labour laws affect unemployment and the labour share of national income? The experience of six OECD countries, 1970–2010' (2014) 53 *International Labour Review* 1-27; S. Deakin, C. Fenwick and P. Sarkar (2014), 'Labour law and inclusive development: the economic effects of industrial relations Laws in middle-income countries', in M. Schmiegelow (ed.), *Institutional Competition between Common Law and Civil Law* (Frankfurt am Main: Springer, 2014).
- ⁷² E. Glaeser and A. Shleifer, 'Legal origins' (2002) 117 *Quarterly Journal of Economics* 1193-1229.
- ⁷³ T. Beck, A. Demirgüç-Kunt and R. Levine, 'Law and finance: why does legal origin matter?' (2003) 31 *Journal of Comparative Economics* 653-675; *ibid.* 'Law, endowments and finance' (2003) 70 *Journal of Financial Economics* 137-81.

⁷⁴ R. Rajan and L. Zingales, 'The great reversals: the politics of financial development in the twentieth century' (2003) 69 *Journal of Financial Economics* 5-50.

⁷⁵ J. Armour, S. Deakin, P. Lele and M. Siems, 'How do legal rules evolve? Evidence from a cross-country comparison of shareholder, creditor and worker protection' (2009) 57 *American Journal of Comparative Law* 579-630.

⁷⁶ A social-ontological position is one which seeks to identify causal factors, properties and/or entities that can reasonably be categorised as social, which possess their own distinct mode of being, yet are as real or objectives as the objects studied within the traditional 'natural' sciences, and in a relevant sense irreducible to the latter: Lawson, 'Ontology and the study of social reality', at p. 346.

⁷⁷ Luhmann, *Law as a Social System*, at p. 231.

⁷⁸ See section 1, above.

⁷⁹ M. Friedman, *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953), at p. 22.

⁸⁰ Priest, 'The common law process'. Armen Alchian's evolutionary account of competition also discusses the role of random mutation, in contrast to Friedman's exclusive focus on selection: A. Alchian, 'Uncertainty, evolution and economic theory' (1950) 58 *Journal of Political Economy* 211-21.

⁸¹ Luhmann, *Law as a Social System*, at p. 247: 'only through complex legal dogmatics can the stabilization and destabilization of law be shifted from the simple (and most of the time religiously justified) validity of assigned norms to their consistency. Dogmatics guarantee that the

legal system approves itself in its change as a system’, and at p. 343: concepts ‘have to be used uniformly, that is, consistently and with the distinctions that are marked out by them [...] They form a second, meta-textually supplied security net for redundancy in the system. Once they are worked out and legal texts make use of them, argumentation without legal concepts is well-nigh impossible’.

⁸² Ibid., at pp. 340, 346: ‘concepts compound information, thereby reducing the redundancy required in the system’; ‘concepts are stored experiences taken from cases, which are no longer perceived or critically discussed as experiences’.

⁸³ The field of sociobiology operates on the basis that genes code not simply for physical traits but, in the case of human organisms, strategies which have proved beneficial for social structure, and have thereby also enhanced human reproductive fitness. By these means, an alignment may be said to exist between certain genetic structures as expressed in the human genome, on the one hand, and social structures associated with the early stages of human social evolution, on the other, when it may be assumed that human genetic evolution was still undergoing significant development. Some variants of this idea impute social structure to genetics alone, while others accept the possibility of coevolution between genetic and ‘epigenetic’ or (in this context) cultural transmission. Although there have recently been some striking contributions to this body of work (see in particular S. Bowles and H. Gintis, *A Cooperative Species: Human Reciprocity and its Evolution* (Princeton, NJ: Princeton University Press, 2011), they are stronger on theoretical presentation and formal modelling than on empirical evidence, part of the problem being the lack of reliable evidence on the environments and structures of early human societies. Given the early stages of this work it would probably be premature to draw from it any firm conclusions for the study of legal systems.