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**Autopoietic Social Systems Theory:
The Co-Evolution of Law and the Economy**

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Introduction

This paper explores the relationship between regulation and contracts from the point of view of autopoietic social systems theory. This theory is mainly identified with the theoretical model developed by Luhmann (1990; 1995 [1984]) that applies the theory of autopoiesis to social phenomena, providing a new paradigm for thinking about the relationship between the legal system and other social systems in society. Considering that *contract* is understood here as a structure for the governance of exchange (Deakin & Wilkinson 1995), and that *regulation* is defined as any system of rules intended to govern the behaviour of its subjects that involves the core elements of standards, monitoring and sanctions (Collins 1999), the purpose of this paper is to emphasize how autopoietic social systems theory calls for reflexivity in regulatory strategies.

The theory of autopoietic social systems theory is complex, and its presentation involves several difficulties: it draws upon a number of contributions in several specialised fields; it represents a challenge – or a ‘fully-fledged change of paradigm’ (Teubner 1992, p. 1445) - to the dominant view of systems (that is, open systems theory); and some of its main concepts - namely that of *communication* - are ambiguous. Hence, a substantially descriptive style is adopted, and since the interest lies in exploring the interaction between regulation and contracts, there is a focus on the dichotomies *open-closed* and *system-environment*¹.

The paper begins with an introduction to the theory of autopoiesis as originally conceived in the realm of biology by Maturana and Varela (Maturana 1980). Next, it presents an account of autopoietic social systems theory as developed by Luhmann (1990; 1995 [1984]). The paper continues with an analysis of specific contributions for comprehending the link between the legal and the economic subsystems in society (e.g. Teubner 1993; Collins 1999; Deakin 2002), focusing in particular on the consequences of autopoietic social systems theory for understanding and rethinking the specific role of regulation. The paper concludes with the perspective of autopoietic social systems theory in respect to the interaction between regulation and contracts.

Origins: Maturana and Varela and autopoiesis in biology

The origins of autopoietic social systems theory are found in biology, namely in the theory of autopoiesis of Maturana and Varela². *Autopoiesis* is a word created by Maturana (1980, p. xvii)

¹ The need for a research focus is moreover justified by the plurality and extension of Luhmann’s interests and writings: according to Brans and Rossbach, ‘it is difficult to think of any sociological issues which Luhmann has not commented on’ (Brans & Rossbach 1997, p. 418).

² Zeleny (1980) points out several early precursors of autopoiesis: Claude Bernard, Giovanni Battista Vico, Bronislaw Trentowski and Carl Menger, who generally introduced principles of self-organization and self-maintenance in social orders. Additionally, he refers other more specific and elaborate works preceding autopoiesis, including Bogdanov’s ‘Tektology’, Leduc’s research on synthetic biology, Smuts’

to convey the autonomy of the organization of the living: what defines life is the existence and persistence of a self-referential and self-reproducing organization of the elements that constitute each living system. Self-reference means that each living system is composed of elements that interact with each other without direct reference to the external world. The internal order of each system is created by the interaction between its own constitutive elements. As these elements are generated from within the system, that is, from the self-referential network of interactions and independently of the environment, the system is said to be self-reproducing. As such, what defines a living system is its autopoietic organization, not its structure, which is mutable.

Structural change occurs from moment to moment, ‘either as a change triggered by interactions coming from the environment in which the system exists or as a result of its internal dynamics’ (Maturana & Varela 1992, p. 74). Since the environment is a source of perturbations in the living system - not of instructions (and vice versa) - the nature of the changes in the organism will be determined by its own internal structure. As long as the interaction between the organism and its environment is not destructive, there will be a mutual congruence: environment and organism act as mutual sources of perturbation, triggering changes of state in an on-going process called ‘structural coupling’ (Maturana & Varela 1992, p. 99). This structural coupling occurs between operationally closed systems, meaning that ‘their identity is specified by a network of dynamic processes whose effects do not leave that network’ (Maturana & Varela 1992, p.89). This is why the perturbations of the environment do not determine structural change: those perturbations take effect as if *read* or *interpreted* by the organism through its own internal *language*.

Besides being a general theory of life, Maturana and Varela’s theory of autopoiesis is also a theory of cognition. Since human beings are living systems, and these are defined by autopoiesis, their cognitive process is not determined by an objective, autonomous and external world. The logic of cognition is not linear, in the sense that it does not involve an exchange of inputs and outputs between the observer and an external object of observation: ‘...The experience of anything out there is validated in a special way by the human structure, which makes possible “the thing” that arises in the description. This circularity, this connection between action and experience, this inseparability between a particular way of being and how the world appears to us, tells us that *every act of knowing brings forth a world*’ (Maturana & Varela 1992, pp. 25-26) (authors’ italics). So, to sum up so far, the theory of autopoiesis introduces a perspective on the relationship between living systems and their environment based on self-reference and self-reproduction. Since the autonomy of each organism is based on the internal network of interactions between its own constitutive elements, without any direct reference to the environment, there is not a linear relationship between organism and environment; instead, due to structural coupling, they co-evolve.

Autopoiesis of social systems: simultaneous closure and openness

Autopoiesis was soon extended to the domain of social sciences. On a first stage, social systems were perceived as autopoietic bio-systems of second order that were developed from human individuals, viewed as first order bio-systems. Only later on, with Luhmann (1995 [1984]), did the theory of autopoiesis gain autonomy. Luhmann’s aim was to build a theoretical model susceptible of application across systems. To develop such a theory, Luhmann addresses in detail the autopoiesis of social systems, which he claims ‘can contribute to the abstraction and refinement of the general theory of autopoietic systems’ (Luhmann 1990, p. 11).

‘Holism and Evolution’, Hayek’s work on spontaneous social orders and Weiss’ research on determinism stratified.

For Luhmann, the decisive conceptual innovation of autopoiesis is self-reproduction: autopoietic systems are not only self-producing systems, but self-reproducing systems, in the sense that ‘everything that is used as a unit by the system is produced as a unit by the system itself’ (Luhmann 1990, p. 3). Concerning social systems, Luhmann (1990) argues in favour of their autonomous autopoiesis, based on the specific mode of autopoietic reproduction they use: *communication*. Whereas living systems (such as cells, brains and organisms) use life as their mode of realization of autopoiesis, and psychic systems base their autopoiesis in consciousness, social systems use communication as their particular mode of autopoietic reproduction. The elements of social systems are comprised of communication, in the sense of a synthesis between information (external reference), utterance (self-reference) and understanding (or misunderstanding)³. Hence, what is essential for an autonomous social autopoiesis is the conceptualization of society as a system of meanings, developed through a process of differentiation.

To retain their autopoiesis, social systems have to be able to simultaneously increase the flow of information from the external environment, and internally absorb and process that information in a form that contributes to an understanding of the world: a form of meaning (Carvalho & Deakin 2008). Forms of meaning thus emerge from the aggregation and integration of information over time, and correspond to cognitive resources that reduce the complexity of the world. As certain types of communication separate or differentiate from the general communicative circuit of society, and link up to establish a specific communicative network, several social subsystems (or second-order autopoietic social systems) emerge, such as politics, the economy, and law. For Luhmann (1990; 1992) the boundaries of these systems are established by a specific binary code that allows for the autonomy of each subsystem: for instance, the legal subsystem emerged as a differentiated subsystem in society through the development of communications invoking the legal/illegal code - that is, ‘the continuous necessity of deciding between legal right and wrong’ (Luhmann 1992, p. 1427); other communications, that is, those which invoke other codes, belong to the legal subsystem’s environment. Thus, each subsystem is operationally closed by its code, its boundaries being established internally through code-based operations of communication.

Nevertheless, this operational closure ‘does not deny the mutual influences and interdependencies among the communicative subsystems it distinguishes’ (Baxter 1998, p. 2008): autopoietic social systems are cognitively open to their environment. This openness, however, does not involve an exchange of information generated in one system for information generated in another system. Cognitive openness refers to the possibility that each subsystem has of ‘observing’ the world beyond its boundaries, conditioned by its own program (Baxter 1998, p. 2009-2010). A subsystem’s program guides the allocation of its code values in particular situations, in the sense that it establishes those aspects of the environment that can be made relevant to the system’s code. So, taking the perspective of the legal system, this means that it is open to receive information from the external environment, but it processes it in forms that are specific to the creation of legal meaning (Deakin 2002). The more internally congruent the legal system is - in the sense that it builds shared understandings or forms of meaning that allow for self-reproduction over time – the more efficient it is as a cognitive resource facilitating bargaining processes (Carvalho & Deakin 2008).

Luhmann (1992) also uses the notion of structural coupling to address the reciprocal interrelations between each social subsystem and the other subsystems constituting its environment. He claims that, from the perspective of one social subsystem, the other systems’

³ Luhmann writes that communication ‘seems to be an emergent reality of its own, a kind of autopoietic network of operations which continually organizes what we seek, the coincidence of self-reference (utterance) and external reference (information). Communication comes about by splitting reality through a highly artificial distinction between utterance and information, both taken as contingent events within an ongoing process that recursively uses the results of previous steps and anticipates future ones’ (Luhmann 1992, p. 1424).

communications are a source of perturbations, irritations, surprises and opportunities, and not of any kind of direct interference or external determination. The way in which these perturbations are dealt with depends upon the internal communicative network of the perturbed subsystem: 'By contrast [to open systems theory], an operationally closed system is structurally coupled to its niche when it uses events in the environment as perturbations in order to build or to change its internal structures. From external noise it creates internal order' (Teubner 1992, p. 1446) (parentheses added). The legal and the economic subsystems are differentiated through their respective codes: whereas the legal subsystem uses the legal/illegal code, the economic subsystem uses the codes of property (having/not having property rights) and money (payment/non-payment) (Luhmann 1992) or, according to Teubner, the 'language of prices' (Teubner 1993, p. 102). They are therefore differentiated systems that are structurally coupled by mechanisms such as *property* and *contract* (Luhmann 1992). For instance, *contract* is identified as the legal name for a mechanism of structural coupling that economic communication identifies as *exchange*. According to Baxter (1998), structural coupling between the legal and the economic systems through contract is well illustrated by the increasing reliance of contract law upon the systematic observation of the economic sphere and the reflexive incorporation of these observations into law itself (that is, into legal rules or decisions): several provisions of the Uniform Commercial Code illustrate this, such as the obligation impending on courts and juries to consult the *commercial context* (including the parties' course of performance, the course of their prior dealings and customary usages of trade) in interpreting contractual language. Correspondingly, there is a concern for an observation of what the law looks like to participants in economic transactions, as demonstrated by empirical research on contract practice in business (e.g. Macaulay 1963; Beale & Dugdale 1975; Ellickson 1985-1986; Bernstein 1992; Weintraub 1992; Deakin, Lane et al. 1997; Armour 2000; Bernstein 2001).

Autopoiesis of social systems: limitations and contributions

Luhmann's theory of autopoiesis of social systems has been criticised on several grounds. Some authors focus on particular aspects of the theory that may impair its diffusion within the social sciences, such as the ambiguous meaning of fundamental concepts like *system* (Rogowski in Priban & Nelken 2001) or *communication* (Smith 2004), its limited potential to influence policy (Priban & Nelken 2001), its excessive abstraction (linked to Luhmann's aim of providing a general theory of autopoiesis), and its underdevelopment of the logics of informational openness and structural coupling (Teubner 1992). Baxter (1998) presents a thorough account of four general problems with Luhmann's theory of autopoiesis: problems with the idea of binary coding; problems with the *subjectivisation* of systems; problems with the notion of structural coupling; and problems with the specification of the boundaries of autopoietic systems⁴. Firstly, the idea of binary coding involves inconsistencies in the definition and quantity of codes governing particular subsystems (such as the economy), and corresponds to an excessive simplification of the functioning of communication - as if Luhmann's taste for dichotomies (*open-close*, *system-environment*) was in this case pushed too far. Secondly, the *subjectivization* of systems, together with the emphasis on communications as the sole elements of social systems, obscures the need to know something about the institutional framework to which communications are connected, and about the actors engaged in legal communications. Thirdly, the theory simplifies excessively the coupling between systems, which is denser and realised through many more mechanisms than the ones indicated by Luhmann, and to a certain degree neglects momentary events as mechanisms of connection between social subsystems (Teubner 1992). And fourthly, the theory does not go far in establishing how different forms of

⁴ Baxter (1998) refers to how difficult it would be to chart the relations, for example, among the geographically defined legal systems at different levels within a single nation-state (state and federal levels) and the institutional subsystems of courts and legislature.

differentiation within a social subsystem might be articulated⁵. All these problems are fundamentally connected with Luhmann's aim of building a general theory of autopoiesis, applicable across social systems. By pursuing this objective, the theory reaches a level of abstraction that weakens its application at a more particularised level, such as that of the institutions and practices through which legal communication indeed operates.

Despite these critiques, Luhmann's theory of autopoiesis represents a valuable contribution not only to particular fields of legal scholarship, but especially to interdisciplinary research (McCrudden 2006). The theory of autopoiesis theorises the usually untheorised assumption of *relative autonomy* of law, behind which is the idea that 'legal theory must account for both the legal system's "peculiar internal structures" and the legal system's interrelation with its nonlegal environment' (Baxter 1998, p. 2066). Most fields of legal scholarship are challenged by communications from other social subsystems, and autopoietic theory may contribute to understand this on-going interaction.⁶ The theory of autopoiesis (and particularly the notion of structural coupling) also has highly relevant implications regarding interdisciplinary research: on the one hand, none of the social subsystems can claim its supremacy or aspire to colonise another, for each subsystem's survival depends on the maintenance of its autopoietic organization (Willke in Antunes 1998); on the other hand, the theory suggests caution in increasing law's openness to other social spheres, for law's openness will necessarily be limited by the specific mechanisms, procedures and practices through which it observes its environment.

Autopoiesis of social systems and the conceptualization of law

As to regulation and its interaction with contract practice, three interrelated aspects of Luhmann's theory of autopoiesis should be highlighted: the affinities with legal pluralism and its decentred view of regulation; the emergent concern for the responsiveness of regulation, and the rejection of a *direct* relationship between system and environment (which is not at all the same thing as a rejection of the idea that system and environment influence one another).

On the basis that communication is the mode of autopoietic reproduction of social systems, that communicative operations are organised and closed by a specific code, and that the code of the legal system corresponds to the opposition between legal and illegal (or to the idea of legal validity), Luhmann concludes: 'If the question arises whether something is legal or illegal, the communication belongs to the legal system, and if not then not' (Luhmann 1992, p. 1428). Hence, the legal system is not restricted to the set of official state laws (such as in *centred* views of regulation), nor does it correspond to the complex of formally structured institutions such as courts and legislatures (Teubner 1992; Baxter 1998). The legal system includes any communication that invokes the idea of legal validity or invalidity, and excludes communications organised by other codes or themes⁷. In this sense, the theory of autopoiesis

⁵ In the context of the legal subsystem, Baxter expressively writes that 'in my view, even the ultimate outcome of legal communication in the courts – a legal decision – is not aptly described as a choice between opposed binary code values ... The idea of legal communication as a binary choice between "legal" and "illegal" does not do justice to the richness or texture of legal communication' (Baxter 1998, p. 2069). Both Antunes (1998) and Baxter (1998) recall how Luhmann has also used the idea of legal validity as the organizing theme (or circulating symbol) of legal communication (Luhmann 1992), which seems more appropriate to establish the system's identity than binary coding.

⁶ Smith (2004), for example, uses the theory of autopoiesis in the field of Family Law, namely to understand how the law and other social scientific discourses mutually observe issues related to adoption and post-adoption contact. For examples in other legal fields, such as Environmental Law, Labour Law and Criminal Law see Priban and Nelken (2001).

⁷ For an illustration of what counts as constituting the legal system see Teubner's example of the *tax laws* of the Mafia: 'Clearly, in their illegality, they are excluded from any "recognition" by the official law of

offers both a *decentred* view of regulation, as well as an explanation for the central question of legal pluralism: how can the interwovenness of the social and the legal be better understood while maintaining the distinctiveness of the legal discourse? (Teubner 1992)

Furthermore, Luhmann's theory of autopoiesis reveals an emergent concern for the *responsiveness* of regulation, insofar as it conceives social systems as cognitively open. Without cognitive openness, each social subsystem would never be able to see through the looking glass, for it would continue to evolve according to its own internal communicative network. Cognitive openness, by grounding structural coupling, is thus also a condition for the responsiveness of regulation, understood as a tighter connection of law to other autonomous social discourses than that which is supposed by structural coupling (Teubner 1992).

There is a link here to theories of *responsive law*. Responsive law is seen by Nonet and Selznick (2001[1978]) as purposive, oriented to undertaking an affirmative responsibility for the problems of society and thus concerned with substantive outcomes, searching for implicit values in rules and policies which may be flexibly interpreted and applied to new institutional settings. Responsive law thus supposes an openness of law to perturbations originating in other sub-systems. Ayres and Braithwaite (1992) reinforce the idea of the importance of flexibility in the interpretation and application of law as they advance their view of regulation as involving the design of forms and processes that stimulate the participation of economic actors: businesses should be encouraged to self-regulate, and governments would intervene only when self-regulation is not effective, supposing that they have such a capacity to intervene more. This pyramid of regulatory technique calls for the participation of economic actors in making their frameworks of behaviour, and in this view a role of the law is 'to provide the structured frameworks, parameters and arenas for self-regulation within other social systems' (Vincent-Jones 1998, p.365). In doing so, the problems of apparent ineffectiveness or irrelevance of law identified in empirical research may be mitigated, as the law will *think* about its own conditions of application. It is in a very similar sense that Teubner too (1993) speaks of *reflexive* regulation: the rules think about their own conditions of application and are more effective when they operate indirectly by steering behaviour. This means generating rules that are structurally coupled to the economic sub-system, in the sense of respecting its internal system of communication, that is, its *language*. As it has been stated, 'reflexive regulation tries to be sensitive to the ways in which the participants in a social practice think about their activity, with a view to producing regulatory outcomes that avoid as far as possible interventions that distort, devalue, or corrupt the social practice as it is viewed in its own socially grounded communication systems' (Collins 2004, p. 24).

The autopoiesis of social systems then rejects the possibility of a *direct* relationship between system and environment: 'The theory of autopoietic systems replaces the input/output model with the concept of *structural coupling*. It renounces the idea of an overarching causality (admitting it, of course, as a construct of an observer interested in causal attributions), but retains the idea of highly selective connections between systems and environments.' (Luhmann 1992, p.1432). Considering the interaction between regulation and contracts, Luhmann means to reject the idea of a straightforward linear understanding of that interaction, which is maintained within the context of mainstream *law and economics* (e.g. Coase 1960; Calabresi 1961; Posner 2003)⁸. From the latter perspective, the law is conceived of as a structure of incentives to which individuals respond. Legal rules assign rights and duties, create taxes and subsidies, impose specific procedures and penalise particular behaviours. Governments thus induce particular courses of action by using the law to manipulate the costs of transacting. The economic actor - who knows and honours legal rules (Ellickson 1989) - will calculate those costs and choose the efficient behaviour, meaning that which maximises his self-interest and thus conduces to the

the State. Nevertheless, mafia rules are an integral part of legal pluralism in our semiautonomous social field insofar as they use the binary code of legal communication' (Teubner 1992, p. 1451).

⁸ For other approaches to law and economics that apply economic theory but involve contributions from other social sciences see, for example, Mercurio and Medema (1998) and Parisi and Klick (2004).

welfare of the society. To refer to this approach, Deakin (2002) uses the metaphor of law as a surrogate for price. This author means that legal norms are seen, in the economic analysis of law, in terms of implicit signals or prices to which economic agents respond, much in the same way that choices function in relation to prices in a market setting. Hence, economic actors act according to the law, which, like prices, encapsulates all the information relevant for decision making.

This perspective on law as a surrogate for price has important implications: first, it directs the attention of governments towards getting the law *right* - the major concern is with designing efficient legal rules (e.g. Williamson 2000; Djankov, La-Porta et al. 2002); secondly, the efficiency of the law is measured in allocative terms - the allocation of resources set by the law will be measured against alternative states in order to ascertain whether there has been an increase in the welfare of particular individuals or of society as a whole; as a consequence, the law evolves through a linear process of adjustment - law is changed when another allocation of resources is found to be more efficient (Deakin & Hughes 1999). However, from an autopoiesis of social systems perspective, contracts do not straightforwardly respond to the incentives set by regulation, as they have to interpret or *read* them. Moreover, regulation is not the straightforward result of the institutionalization of efficient norms originated in business exchanges, as it also has to interpret and *re-read* the norms. Instead, contracts and regulation co-evolve, such co-evolution being defined as ‘the development of autonomous evolutionary mechanisms in closed systems and their reciprocal structural coupling’ (Teubner 1993, pp. 52-53). Contracts and regulation co-evolve in relations of structural coupling: contracts interpret and read their environment through their own internal communicative processes, that is, their own systems of shared meanings; the contractual interpretation thus reached is afterwards recognised, reread or *decodified* (Teubner 1992) by the environment, whose regulatory elements in turn interpret, reread or recodify those perturbations or stimuli through their internal communication processes.

Hence, the relationship between contracts and regulation is not a linear one in the sense of involving an *overarching causality* of the type *whenever rule A, then outcome B*. Each subsystem is a source of disturbances or stimuli on its environment and vice versa. So, it may be that outcome B is aligned with regulation A, but *this is not to be expected* as a matter of fact. As it is put by Teubner (1993, p. 35), ‘when the internal organization of law is circular, then the causal models of its external influences are necessarily more complex. There has to be a move away from the simple logic of cause and effect towards a logic of perturbation’. Autopoiesis does not rule out causation: it assumes a complex causal relationship between sub-systems, thus rejecting the view of *linear* causation in favour of one based on mutual influence. The relationship between regulation and contracts is therefore a co-evolving or mutually constitutive one. As stated by Teubner, ‘the co-evolving systems exert an indirect influence on each other’ (Teubner 1993, p. 61). Certainly, it is assumed here that contracts may be seen as systems separated from their environment. This implies that a contract is seen not only as a structure for the governance of exchange (Deakin & Michie 1997), but that such a structure of governance has its own *language* or internal network of communications. This is the view of contract as a discrete communication system (Collins 1999), which will be addressed next.

Autopoiesis of law and the economy: rethinking contracts and regulation

The theory of autopoiesis has relevant implications concerning the interaction between contracts and regulation. It underlies Collins’ notion of contract as ‘a discrete communication system’ (Collins 1999, p.15), Teubner’s proposal to change regulatory strategy through ‘reflexive’ law (Teubner 1993), and Deakin’s focus on the evolutionary perspective of legal change as a basis to inquire into the interplay between legal development and economic change (Deakin 2002).

For Collins (1999), a contract is a closed subsystem in society, it is a ‘discrete communication system’ that creates structures of governance. Discreteness means that the contractual system is isolated from other relations that may exist between the parties; its nature as a communication system means that the contract specifies particular aspects of the contractual relationship and establishes its own normative context (in the sense of a system of meanings). A contract also creates a structure of governance, for it is an opportunity for one party to unilaterally develop a system of rules to govern the business relationship⁹. Hence, the apparent irrelevance of law found in empirical research on contract practice can be explained on the basis of a conflict between different communication systems.

Collins (1999) argues that a contractual relation involves three frameworks of contractual behaviour (or three normative systems), each of them constituting a different communicating system: the contract, the business relation, and the economic deal. The contract corresponds to the set of standards provided by self-regulation (a kind of *lex privata*). The business relation consists of the trading relationship between the parties, which is made up of formal and informal business relations and provides a source of trust within the relationship. And the economic deal is the agreement between the parties, which specifies the reciprocal obligations created by the particular transaction and establishes the economic incentives and non-legal sanctions. Building on the theory of autopoiesis, the author states that each normative framework is a self-referential communication system with its own point of reference as to processing information and resolving disputes. Hence, conduct may be rational within one system, and not within another. Being so, as each real life transaction incorporates the three frameworks, businessmen will guide their action by that which works in their self-interest. So, it is not that law is irrelevant in real transactions. Instead, businessmen will rationally orient their behaviour towards the dimension that mostly preserves their self-interest, and will not consciously consider other frameworks.

Since contracts are, not only frameworks for a complex set of interactions between business partners in economic relationships, but operationally closed systems of communication, a conclusion emerges: regulation cannot be expected to have any *direct* influence on contracts. However, such a conclusion appears to be in contradiction with the current reconfiguration of the legal regulation of contracts, characterised by a process of transition from the traditional private law of contract to ‘welfarist’ regulation (Collins 1999; Wilhelmsson 2004). Classical private law of contract has a ‘market-oriented structure’ (Wilhelmsson 2004, p. 713): it is concerned with the specification of rules regarding the protection of the interests, freedom and equality of the parties. Therefore, traditional contract law covers the creation of legally enforceable contracts, the negotiation process, and the breach of contractual obligations and the corresponding deployment of sanctions. The model of contract is that of the discrete transaction (Macneil 1974; Kidwell 1985), and the focus is on the contract and on the contractual parties, as if they were detached from the context within which the transaction takes place.

The dominance of traditional private law regulation has been challenged by the growing presence of welfarist regulation, that is, contractual regulation that has explicit social and economic purposes (Brownsword, Howells et al. 1994; Collins 1999). Some of these purposes still reflect an orientation to the protection of the interests, freedom and equality of the parties. But others are specially directed at the protection of public values, being thus more distant to traditional contract thinking (Wilhelmsson 2004). The more intense the legal measures are at

⁹ Here, the author has an empirical perspective of contract, as he argues that ‘although the imagery of freedom of contract presents an egalitarian picture of two people negotiating the terms of their agreement, *in practice* many contracts constitute the opportunity for one party to create unilaterally a system of rules and governance structures for the relation’ (Collins 1999, p. 24) (italics added). Hence, the contract is, in the real world, an instrument for exercising power.

protecting public values, the closer they are to the welfarist approach to contract law¹⁰. What the theory of autopoiesis claims as to welfarist regulation is this: ‘If politics specifically uses the law as a means of control, then the legal system must develop links with social reality’ (Teubner 1993, p. 71); but it must do so while at the same time recognizing that ‘the autonomy of social subsystems, which is rooted in self-referential relationships, makes them inaccessible to direct legislative intervention’ (Teubner 1993, p. 77). How can this dilemma be solved?

In terms of regulatory strategy, this dilemma cannot be solved by *command and control* regulation: ‘Law cannot simply require the economic system to act in the way law demands. It has to regulate by observing and recognising the autopoiesis of other systems; by assessing their process of self-production and self-reference and adapting its intervention accordingly’ (Black 1996, p. 45). Command and control regulation, by supposing a direct intervention in economic relationships, may produce undesired effects. These may take one or more of three forms: ineffectiveness of regulation, by its failure to have an impact on social practice; erosion of valuable properties of the regulated activity; or subversion of the law, by loss of the internal coherence of its own analytical framework (Teubner in Campbell 2000). The proper response to this ‘regulatory trilemma’ is then a change of regulatory strategy through rules that ‘seek to achieve the collaboration and co-operation of those subject to regulation’ (Collins 1999, p. 65), that is to say, through ‘responsive’ regulation or, more technically, through ‘reflexive’ regulation. The term *reflexive law* refers to Teubner’s concern with the procedural dimension of *responsiveness*, a concept that also includes a dimension focused on substantive outcomes. *Reflexive law* is thus a development of Nonet and Selznick’s *responsive regulation* (Nonet & Selznick 2001[1978]), which came to be associated with the theory of autopoiesis (Vincent-Jones 1998). Notwithstanding this distinction between responsiveness and reflexivity, both represent a contrast with command and control understandings of regulation and are thus often used interchangeably (Collins 1999, p. 65)¹¹.

In contrast to command and control regulation, reflexive regulation does not aim at commanding actions, but at inducing them through decentralised mechanisms of self-regulation at the level of the practices and processes operated by the parties themselves (Teubner 1993; Deakin & Hughes 1999). The law of the state, which ‘regulates only the contextual conditions’ (Teubner 1993, p. 67), then regulates alongside decentred forms of regulation such as private normative systems of a more or less collectivised origin (from terms of trade standardised by trade associations to informal norms of conduct agreed upon by the contracting partners).

These decentred forms of regulation assist processes of collective learning that are of relevance for contracts, insofar as these benefit, for instance, of existing *interpretive*

¹⁰ Wilhelmsson (2004) identifies six main types of welfarism in contract law: market rational welfarism (regulation aimed at improving party autonomy and the function of the market mechanism, such as information rules); market-correcting welfarism (regulation aimed at rectifying outcomes of the market mechanism in order to promote acceptable contractual behaviour, such as substantive fairness rules); internally redistributive welfarism (regulation aimed at redistributing benefits in favour of a group of weaker parties in a contractual relationship, such as rules affecting main subject matter of contract); externally redistributive welfarism (regulation aimed at redistributing benefits in favour of the disadvantaged within a group of contract parties in similar situations, such as equality rules); need-rational welfarism (regulation aimed at giving benefits to parties with special needs in comparison with other parties in similar situations, such as rules on *social force majeure*); and public values welfarism (regulation aimed at giving contract law protection to interests and values not related to the parties, such as the protection of environmental values and human rights).

¹¹ Some authors such as, for example, Vincent-Jones (1998) draw attention to a difference between *reflexive* and *responsive* law: ‘Teubner finds two distinct elements in Nonet and Selznick’s concept of responsive law, one pointing to the substantive rationality of results, and the other to the “reflexive” rationality of process-oriented organisation. Doubting the ability of substantive interventions to resolve the crisis of legitimacy, Teubner develops the reflexive and procedural dimension ... Hence “reflexive law”, later to be associated with the theory of autopoiesis, is Teubner’s interpretation and development of “responsive law”’ (Vincent-Jones 1998, p. 364).

communities and the correspondent reduction of uncertainty in the contractual process (Black 1997, p. 36). In fact, Collins claims that the great strength of the private law regulation of contracts is its reflexivity in both the standard setting process and in the monitoring and enforcement mechanisms. In the standard setting process, private contract law relies extensively on default rules that may be negotiated upon by the contractual parties. This provides them with a regulatory framework that is highly flexible and has potential to adapt to changing circumstances. At the same time, it allows the parties to economise on *ex ante* transaction costs. The private law of contract also devolves the monitoring and enforcement of the regulatory standards to the parties themselves, and courts will only intervene when one of the parties demands the other to observe the rules. As a result, this type of regulation also promotes the emergence of a *language* or system of meanings shared by the contractual parties, thus allowing for a tighter coupling between the different frameworks of contractual behaviour.

Deakin's view of legal change also builds on the theory of autopoiesis. Deakin (2002) argues in favour of an evolutionary theory of legal change, by claiming that legal evolution can be effectively understood in memetic terms. Legal concepts are seen as *memes*, that is, as units of cultural information - concepts or ideas that are shared within a population of individuals through social transmission. This idea of legal concepts as memes resonates with that of *code* within the theory of autopoiesis: legal concepts, the same as *codes* (understood in a genetic sense or by analogy with the meaning ascribed to them in genetics), maintain the internal coherence of the legal system's network of communications. The perturbations of the environment do not affect directly the legal system, for legal concepts *translate* those perturbations into legal *language* – this is how the legal system preserves its self-reference and self-reproduction, thus assuring its survival. Legal concepts thus work both as 'linkage institutions' (Teubner 1992; Teubner 1993), that is, as specialised institutions that bind law to other social subsystems, and as evolutionary mechanisms, in the sense of mechanisms that, by coding information into conceptual form, assist their inter-temporal dissemination (Deakin 2002).

Since legal rules co-evolve with other elements in their environment, the corresponding systemic processes of mutual coding, decoding and recodification imply that there is not a complete fit or alignment between system and environment. Economic actors do not behave *according* to regulation, as mainstream *law and economics* purports. Instead, lack of fit and misalignment are to be expected. Again, this means that any regulatory attempt to directly intervene in business practice may have unwelcome or unanticipated outcomes. But it also means that arguments in favour of the greater efficiency of spontaneously generated rules are too extreme. Evolutionary game theorists claim that spontaneously generated rules are more efficient because they adjust to changing social circumstances, when compared to the rigidity and lack of presentation of positive legal rules. But, as Deakin recalls, both in the case of statutory rules and common-law type of legislation, 'conscious human agency is combined with elements of emergence' (Deakin 2002, p. 28), as a result of the influence of diverse constituencies (lobbies, government, judges, academics, etc.). This is why Deakin concludes that reflexive regulation may represent a valuable contribution to understanding the interplay between legal development and economic change: A technique which involves 'the legal rule "thinking about" the conditions for its own application marks an advance on more traditional "command and control" mechanisms. It would seem that in the social sphere, as in the biological one, "evolvability", or the capacity of systems to co-evolve in line with their environment, is itself an emergent property. With the advent of reflexive law, the possibility arises that learning about evolution itself will become a property of the legal code' (Deakin 2002, p. 29).

Nevertheless, reflexive regulation is no panacea for the regulatory crisis. Teubner himself alerts us the danger that: 'If law becomes "reflexive" in the sense that it orients its norms and procedures to a theory of social autonomy and structural coupling, it can increase its regulatory potential to a certain extent. However, despite all "reflexivity", law is still a closed autopoietic

system operating in a world of closed autopoietic systems. It is impossible to break down the barriers which result from this double closure' (Teubner 1993, p. 97). The undergoing reconfiguration of legal regulation, both from private contract law to welfarist regulation, and from command and control to reflexive law has implications that have not been adequately explored, namely the need to gather empirical evidence on the way in which regulation is being able to indirectly shape contracts, and is being indirectly shaped by contracts in turn.

In sum, through the lenses of autopoiesis there is not a linear direct relationship between contracts and regulation. Contracts, as structures of governance, are understood as discrete communication systems. Although they are open to external regulatory pressures, these do not correspond to direct influences or commands. Instead, they are perturbations or opportunities translated into the contract's *language*. As a consequence, business partners will not react according to regulation, but within it. This coupling of contracts and regulation calls for reflexive regulation, aimed not at controlling behaviour, but at facilitating structural coupling. Reflexive regulation promotes the emergence of shared systems of meaning, both at the level of a population (via legal concepts) and at the level of business partners (via instruments of self-regulation).

Conclusion

Autopoietic social systems theory provides a distinctive account of the interaction between regulation and contracts, based on a perspective of co-evolution. The theory of autopoiesis, as applied to social systems, introduces a view of the relationship between systems and their environment based on self-reference and self-reproduction: each social subsystem is organised and maintained by its own internal network of communications, without any direct reference to other social subsystems. This does not mean a lack of interaction between system and environment, for these are structurally coupled: mutual processes of codification, decodification and recodification allow for cognitive openness.

To speak of *interaction between contracts and regulation* assumes a separation of these systems which is somewhat artificial. The contract may be seen not only as a structure of governance, but as a cognitive framework to govern complex interactions between business partners in economic relationships, in the sense that it establishes an internal network of communications. The influence of regulation upon contracts will thus be *mediated* by the system of shared meanings that the contract develops. Reciprocally, the influence of contracts on their regulatory environment will depend on each regulatory element's own communications. Being so, the relationship between regulation and contracts is one of co-evolution: there is mutual influence between structures. However, the process of co-evolution is not necessarily a smooth one. The separation of systems from their environments means that they develop independently of each other's influence for most of the time. Systems can become out of synch when there are prolonged periods of relative stasis; the resulting adjustment may well be sudden, as implied by the notions of 'punctuated equilibrium' and 'tipping points'. Regulatory strategies may hence be more successful in governing the behaviour of economic actors if they facilitate the emergence of shared systems of meaning that enable some measure of structural coupling to take place over time, but this is not straightforward. The regulatory framework must be capable of self-adaptation in a way which cannot, by definition, be entirely captured by *ex ante* design.

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