

Theoretical Isolation in Contract Theory: Suppressing Margins and Entrepreneurship

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Abstract

We discuss contract theory from a combined Austrian/new institutional view. In the latter view, the world is seen as shot through with ignorance and transaction costs, but, as a tendency, entrepreneurial activity responds to the problems caused by these. All modeling must critically reflect this. This ontological commitment is contrasted to various isolations characteristic of contract theory, specifically the modeling strategy of introducing often ad hoc and unexplained constraints that suppress margins and possibilities of entrepreneurial actions that would be open to real-world decision-makers. We illustrate this by means of, for example, the treatment of asymmetric information under complete contracting and the notion of control rights under incomplete contracting.

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Introduction

In this paper, we shall develop a critique of the increasingly important body of modern economics that is commonly referred to as “contract theory,”¹ and which encompasses “complete contract theory” (*alias* principal-agent theory) and “incomplete contract theory” (*alias* “the new property rights theory”). In the eyes of the profession at large, this field arguably is where the pioneer research in economic organization takes place. In some dimensions, contract theory is related to transaction cost economics (Williamson 1996), the nexus of contract approach (Alchian and Demsetz 1972), and other branches of new institutional economics. For example, there is a shared focus on various types of contracting problems, stemming from misaligned incentives, as the causes of different types of economic organization. Indeed, the initial motivation of one the classic contributions of contract theory, Grossman and Hart (1986), appears to have been to cast the essential insights of Williamson (1985) in more mainstream terms, and the incomplete contracts approach that they founded is often seen as a formalization of “... the intuitions of transaction cost economics, as created by Coase and Williamson” (Salanié 1997). However, as we shall point out, contract economics is in a number dimensions at variance with new institutional economics.²

In order to identify points of disagreement, we shall make use of the metatheoretical framework on the role of “theoretical isolation” that has been developed by Uskali Mäki in a string of publications (e.g., 1992, 1994, 1994) and applied to specific debates by Mäki (1999) himself and by Kyläheiko (1998). “Isolation” broadly refers to which items are included or excluded in the attempt to comprehend economic reality. Mäki argues that isolation plays an important role in the dynamics of dispute and the progress of economics. Specifically, much of those dynamics revolves around charges that a given theory isolates too little, too much,

¹ Hart and Holmström (1987) and Salanié (1996) are excellent overviews of the field.

² See also Brousseau and Fares (1998) for a splendid paper that makes much the same point, though not from a methodological point of view.

or wrongly. Certainly, the critique of contract economics that we develop in this paper is based on an argument that contract theory isolates too much and sometimes wrongly. In contrast to Mäki, we shall therefore apply ideas on isolation *normatively*. Thus, like most economists, we do think there are proper and improper — or, to put in weaker terms, less problematic and more problematic — isolations in economic theorizing. However, we also recognize that justifiably criticizing the isolations of a given theory is a very thorny epistemological issue.

In order to find some criteria for criticizing contract theory for the isolations it adopt, and to help identifying these isolations as well, we rely in particular on insights from two perspectives that have both been argued³ to be parts of new institutional economics. These are the (Austrian) *entrepreneurial discovery perspective* advanced by, in particular, Israel Kirzner (1973, 1997), and the *property rights perspective* associated with, for example, Ronald Coase (1988), Armen Alchian (1965), Harold Demsetz (1964, 1967), Stephen Cheung (1969a&b, 1983), and Yoram Barzel (1997). To repeat, we rely on these perspectives because they are particular helpful for identifying those isolations used in contract theory that we consider particularly problematic.⁴

We shall argue that the basic problem with contract theory is that in some respects it goes too far with respect to what agents know and can do, while other respects it does not go sufficiently far. To put it less mysteriously, contract theorists adopt an “on-off” approach to theoretical isolation in which, for example, agents are either fully informed about some variable or not informed at all, property rights are either perfectly enforced or not enforced at all, actions are either fully verifiable or not verifiable at all, etc. Thus, as a matter of modeling convention extreme values are chosen for many variables, because some (usually unspecified) information and/or transaction costs are arbitrarily supposed to be prohibitive. We shall argue

³ Although in a rather inclusive reading (Langlois 1986).

⁴ However, other perspectives and insights could also inform such a critique; see, for example, Peltzman’s (1991) critique of new industrial organization theory from the position of the Chicago applied price theory tradition or Kreps’ (1996) critique of contract theory from the perspective of behavioral game theory.

that this isolation strategy has the effect that a number of *margins* that would be relevant to real-world decision-makers are *suppressed*, and agents are not allowed to exercise *entrepreneurship* to somehow circumvent the interaction problems caused by the suppression of margins.

Setting aside for the moment any possible defences of the modeling strategy of contract theorists, there are two sets of critical reactions to these isolations, both turning on the issues of suppressing margins and entrepreneurship. One reaction is to criticize contract theory on the ground that it illegitimately abstracts from supposed *essential* features of the social world, such as the inherent propensity of agents to discover new opportunities for gain (e.g. Kirzner 1973) or the generality of bounded rationality (Furubotn and Richter 1997; Brousseau and Fares 1998). This may be called an “ontological critique”, since it concerns basic assumptions about human powers. Although we shall present such an argument, we realize that it may be too “metaphysical” and too much of a conversation-stopper to have much “bite.” We therefore also argue that taking seriously the inherent propensity of agents to discover new opportunities for gain is likely to substantially change some important conclusions derived from contract theory models. In other words, this is a reaction that relates to the *robustness* of these models. Thus, we discuss and invoke both ontological and more pragmatic criteria for criticizing the isolations of suppressing margins and entrepreneurship.

The design of the paper is the following. We begin by briefly discussing what we take to be a shared view of the essence of the economy, and an ontological commitment shared by Austrians and new institutionalist economists. The shared view is that although the economy is shot through with ignorance and transaction costs, agents will nevertheless as a tendency evolve institutional means to cope with these problems. Thus, ignorance, transaction costs, bounded rationality, and learning constitute the essence of the economic problem. The ontological commitment is that these essential features should be prominently featured in modeling (“*Ontological Commitments in Economic Modeling*”). We contrast this view with the modeling strategy – characteristic of not only contract theory but of much

of modern formal economics – of arbitrarily introducing constraints that suppress the margins over which agents may optimize (*“Suppressing Entrepreneurship and Margins: Examples and Clarification”*), a procedure that is typical of so-called “no-fat MIT style theory” (*“Theoretical Isolation, MIT Style Modeling and Its Problems”*). Modern contract theory is an important instance of this modeling strategy (*“Contract Theory”*). As a general matter, the coordination problem is here narrowed to only concern the alignment of incentives in extremely stylized non-cooperative game theory settings. In these settings, many of the margins that would be relevant to real-world decision-makers are suppressed, and agents are not allowed to evolve alternative institutional solutions that can cope with the problems caused by these suppressed margins. We illustrate this by means of the treatment of asymmetric information under complete contracting and the notion of control rights under incomplete contracting (*“Suppressing Margins and Entrepreneurship in Contract Theory”*).

Ontological Commitments in Economic Modeling

In the view of Frank Knight (1921) — the founder of the theory of the firm — firm organization, profit, and the entrepreneur are closely related phenomena. As he saw it, they arise as, respectively, an embodiment, a result and a cause of commercial experimentation — a view that he explicitly founded on an ontological view of the world as essentially open-ended and non-deterministic (1921: chapter 7). Few economists have followed Knight in linking together the firm, profit, and entrepreneurship (not to mention his philosophical starting points).⁵ Thus, entrepreneurship is not stressed in the modern economics of organization in general, and certainly not in contract theory. As we see it, this difference reflects different ontological commitments.

⁵ Important exceptions are Barzel (1987), Baumol (1993), Casson (1997), and Gifford (1999).

Consider the basic view of the economy adopted by both Austrian (Mises 1949; Hayek 1937; Kirzner 1973) and new institutionalist (Coase 1988; Furubotn and Richter 1998; Williamson 1998) writers. They stress that the economy is at any moment characterized by substantial ignorance and shot through with transaction costs, but that entrepreneurial activity, prompted by the lure of profit, is continuously closing pockets of ignorance in the market, devising ways of overcoming transaction difficulties and reducing the bounds on rationality.⁶ A formal contract theorist may certainly also accept such an ontology. The difference rather lies in the sort of commitments with respect to how economic modeling should be carried out that is believed to flow from such an ontology, that is, which constraints ontology places on isolation. On this issue, many positions are possible, and the history of economics witness many different ontological commitments (see also Foss 1994). Different extremes are defined by Shackle (1972), who came close to denying the possibility of virtually any modeling for the reason that such modeling would inherently misrepresent the nature of human choice, and Debreu (1959: x), who from a mathematical formalist point of view stressed that his theory be "... logically entirely disconnected from its interpretations." Much of the long debate on the realistic'ness of assumptions also reflects different ontological commitments.

Most economists steer a course between these extremes: They stress both the need for (formal) modeling, and the need for their theories and models to possess some sort of truth correspondence to economic reality. However, many possibilities of disagreement still exist, and many debates that go beyond checking the logical consistency of a given model often relate to how much of the contact to reality that is sacrificed by the choice of a given set of isolations. However, criteria for putting forward justified critique of the isolations of a given theory or model do not often appear to be explicitly stated by debating contemporary economists. What are permissible and not permissible isolations are arguably partly dictated by schools of

⁶ For example, Williamson (1998) now defends his basic notion that economic organization mostly reflects efficiency considerations by pointing to the alertness of businessmen (rather than to the selection argument that he has on earlier occasions invoked). Hence, his (1998: 18) quotation of the businessman Rudolf Spreckels: "Whenever I see something badly done, or not done at all, I see an opportunity to make a fortune."

thought (Mäki 1992), presumably often in a tacit manner. They are part of the “positive heuristic” of a research tradition. Of course, this doesn’t immunize them from critique. Moreover, one may still argue that it is in fact possible to find (non-trivial) criteria of what are good and what are bad isolations that are independent of one’s adherence to a certain research tradition.

The issue of how abstract theorizing should be used to be more centrally placed in economic discourse than it perhaps is these days. As Oskar Morgenstern (1964; quoted in Furubotn and Richter 1997: 444) argued isolations are necessary in all theorizing, but he added that “...[r]adical simplifications are allowable in science so long as they do not go against the essence of the given problem”. Thus, a given isolation should be considered “... faulty if it bypasses a fundamental feature of economic reality”. Even accepting Morgenstern’s criteria that isolations shouldn’t discard the “essence of the given problem” and “a fundamental feature of economic reality” leaves a wide margin of choice, for disagreements may certainly exist with respect to what are the true “essences” or “fundamental features.” For example, Coase’s (1988) famous criticism of “blackboard economics” is founded on the position that “[r]ealism in assumptions forces us to analyze the world that exists, not some imaginary world that does not” (Coase 1981: 18) — a statement that surely is open to a great deal of interpretation (see Mäki 1998). Moreover, we may be back to the problem that what is deemed essential, etc. depends on a given research tradition.

The least one can do in this situation is to make explicit one’s conception of what is essential and fundamental features that economic modeling shouldn’t bypass. We here adopt what we earlier in this section characterized as a shared Austrian and new institutionalist ontology. Moreover, like Austrian and new institutionalist writers we believe that this ontology places certain constraints on economic modeling that are typically more restrictive than the constraints imposed by modeling by, for example, a practitioner of modern contract theory. Thus, there are certain things that economic modelers should not do.

A possible starting point lies in Coase's and various Austrians' (Hayek 1948; Mises 1949) insistence that the analysis of "imaginary worlds" can have only a very limited role, an insistence that appears to be followed by practising new institutionalists and Austrians (e.g., Demsetz 1969; Williamson 1996; Furubotn and Richter 1997; Kirzner 1973). Extreme models and arguments (e.g., competitive equilibrium, the Coase theorem) do have a role, but this role is restricted to that of an *argumentum a contrario*, that is, they show the conditions that must obtain, for example, for money not to exist, for the law to have no allocative consequences, etc. (Mises 1949; Coase 1988). In itself, this may imply that new institutionalist economists tend to impose a stronger ontological commitment on themselves than formal economists do. A very clear instance of this is Furubotn and Richter's (1997: 446) claim that once the ideas of bounded rationality and transaction costs are accepted, one must recognize that

... [t]ransaction costs must appear *everywhere* in the system because of the nature of the individuals making decisions ... Thus, once we reject the notion of the omniscient decision maker who is "completely rational," the economic model undergoes a basic transformation.

Thus, according to Furubotn and Richter, one cannot have agents that are only boundedly rational some of the time or with respect to only a few variables or parameters, because the "nature of the individuals making decisions" is such that agents are always — albeit admittedly to a varying extent — boundedly rational, and economic theorizing should reflect this. Another implication of Furubotn and Richter's statement is that assuming that some agents are boundedly rational while others aren't will in general be illegitimate.⁷

This argument is in a sense, a call for *symmetry* with respect to what is assumed about agents and the consequences (i.e., transaction costs) of this. In a wider sense, it is a warning against the widespread procedure in modern economics of arbitrarily assuming that certain margins are completely closed to agents (i.e., invoking

⁷ This assumption is sometimes encountered in contract theory, where the judge is supposed to be boundedly rational while transacting agents aren't (Hart 1990).

asymmetry). Just as agents are not omniscient, they are not completely stupid either. Thus, should one be careful with assumptions that, for example, an agent is completely ignorant with respect to a certain variable, because margins are seldom completely closed.

This boils down to our first new institutionalist/Austrian criterion for proper isolation in economics: *In economic modeling, one should as a minimum give strong reasons for closing certain margins that may be open to real world decision makers in comparable situations.*

It is pertinent here to also consider an instance of Austrian economics, namely the entrepreneurial discovery perspective developed by Kirzner (1973, 1997). In Kirzner's view, the entrepreneur is an agent who by exercising alertness "... grasps the opportunities for pure entrepreneurial profit created by temporary absence of full adjustment" (1997: 69). According to Kirzner (1973), the alert entrepreneur should be contrasted with the Robbinsian maximizer of conventional neoclassical economics who acts in a mechanical fashion within a given means-ends structure. In contrast, the entrepreneur sets up new means-ends structures. However, according to Kirzner, this ability to discover and grasp hitherto unnoticed opportunities for profit is not limited to people with special cognitive qualities; it is a quite general aspect of human action. Thus, people in fact have a tendency to discover those margins on which they can optimize.⁸ Now, what does this imply for economic modeling?

It is tempting to interpret Kirzner's theory of entrepreneurship as a denial of the very possibility of economic modeling, except, perhaps, of the most abstract kind (*à la* Misesian praxeology). All formal modeling imposes some constraints at some level in the model; otherwise, modeling is pointless. Kirzner's theory, however, may be taken to imply that we cannot be sure that any constraint that we have put into our model will not be contested by some alert entrepreneur, as it were. If all of economics should reflect the entrepreneurial quality of alertness, but

⁸ It should be noted that Kirzner is generally careful to point out that this tendency is by no means automatic or perfect.

it is impossible to (formally) model entrepreneurship, then formal modeling would appear to be excluded in economics.

However, another – and, we believe, more correct – interpretation is possible. More specifically, we read Kirzner’s story as a methodological imperative that instructs the modelling economist to be alert to the possibility that the type and severity of the constraints he introduces in his modeling exercises may be utterly implausible in the face of the general quality of entrepreneurial alertness. It is a warning that the predictions of a model may not be borne out in reality because of entrepreneurial processes of discovery that take account of facts that were not known to the modeler. Thus, to use a pertinent example, a contract theorist shouldn’t dogmatically insist there is one and only one solution, namely vertical integration, to bilateral trading relations involving specific and complementary assets (cf. Hart 1995), since real world alert agents/entrepreneurs may come up with contractual solutions that are as, or more, efficient than vertical integration. This relates to the application and interpretation of economic models. One may go further and interpret the entrepreneurial discovery perspective as an instruction that in constructing his economic model, the modeler should ask whether a certain constraint of the model is a plausible constraint on behavior, considering that alertness is a quite general aspect of human action.⁹

This boils down to our second new institutionalist/Austrian criterion for proper isolation in economics: *In economic theorizing, one should not suppress entrepreneurship.*

In order to make more concrete what we take to be distinctive new institutionalist and Austrian perspectives on what constitute (il)legitimate isolation in economics, it may be helpful to provide a few examples of disputes that revolved around isolation and in which Austrian and new institutionalist economists were involved.

⁹ Striking a hermeneutic chord, one may argue that the economist must put himself “in the shoes” of the agents he models (O’Driscoll and Rizzo 1985; Koppl and Langlois 1991).

Suppressing Margins and Entrepreneurship: Examples and Clarification

The perhaps best known example of the isolation procedures of suppressing margins and entrepreneurship is Keynesianism of the Hicks-Hansen-Modigliani type (what was once referred to as "the neoclassical synthesis"). This type of macroeconomic modeling was designed to produce Keynesian results by introducing the spanner in the works of an otherwise perfect "classical" model of assuming that money wages were rigid in the downwards direction (Leijonhufvud 1968). In fact, in the reading of William Hutt (1939), Keynes produced his results by simply assuming away all optimizing and entrepreneurial behaviour on specific markets, namely labor markets. Similar charges were much later made against Keynesian economics by new classical economists. In the context of macroeconomic modeling they invoked the general heuristic principle of banishing as far as possible "free parameters", that is, constraints or assumptions that had no obvious foundation in choice theory (Lucas 1981, 1987).

Other well-known examples concern the (mis)uses in economics of the public good nature of lighthouses, the externalities involved in decentralized production of apples and honey, and the collective goods of fisheries and other non-exclusive resources (Cowen 1988). For example, the traditional categorization in economics of lighthouses as pure public goods arguably stems from an unexamined assumption that the enforcement of property rights for this particularly type of good would be prohibitively costly. In contrast, careful consideration of the full set of options available to suppliers of lighthouse services revealed that sufficiently low-cost means of enforcing (at least a significant subset of) the relevant property rights did in fact exist —and were historically employed by alert entrepreneurs (Coase 1988). The morale of this story is the by now well-known point that what are public goods, etc. are dependent upon the structure of property rights (Demsetz 1964; Cowen 1985) – but that structure is to a large extent defined by alert entrepreneurs through contractual innovations, innovations in enforcement methods, etc. Therefore,

neglecting such entrepreneurship easily leads to erroneous conclusions. As Stephen Cheung (1969a: 65) observed, economists have had a tendency to take "... assertions of fact for granted, accepting claims of deficient contractual arrangements without demanding evidence."

Having provided some examples of how economists have made problematic theoretical isolations by suppressing margins and entrepreneurship, we shall now make a more careful attempt to clarify the meanings of these procedures. There are subtle differences between the two.¹⁰ However, both refer to different ways of suppressing some costs and benefits that might be relevant to real-world decision makers, carried out for the purpose of making modeling tractable and typically also of producing certain outcomes from the model.

The procedure of "*suppressing margins*" means that as part of modeling the constraints that the agent faces, the modeler stipulates (not necessarily giving any reasons) that the agent is prohibited from knowing or doing certain things which might not be totally inaccessible to real world decision makers. This is typically accomplished by choosing extreme values for some variables. For example, as the concept of asymmetric information is normally used in information economics, it means that the costs on the part of non-informed agents of obtaining information are effectively infinite – which they typically wouldn't be to real-world decision-makers. This means that some actions — such as acquiring more information about the actions of the agents — are prohibited *ex ante*, and a margin (how much information to gather?) that would otherwise be relevant to real-world decision-makers is suppressed. However, in contrast, the agent is informed, and typically perfectly informed (usually in a common knowledge sense), about all other variables, and is allowed to take all the remaining margins (which are all supposed to have been discovered already) fully into account.

¹⁰ For example, while the suppression of margins does not necessarily imply the suppression of entrepreneurship, the suppression of entrepreneurship must always involve the suppression of some margins.

Now, suppressing margins is not illegitimate *per se*; most economists engage in that practice.¹¹ For example, in his famous "lemons" paper (Akerlof 1970), George Akerlof clearly suppresses margins by assuming that buyers are completely prohibited from knowing the quality of any specific car. However, this doesn't mean that his story stops there. Actually, he points out that the very reason for conducting the analysis is to find out what may be the reason for *alternative* institutional solutions – and not just one specific solution – to the adverse selection problem, such as warranties, brand names and the like. Thus, one may suppress margins, provided room is left for the agents to invent around the problems caused by suppressed margins. As we see it, this open-end approach is characteristic of the work of, for example, Harold Demsetz (1964, 1967), Stephen Cheung (1969a&b, 1983), and Yoram Barzel (1997). Margins are suppressed *in order to* understand how real-world agents may evolve various responses to interaction problems.

Not everybody takes such an approach. As we have seen, in macroeconomics and public policy debates, margins have been suppressed in order to justify certain solutions (i.e., some sort of public intervention) to presumed market failures, without inquiring into alternative institutional solutions. Relatedly, modern contract theorists, such as Oliver Hart (1995), suppress margins in order to explain a *certain* institutional solution (such as a certain type of ownership pattern), without inquiring into alternative institutional solutions that may keep interaction problems at bay (e.g., alternative contractual solutions).¹² Per decision of the modeler, agents are not allowed to surpass the problems caused by suppressed margins by evolving new institutional solutions. This is an example of "suppressing entrepreneurship".

¹¹ Moreover, the procedure of suppressing margins is not one that is specific to, say, mainstream economists. For example, in evolutionary economics, where equilibrium is not necessarily a feature of the model, theorists often suppress margins by assuming that all behavior is routinized (e.g., Nelson and Winter 1982). On the other hand, equilibrium may be a feature of a model in which virtually no margins are suppressed, as in cooperative game theory or the work of Yoram Barzel. However, in this case, there may be many equilibria.

¹² Furthermore, to these economists it is completely legitimate to suppress *any* margin if it can somehow throw light on some contractual phenomenon.

Whereas the suppression of margins refers to prohibiting the agent from knowing or doing certain things within a given interaction structure (typically by choosing extreme values for some variables), suppressing entrepreneurship rather refers to prohibiting the agents from going beyond given interaction structures in an attempt to remedy the problems caused by suppressed margins. Suppressing entrepreneurship implies that agents are not allowed to imagine and implement new institutional solutions to, for example, externality problems. Because of such restrictions, there may be value left in the public domain (Barzel 1997), that is to say, unexploited profit opportunities. However, agents are prohibited from capturing this value as a matter of modeling convention (or, lack of imagination on the part of the modeling economist). Entrepreneurship becomes suppressed.

Theoretical Isolation, MIT Style Modeling, and Its Problems

Types of Isolation

The procedures of "suppressing margins and entrepreneurship" are particular instances of "theoretical isolation," that is, the procedure under which "... a limited set of items is *assumed* to be isolated from the involvement or influence of the rest of the world" (Mäki 1999: 4). As Mäki (1999) further clarifies, along one dimension theoretical isolation may be *vertical* (i.e., the particularities of items are abstracted away so that something resembling a universal emerges) and/or *horizontal* (i.e., isolation at a given level of abstraction). Along another dimension, it may be *internal* (i.e., the system is isolated from influences from within the system) and/or *external* (i.e., the system is isolated from items outside the system itself) (cf. also Bhaskar 1978).

Needless to say, all economic reasoning makes use of various types of isolations. For example, economists may apply partial equilibrium analysis (external isolation), suppress entrepreneurship (internal isolation), assume that contract drafting costs are zero (horizontal isolation), or claim that the essence of all economic organization is to align the incentives of the involved parties (vertical

isolation). Isolation may be brought about by “idealizing assumptions” that explicitly mention an item, but either “nullifies” it ($X = 0$) or “stabilizes” it ($dX/dt = 0$). Or, isolation may be brought about by simply omitting an item (Mäki 1999). Isolation is clearly indispensable to economic analysis. Equally clearly, the sort of specific isolations that economists adopt are root causes of controversy in economics, as our earlier examples suggest.¹³

Although isolations are false statements about the world, they may be defended in different ways, often reflecting a mixture of ontological and more pragmatic considerations. For example, some isolations “... may be based on metaphysical considerations; they are made to exclude those aspects of the object that are expected to be ontically peripheral or inessential” (Mäki 1994: 153). Alternatively, isolations may be defended by pointing to the need for mathematical tractability. Conversely, specific isolations may be attacked on both ontological and pragmatic grounds; for example, it may be argued that a specific isolation excludes some ontically essential feature, or that it hasn’t gone sufficiently far for the argument to be put in formal terms.

“No-Fat” MIT Style Theory

With respect to the issue of rationalizing and defending specific isolations, it is noteworthy that formal economists, including contract theorists, often view modeling that proceeds in formal, mathematical terms as realizing both the need for tractability and for capturing the essential aspects of a phenomenon. Eric Rasmussen (1994: 3) characterizes an influential instantiation of this approach as “MIT-style theory”, and explains that the

... heart of the approach is to discover the simplest assumptions needed to generate an interesting conclusion – the starkest, barest, model that has the desired result. This desired result is the answer to some relatively narrow question.

¹³ Mäki (1999) is a study of the disputes surrounding transaction cost economics in these terms.

Thus, MIT style theorizing follows a two-step procedure, where the theorist first observes a stylized fact, and then finds a series of premises which together mathematically imply the observed stylized fact. As Camerer (1994: 208) observes, such "... [n]o-fat modeling with game theory has swept the economics profession," and contract theory is certainly no exception to this; it is in fact completely cast within the mold of MIT style theorizing. For example, the analyst observes some contracting practices and tailor-makes a game theoretic explanation that is as simple as well possible. In practice this means that it involves numerous, often very far-reaching isolations. Typically, such a "stark and bare" model is a very stylized non-cooperative game theory model, where everything (information partitions, Nature's move, etc.) is carefully laid down in the game's protocol. Modeling then means working "backwards" from the *explanandum* phenomenon to its explaining causes in terms of such a "stark and bare" model.

Problems With MIT Style Modeling

While MIT style theorizing is now arguably the dominant mode of discourse in formal economics, it is not completely uncontroversial (see also Camerer 1994). On the most obvious level, no-fat models only provide *sufficient*, and not necessary, explanations of an observed fact. Many other explanations may be possible. Closely related to this, explaining by means of no-fat models is, as it were, almost too easy, so that bad explanations are as easy to construct as good ones (Camerer 1994: 211).¹⁴ Another well-known problem with game theoretic no-fat modeling is the sensibility of equilibria to a multitude of factors, such as information partitionings, the sequence of moves, the number of players and so on.

A somewhat different critique — more in line with the basic thrust of this paper — has to do with the character of the isolations that are *typically* performed in no-fat modeling. Although its proponents may argue that no-fat modeling is simply

¹⁴ Others have made similar comments on related branches of modern economics. Thus, Peltzman (1991: 206) refers to the "... seeming inability of recent theory to lead to any powerful generalization. This is especially true in the area of game theory where this problem seems beyond remediation." Modern contract theory is completely game theory-based.

Occam's razor in operation, critics may counter that the liposuction sometimes goes too far, that is, the isolations *typically* involved in MIT style are simply too extreme.¹⁵ Some of these objections bring us back to the discussion earlier in this section of how claims of what is essential (and inessential) influence theorizing.

Thus, it may be claimed that in many respects practitioners of MIT style theorizing suppress what we know to be the essence of the economic problems facing real world decision-makers. Many economists of more heterodox stripes — such as new institutionalists, evolutionary economists and Austrian economists — will typically balk at the idea that everything but for a few variables is common knowledge. From these perspectives, discovery, learning and coping with problems introduced by transaction costs constitute the essence of “the economic problem.”

In our view, these differences reflect rival views of the complex interplay between reality and theorizing, rather than necessarily rival views of the nature of the world. Among other things, this involves different views of the starting points of theorizing in economics. Thus, practitioners of MIT style theorizing, including contract theorists, explicitly begin from extremely stylized settings, such as the full competitive model (Hart and Holmström 1987), and gradually introduces more and more relaxing assumptions. This “de-isolation” typically proceeds in terms of the construction of a string of loosely connected models where each model highlights the effects of relaxing one or a very few assumptions (or of introducing a new explanatory variable), keeping everything else intact. Such an incremental change in the *explanans* is typically designed to allow the theorist to address a new *explanandum* phenomenon.¹⁶

¹⁵ Please note the qualifier “typically.” We don't mean to imply that MIT style modeling, as least as characterized by Rasmussen (1994), *necessarily* implies problematic isolations, such as suppressing margins and suppressing entrepreneurship. However, since MIT style modeling usually implies the construction of “on-off” models, where extreme values are assumed for a great many variables, the suppression of margins and entrepreneurship tend to go naturally with this kind of theorizing.

¹⁶ In contrast, new institutionalists and Austrians do not begin from extreme models in the same way. Perhaps we may say that whereas to the formal economist, economics progresses by means of incremental de-isolation relative to one well-defined model (i.e., the competitive equilibrium model), to the Austrian or new institutionalist economist one rather begins from the real world in its complexity and ask which and how many isolations are necessary for grasping

In the following section, we shall see how a very influential group of contemporary economists have started from an extremely model (competitive equilibrium), applied the MIT modeling style, and have produced models that are characterized by isolations that amount to suppressing margins and entrepreneurship.

Contract Theory

Contract theory is only a subset, albeit a large and significant one, of the modern economics of organization, which also includes, for example, transaction cost economics. However, because of the heterogeneity of the various streams in the modern economics of organization, we here concentrate on the relatively homogenous subset of contract theory.

Common to contract theories is that they are partial equilibrium models, examine small-scale interaction, focus on (explicit and implicit) contracting relations, use non-cooperative game theory, assume Bayesian behavior, and use perfect Bayesian equilibria as the relevant solution concept. Although contract theories are partial equilibrium theories, and although they emphasize bilateral aspects of transactions, they have a foundation in general equilibrium theory (and perhaps in its mechanism design ramifications), both historically and conceptually (Guesnerie 1992). In a sense, the Arrow-Debreu model is a contractual model with the specific property that it demonstrates the conditions that must obtain for all problems of organization to be trivial (in the sense that ownership is of no consequence). The recognition in the 1960s that all Arrow-Debreu states of nature may not be observable (rather, verifiable) formed the basis for work on moral hazard (hence, incentive contracts), and the situation in which states of nature are known to agents, but not to the auctioneer, formed the basis for work on adverse selection (hence, revealing contracts).

It is therefore not surprising that modern contract theorists very explicitly see their work as "... a natural way to enrich and amend the idealized competitive model

the essence of some phenomenon (Coase 1981), using extreme models as no more than reference points.

in an attempt to fit the evidence better” (Hart and Holmström 1987: 71). More specifically, analysis has usually started out from an *ex ante* competitive equilibrium setting, for the reason that this reduces “... market forces to simple constraints on expected utilities [which] greatly facilitates equilibrium analysis” (Hart and Holmström 1987: 74) of the contracting problem. For example, reservation utilities are given rather than endogenous to the analysis. Given this, contracting can be reduced to an “optimization” problem, whereas the introduction of, say, imperfect competition broadens the problem to one of “equilibrium” analysis, that is, many more interdependent variables now have to be taken into account. Given this overall characterization, a first rough classification is to distinguish between complete and incomplete contract theories. The former category includes principal-agent theories (Salanié 1996) and the latter one includes the new property rights theories (Hart 1995).¹⁷ We here very briefly summarize these different modeling strategies.

Under complete contracting, the contracting agents can (costlessly) write a contract that describes their actions given all the future contingencies that may influence their contractual relation.¹⁸ In this context, there may be failure to reach the first-best outcome because of asymmetric information and different risk-preferences, but given these constraints (and a specification of the parties’ bargaining power), there is a determinate preferred outcome, on which the parties can coordinate without any problems.

Under incomplete contracting, in contrast, some contingencies are left out of contracts for whatever reasons, such as information costs, the limitations of natural language, etc. Or, while it may be possible for partners to agree on contract terms, these may not be enforceable by a third party, such as a court (i.e., are “non-

¹⁷ “New” to distinguish these theories from the “older” property rights theories associated with Coase, Alchian, Demsetz et al. See Foss and Foss (1999) for a comparison of the new and the old property rights theories.

¹⁸ However, although all contingencies can be specified, the court may not be able to verify some contingencies or outcomes. The parties may therefore not be able to condition performance on every relevant contingency. However, under complete contracting, all payments and actions can be specified *ex ante*.

verifiable").¹⁹ In these cases, it may not be possible to sustain the first-best outcome, that is, the one that unambiguously maximizes joint-surplus. Since complete contingent contracts cannot be written, parties to a contract may find it necessary to renegotiate their contracts after the contract has been signed, either because they encounter states of nature about which the contract is silent or where the contract specifies inefficient terms. In the Grossman-Hart-Moore version of this idea, it is assumed that the outcome of the renegotiation process can be foreseen at the time of drafting contracts and that the process does not involve costly bargaining – hence, will be efficient. Nevertheless, the very fact of the possibility of renegotiation may be sufficient to cause inefficient levels of investment in relation-specific assets.

This directs analytical attention to property rights, or more precisely residual control rights, that is, the rights to control the use of assets in states of nature that are not described in the contract. The interest then centers on which pattern of ownership rights leads to the most efficient outcome. This depends on the characteristics of the involved assets (e.g., whether they are complementary), on whose assets are most important to the joint surplus, and on who is most responsive to incentives, since ownership by one of the parties will attenuate the incentives of the other party. The bottom-line is that the efficient ownership arrangements primarily turn on the trade-off between incentives for the buyer and the seller.

The Grossman-Hart-Moore property rights approach has recently given rise to substantial debate within contract theory.²⁰ For example, it has been argued that property rights are not always necessary for reaching efficient outcomes, but that

¹⁹ More precisely, incomplete contracting obtains if performance of the original terms of agreement leaves gains from trade unrealized *given* the information available to the parties to the contract at the time performance takes place (Masten 1998). Incomplete contracting implies that some actions and payments will have to be determined *ex post*. The difference between complete and incomplete contracting also has to do with the role of the court. In complete contracting theories, courts are assumed to enforce the original agreement, and ordering is efficacious, even if all information may not be available to the court. This is in contrast to the incomplete contracting approach where the incompleteness of contracts introduces opportunities for recontracting and where court enforcement of the original terms would leave gains from trade unrealized given the information available to courts at the time performance takes place.

²⁰ Thus, it has been the subject of a recent Clarendon lecture (Hart 1995), a Walras-Bowley lecture (Tirole 1998) and a whole issue of the *Review of Economic Studies* (Vol. 66, no.1, 1999).

various mechanisms that do not imply a re-allocation of property rights and which are actually employed by real- world agents (say, options contracts) can handle the problems of unverifiable contract terms. Thus, one comes back to the complete contracting (principal-agent) tradition (Tirole 1999; Maskin and Tirole 1999a&b). Relatedly, there has been some uneasiness about the supposedly less rigorous and more *ad hoc* type of modeling that characterizes the incomplete contracts literature relative to the principal-agent literature (Maskin and Tirole 1999a&b). Although these disputes surely center around specific isolations, they are internal, highly technical, and do not involve a significant subset of the isolations actually made by contract theorists. In the following we shall take more of the outsider's view, and critically scrutinize what we consider to be key problematic isolations of contract theory.

Suppressing Margins and Entrepreneurship in Contract Theory

In this section we address specific methods of isolation in contract theory, concentrating on how margins and entrepreneurship are suppressed. As we shall see, most of the problematic isolations of contract theory are horizontal ones.²¹ Moreover, the specific form many of these isolations take result in what may be called “on-off” models, in which margins are either completely suppressed or completely open to agents (e.g., agents are either perfectly informed or not informed at all, property rights are either perfectly enforced or not enforced at all, contracts are either fully verifiable or completely non-verifiable, etc.). There is seldom anything in-between these extreme possibilities. As we further argue, this results in models that provide often one-sided views of contractual arrangements, including the firm. Moreover, we suggest that contract theory models are often not robust, in

²¹ However, what we call “suppressing entrepreneurship” is arguably an “internal isolation.”

the sense that their outcomes are extremely sensitive to the specific isolations that are adopted.²²

Coordination, Equilibrium and Process

The essence of economic organization is usually taken to be to obtain some sort of coordination, for example, to align the plans of cooperating parties in the face of volatility. However, the coordination problems that are treated in contract theory are very narrow, at least when compared to the coordination problems that interest Austrians and new institutionalists. This relates to both what may be called the “scope” and “form” of coordination problems. With respect to the scope of coordination problems, contract theorists only consider incentive-conflict problems (whereas other type of coordination problems are possible, Foss 1999). With respect to the form of coordination problems, modern contract theory is fundamentally an equilibrium theory; in fact, it utilizes specific game theoretical (Bayesian) equilibrium concepts that involve very strong assumptions about agents’ coordinative capabilities. Coordination takes place by means of pure ratiocination, and there is no mention of discovery, trial-and-error learning and the like.²³

Thus, from a Austrian and new institutionalist perspective, contract theory makes questionable horizontal isolations with respect to the set of coordination problems that are considered. Contract theorists defend these specific isolations by arguing that non-incentive coordination problems have no bearing on issues of economic organization (Hart 1995) and that process aspects are “unimportant subcomponents” of the model and can therefore be treated “in a cursory way” (Rasmussen 1994: 3). For example, *ex post* bargaining processes may safely be “blackboxed,” as when theorists (e.g., Grossman and Hart 1986) simply assert that certain bargaining solutions (say, Nash) will obtain (Kreps 1996; Aghion, Dewatripont and Rey 1994). However, this may be very problematic when the

²² Which is a point that has also been raised by some contract theory insiders, for example, Maskin and Tirole (1999b), Aghion, Dewatripont and Rey (1994), and Nöldeke and Schmidt (1995).

conclusions of the model are not robust to alternative conceptualizations of the bargaining process, as seems to be the case in the new property rights approach.²⁴

Furthermore, process issues and (other) issues of bounded rationality are hard to reasonably suppress to the extent that they crucially influence agents' choice of contractual forms, as Williamson (1996, 1998) has argued. In his work, there is more to integration than simply the concentration of ownership rights (as in the new property rights approach). For example, as his work on the M-form corporation illustrates, one advantage of organization in this view is that it can economize on bounded rationality by making members specialize in collecting and processing different types of information and that it allows for sequential, adaptive decision-making (Williamson 1985).

Isolations Relating to Knowledge and Rationality

Contract theory makes a number of strong horizontal isolations with respect to what is assumed about the knowledge that agents possess. For example, in the new property rights approach it is often assumed that although certain actions (say, investments) or objects may be fully *observable* by the contracting parties, they are not *verifiable* to a third party, such as a court; therefore, the contract is left incomplete. However, while it seems to be reasonable to assume that many things may be hard (i.e., costly) to verify to courts, why assume that some things are *completely* verifiable, whereas other things are *completely* unverifiable? The effect of this on-off approach is to suppress those ways in which contracting parties may try to make some actions or things more verifiable to courts.²⁵ Therefore, it is not

²³ Thus, agents are assumed to be able to coordinate on any desired gameform and equilibrium thereof, subject to constraints such as attitudes to risk, incentive trade-offs, bargaining power, and asymmetric information.

²⁴ For example, Aghion, Dewatripont and Rey (1994) show that adopting a specification of the *ex post* bargaining (renegotiation) process that differs from that assumed by Grossman and Hart (1986) or Hart and Moore (1990) by allocating all bargaining power to one of the parties and specifying a default point if renegotiation breaks down completely eliminates the crucial underinvestment result. See also Nöldeke and Schmidt (1995).

²⁵ It is quite hard to think of actions or things that are 100 % unverifiable. Hart (1995: 37-8) himself supplies the example of his own contract with Oxford University Press in which the quality level of the book is not specified, because, Hart asserts, that level is essentially unverifiable. But

considered either exactly *how* much verifiability can be allowed for in order to produce the predictions of the theory.

Principal-agent theory is characterized by a similar on-off approach with respect to knowledge isolations. For example, in the generic set-up, the agent and the principal are both equipped with full and common knowledge of the set of actions that the agent are allowed by the modeller to engage in. The principal is ignorant about the precise effort level of the agent and the realization of a stochastic variable impinging on the output. This is a suppression of a relevant margin. Moreover, compared to real-world decision-makers, the principal is actually even more ignorant, since he is (at least in the generic model) prohibited from discovering other margins on which to govern the relationship, for example, engaging in some sort of direct monitoring. However, this eliminates entrepreneurship.²⁶

Such ignorance with respect to a few relevant variables contrasts with the strong cognitive powers that are in fact otherwise routinely ascribed to agents in contract theory. These powers are perhaps particularly striking and paradoxical in the context of the literature on contractual incompleteness (Grossman and Hart 1986; Hart 1995). Formal incomplete contract theorists sometimes flirt with bounded rationality (e.g., Hart 1995: 81), but they don't take it very seriously.²⁷ Not only are the agents in a contractual relation symmetrically and perfectly informed; they are also assumed to be able to foresee the pay-offs from their relation, even if they don't know at all the physical characteristics of the good they are trading and even if unforeseen

is it really? Why couldn't OUP or the court draw on expert witnesses, for example, Professor Hart's colleagues, for ascertaining the quality of the manuscript in a possible court case? For a critique of the "observable but not verifiable" assumption that is so critical to incomplete contract theory, see Tirole (1988).

²⁶ From a new institutionalist perspective, Furubotn and Richter (1997: 442) also criticize modern contract economics on the grounds that it portrays decision-makers as having "... split economic personalities. They are perfectly informed about some matters yet completely ignorant about others". Although one may question the use of the concept of "personality" here, Furubotn and Richter's point is essentially the one that has been made in the preceding paragraphs. Furubotn and Richter argue that this dichotomous quality is related to the neglect of bounded rationality in contract theory, or, if bounded rationality is allowed into the analysis, the rationality of agents is only bounded with respect to some variables but not to others (see also Kreps 1996 and Brousseau and Fares 1998).

²⁷ One notable exception is Anderlini and Felli (1994).

contingencies occur.²⁸ Thus, the parties to a contract can correctly anticipate the distribution of utility – although they cannot describe the sources of that utility. This sort of inconsistency is a reflection of the inconsistent assumption that agents are only boundedly rational with respect to some variables and not to others (cf. Furubotn and Richter 1997: 446).

Transaction Cost Isolations

It is possible to distinguish between principal-agent and new property rights theories on the basis of the kind of horizontal isolations they make with respect to transaction costs.²⁹ Thus, in principal-agent theories, the relevant transaction cost is the loss in welfare relative to the first-best that is caused by the cost of observing effort being infinitely large, while the costs of writing (complete!) contracts are taken to be zero. In new property rights theories, on the other hand, there are no monitoring costs (or other information costs), while the costs of writing complete contracts are infinitely large. Thus, the two theories are extreme mirror images with respect to the transaction costs they consider.

Property Rights Isolations

According to the new property rights perspective, ownership rather than contractual means may be solutions to problems caused by specific investments. More precisely, ownership should be associated with the residual right to decide over asset uses in those situations that are not covered by contract (hence, contracting is

²⁸ Of course, the motivation for this assumption is that otherwise the whole theory threatens to fall apart. As Moore (1992: 180) comments: “If parties cannot foresee certain events, let alone anticipate how surplus would be divided in the event of renegotiation, then how is this likely to affect the size and nature of their specific investments?.” However, Maskin and Tirole (1999a) point out that there is a tension between the assumption of dynamic programming and the presence of transaction costs. If agents can in fact perform dynamic programming, then transaction costs (of describing actions or the nature of goods in advance) will not restrict the set of outcomes that contracts can implement.

²⁹ However, it should be mentioned that formal contract theorists are rather reluctant to use the term “transaction costs,” presumably because it is considered too imprecise (or even irrelevant, see Maskin and Tirole 1999a). This is somewhat ironic, given that much early work on transaction costs took place in formal theory, namely general equilibrium theory (e.g., work on monetary economies, sequence economies, etc.) (see Klaes 1999 for a fine historical survey of the emergence of the concept of transaction costs).

incomplete). The value of ownership derives from its being a bargaining chip in these situations, because it is common knowledge what is the value of (human and physical) assets in alternative (second-best) uses. The interest centers on finding those allocations of ownership that maximizes surplus.

However, as we have argued in more detail elsewhere (Foss and Foss 1999) many of the specific claims and implications that can be found in the new property rights approach are dependent on the suppression of some margins that would be relevant to real-world decision-makers. Most fundamentally new property rights theorists consistently do not make the important distinction between legal rights and economic rights. Barzel (1994: 394) provides a convenient summing-up of the economic concept of property rights³⁰:

... as an individual's net valuation, in expected terms, of the ability to directly consume the services of the asset, or to consume it indirectly through exchange. A key word is *ability*: The definition is concerned not with what people are legally entitled to do but with what they believe they can do.

"Ability" thus refers to, among other things, the costs and benefits of monitoring and enforcing one's rights. Clearly, ability in this sense may exist in different degrees to different decision-makers. In fact, there is likely to be a continuum of abilities, as determined by the nature of the assets and the exercise of entrepreneurship in the development of enforcement technology, contractual solutions and so on.

The issue of a distribution of abilities does not arise in the new property rights approach, since ability is taken to be perfect or it is not existent at all. Specifically, residual rights of control (i.e., ownership rights) are supposed to be completely backed-up by the legal system, including the courts (thus resulting in full abilities).

³⁰ Earlier, Mises (1936: 27) pointed out that ownership refers to "the power to use economic goods", that "... ownership is the *having* of the goods which the economic aims of men require", and that "... the economic significance of the legal *should have* lies only in the support it lends to the acquisition, the maintenance and the regaining of the natural *having*".

However, other rights (in the Barzel sense of these) are assumed to be completely outside the reach of the courts; otherwise there wouldn't be any hold-ups, inefficient investment, etc. It is therefore not recognized in the context of the new property rights theory that no property rights are fully enforceable, and that are rights are enforceable in different degrees, for example, because of different monitoring (Barzel 1997). Thus, important margins are suppressed in the new property rights theory.

In fact, appropriation of rights will take place *whenever* there are costs of detecting appropriation, of taking precautionary measures against appropriation, and of verifying that appropriation has taken place to a third party. This means that solutions may change if one "frees" some of the margins that are suppressed in the model. For example, elsewhere we begin from the setting normally considered in the new property rights approach – namely a bilateral contracting setting with unverifiable human capital investments and complementary physical assets – and opened a margin by allowing the contracting parties to choose how much *care* they want to exercise when they operate the physical assets in the relation (Foss and Foss 1999). In this case, it may sometimes maximize joint surplus if the agent whose human capital investments matter *least* to joint surplus is given ownership rights. This is because giving him the ownership to the asset improves his incentives to treat it in a careful way, and thus eliminates the need for monitoring. The resources saved on reduced monitoring may swamp the loss from a hold-up.

Defending Contract Theory

In the preceding sections, we have criticized a number of specific contract theory idealizations on various grounds, for example, that they are ad hoc, contrary to how reasonable agents placed in similar circumstances would act, mean that contract theory models are not robust, etc. Many other, perhaps more general, critiques are possible, for example, that contract theory models make exorbitant demands on the cognitive powers of individuals (e.g., Kreps 1996) or even that they are flatly inconsistent in only admitting bounded rationality or transaction costs to enter the

model with respect to select variables (e.g., Furubotn and Richter 1996). However, we here disregard the latter types of critique.

There is at least one defence against our charges that a contract theorist may adopt and which is both obvious and strong. This is to defend the specific idealizations adopted in a specific model by arguing that each model highlights the consequences of some transaction cost, and that the full *ensemble* of contract theory *models* — the *theory* — adds up to a good approximation to the different real-world implications of the existence of different types of transaction costs. For example, when confronted with a critique of the basic principal-agent model that effort cannot be observed by the principal, an agency theorist may adopt the defence that there are models of performance measurement (see Pendergast 1999) or models in which information search is explicitly featured (e.g., Aghion and Tirole 1997). Thus, one should simply shift from a model with a completely uninformed principal to a model in which the principal is informed, for example, by a noisy signal. Taken together, these different agency models provide a good approximation to real world agency problems.

Strong as it is, there are nevertheless still problems left with this defence. On the obvious level, notice that the defence amounts to defending one model characterized by suppressed margins and entrepreneurship by pointing to the existence of another model that exhibits the same feature,³¹ and the starting point of the whole critique was the problematic nature of suppressing margins and entrepreneurship. A perhaps deeper problem, however, is that various partial contract theory models are not likely to be additive in the sense of the would-be defender of contract theory. For example, the solution to contractual problems proposed within principal-agent theory may not be robust to the inclusion of assumptions from new property rights theory and *vice versa*. Thus, if contract drafting costs (a feature of new property rights models) are allowed into principal-agent models, it may well be that the costs of drafting the

³¹ Peltzman's (1991: 207) acerbic comment on game theoretic new industrial organization is tempting to quote here: "... the production of new models and tidying up of old ones seem to be the major goals of this research enterprise. The uninitiated observer faced with this long march of models soon begins groping for motivation to stay to the end of the parade".

complete, second-best contractual solution to the principal-agent problem may be so large that they swamp the benefits of doing so, producing a different contractual outcome (Cheung 1969b). Or, more generally, various transaction costs are likely to be interdependent, so that, for example, there is an inverse relation between *ex ante* contract drafting costs and *ex post* enforcement costs. Such interdependency effects are likely to be reflected in contractual outcomes in non-trivial ways.³² Therefore, the particular horizontal isolations with respect to transaction costs that are adopted in contract theory cannot easily be defended by arguing that, taken together, partial models provide the full picture.

Conclusion

In this paper, we have contrasted what we think is a basic worldview and a view of theorizing in economics that are shared by Austrians and new institutionalist with the modeling strategies pursued in modern contract theory. More specifically, we asserted that Austrians and new institutionalists begin from a view of the economy as fraught with ignorance and transaction costs, and ask how many and which isolations are necessary for grasping the essence of some phenomenon. When they allow for the existence of ignorance, bounded rationality and transaction costs, they insist that these should be generally allowed for. Although the role of extreme models, such as the competitive equilibrium model, is in no way prohibited by these economists, they are hardly seen as starting points for analysis *per se*; rather, they simply state the conditions that must obtain for a number of real world institutions to be of no significance.³³

In contrast, modern contract theorists begin (historically and logically) from an extreme model, namely the competitive equilibrium model. Work in contract

³² To be fair, it should be mentioned that contract theorists are not necessarily blind to this (cf. Holmström and Milgrom 1994). However, models that incorporate interdependency effects are very few.

³³ In a sense, they can of course still be starting points, namely by raising puzzles.

economics may thus broadly be described as “de-isolating” this model in various ways, so as to bring it closer to reality (Hart and Holmström 1987). This type of work is often referred to as “no fact MIT style theory” (Rasmussen 1984), and is taken by its proponents to be rigorous and capable of grasping essential aspects of economic reality. As we have seen, however, the result of this modeling strategy is to produce “on-off” models, in which margins are either completely suppressed or completely open to agents (e.g., agents are either perfectly informed or not informed at all, property rights are either perfectly enforced or not enforced at all, contracts are either fully verifiable or completely non-verifiable, etc.). There is seldom anything in-between these extreme possibilities, a result of the specific way in which contract theorists horizontally isolate.

This produces arbitrary, non-robust models that suppress margins and entrepreneurship and which provide often one-sided views of contractual arrangements, including the firm.³⁴ For example, ownership is only seen as a matter of supplying agents with bargaining chips (Hart 1995). However, ownership may arise for many other reasons, some of them speculative. Thus, an agent may acquire ownership rights to some asset because ownership confers flexibility advantages in the face of transaction costs that have nothing to do with the hold-up threat. As Littlechild (1986: 35) argued, it may pay to buy, say, the field at the bottom of one’s garden from one’s neighbour, if one takes into account “... that he may discover some new uses for the field that I haven’t yet thought of, but would find objectionable.” Or, an entrepreneur may acquire ownership rights to some asset, because the contract law prohibits him from realizing speculative gains (caused by movements in relative prices) from the unspecified quantity clauses of some long-term contract. However, in the context of modern contract theory, these possibilities are not considered, since here

³⁴ Hart and Holmström (1987: 105) noted the “extreme sensitivity” of optimal incentive schemes to, for example, slight changes in the relation between actual performance and verifiable information. But the discovery of the un-robust nature of contract theory models goes back at least to Mirrlees (1974), a paper that prompted more than a decade of research on how the optimal contract depends on, for example, the specific form of the utility function.

... there is no room for the entrepreneurial discovery process not only in the sense that no opportunities for pure profit can possibly exist, but also in the sense that the model precludes all Knightian uncertainty that might affect the character of the individual decision (Kirzner 1997: 70).

References

- Aghion, Philippe, Matthias Dewatripont, and Patrick Rey. 1994. "Renegotiation Design With Unverifiable Information," *Econometrica* 62: 257-282.
- Aghion, Philippe and Jean Tirole. 1997. "Formal and Real Authority in Organization," *Journal of Political Economy* 105: 1-29.
- Akerlof, George A. 1970. "The Market for 'Lemons'," in idem. 1984. *An Economic Theorist's Book of Tales*. Cambridge: Cambridge University Press.
- Alchian, Armen A. 1965. "Some Economics of Property Rights," in idem. 1977. *Economic Forces at Work*, Indianapolis: Liberty Press.
- Anderlini, Luca and Leonardo Felli. 1994. "Incomplete Written Contracts: Undescribable States of Nature," *Quarterly Journal of Economics* 117: 1085-1124.
- Barzel, Yoram. 1987. "The Entrepreneur's Reward for Self-Policing," *Economic Inquiry* 25: 103-116.
- Barzel, Yoram. 1994. "The Capture of Wealth by Monopolists and the Protection of Property Rights," *International Review of Law and Economics* 14: 393-409.
- Barzel, Yoram. 1997. *Economic Analysis of Property Rights*, 2nd ed., Cambridge: Cambridge University Press.
- Baumol, William J. 1993. *Entrepreneurship, Management and the Structure of Pay-Offs*. Cambridge, MA: MIT Press.
- Bhaskar, Roy. 1978. *A Realist Theory of Science*. Brighton: Harvester-Wheatsheaf.
- Brousseau, Eric and M'hamed Fares. 1998. "Incomplete Contracts and Governance Structures," *unpublished ms*.
- Camerer, Colin. 1994. "Does Strategy Research Need Game Theory?," in David J. Teece, Richard Rumelt, and Dan Schendel, eds. 1994. *Fundamental Issues in Strategy*. Boston: Harvard Business School Press.
- Casson, Mark. 1997. *Information and Organization*. Oxford: Oxford University Press.
- Cheung, Stephen S.N. 1969a. "The Structure of a Contract and the Theory of a Non-Exclusive Resource," *Journal of Law and Economics* 10: 49-70.
- Cheung, Stephen S.N. 1969b. "Transaction Costs, Risk Aversion and the Choice of Contractual Arrangements," *Journal of Law and Economics* 12: 23-42.
- Cheung, Stephen S.N. 1983. "The Contractual Nature of the Firm," *Journal of Law and Economics* 26: 1-22.
- Coase, Ronald H. 1981. "How Should Economists Choose?," in idem. 1994. *Essays on Economics and Economists*. Chicago: University of Chicago Press.
- Coase, Ronald H. 1988. *The Firm, the Market and the State*. Chicago: University of Chicago Press.
- Cowen, Tyler. 1985. "Public Goods Definitions and Their Institutional Context: A Critique of Public Goods Theory," *Review of Social Economy* 43: 53-63.
- Cowen, Tyler. 1988. *The Theory of Market Failure: A Critical Examination*. Fairfax: George Mason University Press.
- Debreu, Gerard. 1959. *Theory of Value*. New York: Wiley.

- Demsetz, Harold. 1964. "The Exchange and Enforcement of Property Rights," in idem. 1988. *Ownership, Control, and the Firm*. Oxford: Basil Blackwell.
- Demsetz, Harold. 1967. "Toward a Theory of Property Rights," in idem. 1988. *Ownership, Control, and the Firm*. Oxford: Basil Blackwell.
- Demsetz, Harold. 1969. "Information and Efficiency: A Different Viewpoint," in idem. 1988. *Ownership, Control, and the Firm*. Oxford: Basil Blackwell.
- Foss, Nicolai J. 1994. "Realism and Evolutionary Economics". *Journal of Social and Biological Systems* 17: 21-40.
- Foss, Nicolai J. 1999. "The Use of Knowledge in Firms," forthcoming in *Journal of Institutional and Theoretical Economics*.
- Foss, Kirsten and Nicolai J. Foss. 1999. "Understanding Ownership: Residual Rights of Control and Appropriable Control Rights". *Working paper*.
- Furubotn, Erik and Rudolf Richter. 1997. *Institutions and Economic Theory*. Ann Arbor: Michigan University Press.
- Gifford, Sharon. 1999. "Endogenous Transaction Costs," forthcoming in *American Economic Review*.
- Grossman, Sanford, and Oliver Hart. 1986. "The Costs and Benefits of Ownership: A Theory of Lateral and Vertical Integration," *Journal of Political Economy* 94: 691-719.
- Guesnerie, Roger. 1992. "The Arrow-Debreu Paradigm Faced With Modern Theories of Contracting," in Lars Werin and Hans Wijkander. 1992. *Contract Economics*. Oxford: Blackwell.
- Hamminga, Bert and Neil B. De Marchi, eds. 1994. *Idealization VI: Idealization in Economics*. Amsterdam: Rodopi.
- Hart, Oliver. 1990. "Is 'Bounded Rationality' an Important Element of a Theory of Institutions?," *Journal of Institutional and Theoretical Economics* 16: 696-702.
- Hart, Oliver. 1995. *Firms, Contracts and Financial Structure*. Oxford: Clarendon Press.
- Hart, Oliver and Bengt Holmström. 1987. "The Theory of Contracts," in Truman F. Bewley. 1987. *Advances in Economic Theory. Fifth World Congress*. Cambridge: Cambridge University Press.
- Hart, Oliver and John Moore. 1990. "Property Rights and the Nature of the Firm," *Journal of Political Economy* 98: 1119-1158.
- Hart, Oliver and John Moore. 1999. "Foundations of Incomplete Contracts," *Review of Economic Studies* 66: 115-138.
- Hayek, Friedrich A. von. 1937. "Economics and Knowledge," in idem. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hermalin, Benjamin and Michael L. Katz. 1993. "Judicial Modification of Contracts Between Sophisticated Parties: A More Complete View of Incomplete Contracts and Their Breach," *Journal of Law, Economics, and Organization* 9: 230-255.
- Holmström, Bengt and Paul Milgrom. 1994. "The Firm as an Incentive System," *American Economic Review* 84: 972-991.

- Hutt, William H. 1939. *The Theory of Idle Resources*. 1977 ed. Indianapolis: Liberty Press.
- Kirzner, Israel M. 1973. *Entrepreneurship and Competition*. Chicago: University of Chicago Press.
- Kirzner, Israel M. 1997. "Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach," *Journal of Economic Literature* 35: 60-85.
- Klaes, Matthias. 1999. "The Birth of the Concept of Transaction Costs: Issues and Controversies," *unpublished paper*.
- Koppl, Roger and Richard N. Langlois. 1991. "Fritz Machlup and Marginalism: A Reevaluation," *Methodus* 3: 86-102.
- Kreps, David M. 1996. "Markets and Hierarchies and (Mathematical) Economic Theory," *Industrial and Corporate Change* 5: 561-597.
- Kyläheiko, Kalevi. 1998. "Making Sense of Technology: Towards a Synthesis Between Neoclassical and Evolutionary Approaches," *International Journal of Production Economics* 56-57: 319-332.
- Langlois, Richard N. 1986. "The New Institutional Economics," in idem., ed. *Economics as a Process: Essays in the New Institutional Economics*. Cambridge: Cambridge University Press.
- Leijonhufvud, Axel. 1968. *On Keynesian Economics and the Economics of Keynes*. Oxford: Oxford University Press.
- Littlechild, Stephen. 1986. "Three Types of Market Process," in Richard N. Langlois, ed. 1986. *Economics as a Process: Essays in the New Institutional Economics*. Cambridge: Cambridge University Press.
- Lucas, Robert E. 1981. *Studies in Business Cycle Theory*. Cambridge, MA: MIT Press.
- Lucas, Robert E. 1987. *Models of Business Cycles*. Oxford: Basil Blackwell.
- Maskin, Eric and Jean Tirole. 1999a. "Unforeseen Contingencies and Incomplete Contracts," *Review of Economic Studies* 66: 83-114.
- Maskin, Eric and Jean Tirole. 1999b. "Two Remarks on the Property-Rights Literature," *Review of Economic Studies* 66: 139-150.
- Masten, Scott. 1998. "Contractual Choice," forthcoming in Gerrit de Geest and Boudewijn Bouckaert, eds. *Encyclopedia of Law and Economics*. Aldershot: Edward Elgar.
- Mirrlees, James. 1974. "Notes on Welfare Economics, Information and Uncertainty," in M. Balch, Donald McFadden and S. Wu, eds. *Essays on Economic Behavior Under Uncertainty*. Amsterdam: North-Holland.
- Mises, Ludwig von. 1949. *Human Action*. London: William Hodge.
- Moore, John. 1992. "Comment," in Lars Werin and Hans Wijkander, eds. *Contract Economics*. Oxford: Blackwell.
- Mäki, Uskali. 1992. "On the Method of Isolation in Economics," in Craig Dilworth, ed. 1992. *Intelligibility in Science*. Amsterdam: Rodopi.

- Mäki, Uskali. 1994. "Isolation, Idealization, and Truth in Economics," in Bert Hamminga and Neil B. de Marchi, eds. *Idealization VI: Idealization in Economics*. Amsterdam: Rodopi.
- Mäki, Uskali. 1998. "Is Coase a Realist?," *Philosophy of the Social Sciences* 28: 5-31.
- Mäki, Uskali. 1999. "Theoretical Isolation and Explanatory Progress: Transaction Cost Economics and the Dynamics of Dispute," *unpublished paper*.
- Nelson, Richard R. and Sidney G. Winter. 1982. *An Evolutionary Theory of Economic Change*. Cambridge, MA: Belknap Press.
- Nöldeke, Georg and Klaus M. Schmidt. 1995. "Option Contracts and Renegotiation: Solution to the Hold-Up Problem," *RAND Journal of Economics* 26: 163-179.
- O'Driscoll, Gerald P. and Mario Rizzo. 1985. *The Economics of Time and Ignorance*. Oxford: Basil Blackwell.
- Peltzman, Sam. 1991. "The Handbook of Industrial Organization: a Review Article," *Journal of Political Economy* 99: 201-217.
- Rasmussen, Eric. 1994. *Games and Information*. Oxford: Basil Blackwell.
- Shackle, George L.S. 1972. *Epistemics and Economics*. Cambridge: Cambridge University Press.
- Shavell, Steven. 1998. "Contracts," in Peter Newman, ed. *The New Palgrave Dictionary of Economics and the Law*. London: Macmillan.
- Tirole, Jean. 1998. "Incomplete Contracts: Where Do We Stand?," Walras-Bowley Lecture, forthcoming, *Econometrica*.
- Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism*. New York: Free Press.
- Williamson, Oliver E. 1996. *The Mechanisms of Governance*. Oxford: Oxford University Press.
- Williamson, Oliver E. 1998. "Human Actors and Economic Organization," *paper presented to the ISNIE conference, Paris, 17-19 September 1998*.