TOWARDS AN ALTERNATIVE TO THE GAME-THEORETIC CONCEPT OF CONVENTIONS

David Dequech

It is widely known that there has been a renewal of institutional economics in recent decades. Although for some time and in some influential circles informal institutions were less studied than formal ones, economists have increasingly written on conventions, social norms, and the like. As part of this literature, this paper first proposes a broad concept of convention and then compares and contrasts it with the game-theoretical one, including the variety that currently dominates economics.\(^1\) It is intended to contribute to our understanding of how widespread conventions are, why they continue to exist, and why they change.

Different authors (myself included) often conceptualize conventions with a view to applying the concept in particular situations, reflecting their particular research interests. I shall therefore refer to different types of convention, whose identification is quite useful for understanding the relation among different concepts. The broad concept proposed here has features in common with more specific concepts, associated with specific types of convention. The intention is not, however, merely to isolate points that these more specific concepts may have in common, but also to add points not made by previous approaches.

Among the topics of research that have interested authors working on conventions, at least two may be highlighted. They are interconnected, but must distinguished from one another. One of the major issues involving conventions is the coordination of the actions of individual and/or collective agents. Another is the question of whether an individual should follow or flout an existing convention (this is often discussed under the heading of rationality). Its intended broadness notwithstanding, the concept proposed here is still inevitably marked by research interests that are closer to the latter issue than to the former.\(^2\)

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\(^1\) There are in economics other valuable alternatives to the game-theoretical approach to conventions. Among them one may highlight the French economics of conventions, Austrian economics, and Post Keynesian economics. In addition to game theory, the approach defended here has some differences with, but also benefits from the insights of, these other treatments of conventions. They shall be discussed in detail elsewhere.

\(^2\) While acknowledging the existence of several logics of action, a large part of my work on institutions has been marked by a concern with how individual decision-makers apply the market logic in situations of fundamental uncertainty. Within the market logic, I have highlighted the search for pecuniary gain (the profit motive) in investment, asset choice, and production decisions. I have tried to show the limitations of mainstream economics in its own preferred field (the study of self-interested, and even selfish, individual behaviour), and especially to contribute to an alternative approach, emphasizing cognitive and institutional issues. The initial idea for my Ph.D. dissertation (Dequech, 1998) came as a reaction to the way in which some heterodox authors have argued (against Robert Lucas, Alan Coddington, and others) that it is possible to theorize about situations of Knightian or Keynesian uncertainty. They have maintained that the existence of conventions, institutions, etc, allowed for some order, coordination, rationality, and the like. As a general argument, this is both right and relevant. Some particular forms in which this argument is presented, however, are in part debatable. For example, some Post Keynesians have used Keynes’s work to argue for the rationality of conventional behaviour. I am sympathetic to the Post Keynesian approach, but I am also influenced by Schumpeter’s views on innovation and dynamic competition. Indeed, I see the possibility of innovation as a major source of uncertainty. Thus, to those arguing for the rationality of conventional behaviour, I have raised the following question: What about the Schumpeterian entrepreneur? This is how my research on institutions and conventions began. The scope of my investigations has since broadened considerably, both in terms of topics and of approaches considered, but that question about innovative, unconventional behaviour has remained crucial to my investigations.
1. A broad concept of convention

In the most general terms, a convention is understood here as a socially shared informal pattern of behaviour and/or thought. In other words, a convention is an informal institution.\(^3\) A convention has at least two additional characteristics that other institutions may not have: (a) when followed consciously, a convention is followed at least in part because other people are following it, and not, or not only, because there is an external pressure to comply\(^4\); (b) it is to some degree arbitrary\(^5\).

As conceptualized above, a convention does not have to be followed by every member of a group or community, even if one expects everyone else to follow it. In addition, a convention may be, but does not have to be, some kind of norm.

Let us examine these features in more detail.

1.1. Patterns of behaviour and thought

Some scholars have treated conventions merely as behavioural patterns, rules, etc. A convention is, however, a bidimensional concept, in the sense that it has both a behavioural and a mental dimension. As patterns of behaviour, conventions are closely linked to patterns of thought, and vice-versa. This is true even of patterns of nonconscious behaviour, as there also exist patterns of nonconscious thought.

Let us begin with the links from the mental dimension to the behavioural one.

In situations of interdependence, the results of one’s actions depend on the actions of others. Adopting a certain pattern of behaviour depends therefore on expectations about how others will behave. Expectations are perhaps the easiest mental aspect to consider as part of the mental dimension of the concept of convention. They are quite often the only one, at least among the economists who do include such a dimension in their concept.

Expectations are certainly an important aspect, but there is much more to the mental dimension of conventions. Another important set of elements may be grouped under the heading of mental models.\(^6\)

When conceptually dealing with mental models, one can refer to models of different levels of generality. The same is true of conventional patterns of thoughts.\(^7\)

(a) At the most general level, a convention is a shared pattern of thought that consists of a certain way of interpreting and portraying the (macro or micro) context in which the agent is. In this general sense, a convention is a shared mental model, to use Denzau and North’s (1994) expression, with a model also understood in a general sense. In short, a conventional pattern of thought is, at this level of discussion, a shared general mental model. Defined in such a general way, a convention, just like any general model, influences the formation of expectations but does not necessarily lead to specific expectations (a specific expectation is the expected value of a variable at

\(^3\) In economics, the treatment of conventions as a subset of the set of institutions seems to be quite widespread, although not unanimous. In sociology, at least some prominent authors invert this treatment and consider institutions as particular conventions. See DiMaggio and Powell (1991: 9) and Dobbin (2004: 5).

\(^4\) In contrast, some social norms, especially legal ones, may be followed just because of a possible external sanction. For example, a law that people find illegitimate may still be obeyed for fear of sanctions. An individual may even obey it when most other people do not.

\(^5\) The possibility that some institutions may not be arbitrary is being allowed here, although I find it difficult to provide an example. The French conventionalists insist on the need to interpret all rules when applying them, be they conventional or not.

\(^6\) In the literature, the term ‘model’ has also been occasionally used to designate conventions as rules of behaviour. See Favereau (1989) on conventions as collective cognitive devices.

\(^7\) Perhaps collective or social representations à la Durkheim (a concept often evoked by the French conventionalists) can also be discussed in this way.
some point in time). Thus, people sharing a convention will not necessarily arrive at the same expected value for a given variable. As a general model, a convention may be used to interpret the agent’s context before possibly generating an expectational pattern. It is used to select, organize and interpret information, and thus it affects the formation of both expectations and confidence.

In the form of this general type of model, conventions perform therefore a fundamental cognitive role, which is deeper than the mere provision of information about the likely behaviour of other people, important as the latter is. Together with the influence of institutions on preferences and goals, this fundamental cognitive role means that conventions, like other institutions, affect individuals in a profound way (Dequech, 2006a).

(b) At a more specific level, a convention is conceived of as a shared expectational pattern or, in other words, a shared specific mental model. An expectational pattern is a specific way of forming expectations or, equivalently, a way of forming specific expectations. To the extent that behaviour depends on expectations, there tends to be an association between this pattern of thought and a pattern of behaviour, depending on the confidence that the individual has in the former. Sharing an expectational pattern means that people adopt not only the same model structure but also the same parameter values. People who participate in this convention will form the same specific expectations, if they also share the same information that is used as an input to produce specific expectations.

A convention can be related to the distinction established in Dequech (2003a) between what some sociologists call logics of action (such as the market logic, the family logic, etc) and what I call a particular way of following a given logic of action. A conventional general model may be either the mental component of a logic of action among several logics or one among several alternative models that can be used when following a given logic. For the latter purpose, an expectational pattern may also be used; it is associated with more specific behaviour in the application of a given logic.

There are also links from the behavioural dimension to the mental one. A good example of this is rationalization, i.e., the creation of *ex post* explanations for behaviour, when people first act and later explain what they have done and why. Another example is the (not always possible) transformation of the tacit knowledge embodied in behavioural habits into thoughts and words.

### 1.2. Following a convention because others are following it

As stated above, one of the defining characteristics of a convention is that a convention is (consciously) followed at least in part because other people are following it, and not, or not only, because there is an external pressure to comply. Four sets of comments on this characteristic should be made at this point.

First, the reference to this characteristic is non-restrictive in that a convention does not need to be a social norm. *Social norms* are social standards of behaviour and/or thought that (a) indicate what people should or should not do or think under some circumstances and (b) are at least in part enforced upon individuals by external pressure. In particular, social norms are associated with the threat of sanctions: if a social norm exists, the threat of sanctions also exists. A social norm prescribes some behaviour or thought – the proper or right thing for an individual to do or think – according to some principle or set of values. These may be moral values or, particularly in the case of conventional patterns of thought, epistemic ones. Moral values include honesty, justice, goodness, and the like. Examples of epistemic values are compatibility with the empirical evidence, internal consistency, rigour, and relevance. Correspondingly, social norms may also be moral or epistemic (the term ‘epistemological’ or ‘cognitive’ could be used instead).

The principles or values held by the people who follow the convention need not be always different from those of the unconventional agents, when such agents exist. Thus, there is not necessarily a threat of social sanctions against the latter. Flouting some conventions may not risk bringing forth the disapproval of other people. This point is illustrated below.

Second, the characteristic discussed here is non-restrictive also in that a convention does not need to be what I have termed a decision-theoretic norm. A convention may be said to be a
decision-theoretic norm if, even in the absence of an external pressure, it is always in the interest of an individual to follow that convention when he/she expects (nearly) everybody else to do the same.

The fact that a convention is followed at least in part because other people are following it does not necessarily mean that it is always in one’s interest to follow that convention, even if one expects everyone else to follow it. It may well be that as long as a convention is followed, it is followed with no need for external pressure; every individual who follows it may be doing the best he or she can to promote his or her self-interest (narrowly defined, that is, defined without considering the impact of social sanctions or the internalization of social norms). This does not mean, however, that every self-interested, rational individual in a population will find it in his or her interest to adhere to the convention or to continue following it, even if there are no external shocks (either observed or expected) and no changes in the individual’s beliefs about the expected behaviour of others. As discussed in more detail below, this contrasts with the game-theoretic approach.

I prefer a less restrictive concept, because important patterns of behaviour and thought which are referred to as conventions in the economic literature and/or which could be considered, in ordinary parlance, a matter of convention do not have this decision-theoretic normative character. This less restrictive definition is particularly useful to deal with some types of unconventional economic behaviour or thought that are not necessarily suboptimal or irrational or less rational than conventional ones, even if rationality is defined in a purely instrumental sense and strictly associated with selfishness. The deviant agent may be a new individual in the population or a former follower of the convention who devises a new strategy or a new model. The best and most important economic example of such an unconventional agent is the innovator, the Schumpeterian ‘entrepreneur’ who ‘swims against the stream’ (Schumpeter, 1911: 79-80).

Third, the pattern constituting a convention may be followed consciously by someone who is not aware that it is a convention. In other words, one may be conscious of what one is doing and of similar behaviour by others, without being aware that their joint behaviour constitutes a convention. In addition, the fact that others are following this pattern may work in more than one way as a reason for someone to also comply. In the economic literature, the usual explanation is that this fact improves the payoff of the conventional option for a given individual. This may happen indeed, but another explanation, which may or may not operate together with the previous one, is the following peculiarity of a convention, as distinct from a single individual’s pattern of behaviour and/or thought: the very fact that many others have adopted a certain pattern of behaviour or thought tends to give that pattern some legitimacy. Just like values, legitimacy may be of one of at least two types. A conventional behavioural pattern or a conventional mental model may have moral legitimacy, in that its underlying moral values are deemed as appropriate or acceptable. Alternatively, the widespread acceptance of a conventional pattern of thought makes it the dominant, most prestigious model, and gives it epistemic legitimacy, i.e., a socially recognized appearance of well-foundedness. Either regarding epistemic or moral issues, legitimacy is based on values, but not necessarily associated with the threat of sanctions against all dissenters.

Fourth, following a convention may be the result of a socially spread habit, instead of a conscious decision to act in a particular way. In a sense, one could still say that a convention is followed because other people are following it, in the case of an unconscious imitation of other people following a convention. This would not be, however, a reason consciously considered by the agent.

1.3. Arbitrariness

Another characteristic of a conventional pattern of behaviour and/or thought is its arbitrariness. It can be described as follows: a hypothetical alternative could replace the actual pattern, even if
this alternative was not considered beforehand and if no conscious choice among potential conventions were involved earlier.8

Specifically in the case of a conventional pattern of behaviour, one could say that it is arbitrary in the sense that it is associated with a conventional pattern of thought that is also arbitrary. In turn, a conventional pattern of thought is arbitrary in the sense that there are no solid reasons, or objective grounds, before the establishment of the convention, for this particular pattern to be accepted instead of a different one. In other words, there are alternative acceptable patterns (which does not necessarily mean that all conceivable patterns are equally acceptable potential substitutes – this would be an extreme case).

In the case of alternatives patterns of thought about how to pursue a given logic of action, the origin of such arbitrariness is some type of uncertainty. This may be purely strategic uncertainty, as in classical game situations, or some stronger type, like fundamental uncertainty.

A behavioural pattern can also be arbitrary in the perhaps more specific sense that another pattern of behaviour could work approximately as well as, or even better than, the actual convention in solving a certain problem, performing a certain function, etc. Again, people do not need to be aware of this alternative.

1.4. Dissent

If a convention exists, this means that several people are adopting the conventional way of thinking and behaving. Sharing an institutional context facilitates the adoption of a convention and, reciprocally, is reinforced by it. However, a few decision-makers operating in the same context may not be following the convention adopted by many others.

In accordance with the previous discussion of the mental dimension of conventions, the possibility of dissent from an existing convention may also be discussed at two different levels of generality. Let us consider first a convention as an expectational pattern. Some of the dissenters may not have enough confidence in the conventional expectations, and prefer to postpone a decision. This is a particular manifestation of the fact that a convention is a shared model but may be shared by people with different degrees of confidence in it. Other dissenters may have different expectations (for example, because they use a different pattern), and at least some of them may hold these expectations with enough confidence to justify the adoption of unconventional behaviour. The latter group includes the innovators in goods markets and the speculators in financial markets (see Dequech 2003b for further discussion, including an explanation of the peculiar sense in which speculators are unconventional)9.

This analysis can be extended to the notion of convention as a shared model in the general sense. Even with this broader notion there may be exceptions. This is the case of some conventional general models that are the mental correlates of one among other ways of following a specific logic of action. I have in mind especially the market logic, as represented by the pursuit of pecuniary gain. In goods markets, again, innovators provide an important example, as they have unconventional models of interpreting reality. They envisage a structural transformation that is absent from the conventional model of anticipating the future. In financial markets as well, there may be, even in the middle of the period of dominance of the convention and not just immediately

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8 For Batifoulier and de Larquier (2001: 11), a convention is arbitrary in the sense that ‘[t]o follow it is to select a possibility among alternative choices’ (my translation). This may imply an unnecessary element of conscious choice among pre-established alternatives in the characterization of arbitrariness.

9 The term ‘speculator’ is used here in a strict sense, to denominate someone who believes himself to know ‘better than the market what the future will bring forth’ (Keynes, 1936: 170) and, more specifically, to be able to ‘outwit the crowd’ (155), ‘to guess better than the crowd how the crowd will behave’ (157). Keynes (1936: 158) also referred to speculation in a broader sense, as ‘the activity of forecasting the psychology of the market’. It is suggested here that one can perform this activity either by conventionally following the current average opinion or by speculating against the latter, i.e., speculating in the strict sense.
before its breakdown, individuals who speculate against the conventional model of interpretation and are no less reasonable than the conventional agents. Like the innovators in goods markets, they have an unconventional model of interpretation and sufficient confidence to act on it.

1.5. Conventions, norms, and their enforcement

To the extent that a convention may be followed without the need for any threat of social sanctions, it is self-enforceable, in a strong sense.\textsuperscript{10}

To the extent that even in the case of strong self-enforceability a self-interested individual may flout the convention, I characterize a convention as not necessarily self-perpetuating\textsuperscript{11}. Moreover, the deviant individual does not need to make a mistake or to be less rational than others. The unconventional behaviour of a very small proportion of individuals, or even a single individual in a multi-person context, may disrupt the convention. People may abandon, and thus destroy, the convention by imitating that individual. In short, a convention as defined here may be strongly self-enforceable without necessarily being self-perpetuating, even if individuals do not make mistakes, nor behave irrationally, nor less rationality than others.\textsuperscript{12}

Even without the threat of sanctions, however, a convention may be maintained for quite a long time. This may happen if, for example, people do not conceive of a sufficiently appealing alternative (Dequech, 2003b). This is a potentially important point, often neglected by economists.\textsuperscript{13} People may fail to conceive of an alternative not only when they blindly follow habits (or when they act as cultural dopes), but also when they are conscious of the conventions they follow. This may happen for at least two reasons. The use of a conventional model may lead to a lack of exposure to alternative ways of thinking. In addition, the convention’s epistemic legitimacy does not stimulate the search for alternatives. The lack of variety and the convention’s epistemic legitimacy tend to mutually reinforce one another. Ultimately, the survival of the convention depends also on people’s creativity – or the lack thereof. In turn, people’s creativity in devising (or their lack of creativity and their failing to devise) an alternative to a particular convention may be influenced by other conventions and, more generally, other institutions, since creativity is not a completely subjective factor.

Another explanation for the possible longevity of a convention is that, even when people do conceive of an appealing alternative, they might lack the means and/or the courage to put it into practice. For example, a potential innovator may not obtain funds to implement the innovation and/or may not be willing to face the uncertainty involved in doing so.

Being informal, a convention is not enforced by the legal system. Legal norms, therefore, are not conventions, although they could be said to have some conventional features. A convention enforced by the approval or disapproval of other members of the group or community is an informal

\textsuperscript{10} Unlike strong self-enforcingness, strong self-enforceability does not necessarily mean that the threat of sanctions does not exist; it only means that this threat is not required for the existence of a given convention. A strongly self-enforcing convention can become a social norm, and therefore become associated with, and even reinforced by, the threat of sanctions. When this happens, the convention can still be said to be strongly self-enforceable, in the sense that it could continue to exist if the threat of sanctions were somehow abolished. After this hypothetical abolition, however, the convention would cease to be also a social norm.

\textsuperscript{11} The term ‘self-perpetuating’ is used by Lewis (1969: 42), whose approach is discussed below.

\textsuperscript{12} Adopting a game-theoretic approach, Avner Greif (2006) attempts to show that self-enforcing institutions (as distinct from conventions) may undermine themselves. This is a different reason why they may not be self-perpetuating.

\textsuperscript{13} Things seem to be different in institutionalist sociology. ‘For cultural-cognitive theorists’, according to W. Richard Scott (2001: 57-58), ‘compliance occurs in many circumstances because other types of behavior are inconceivable; routines are followed because they are taken for granted as “the way we do these things”’. Similarly, Paul DiMaggio and Walter Powell (1991: 10-11) write: ‘Institutionalized arrangements are reproduced because individuals often cannot even conceive of appropriate alternatives (or because they regard as unrealistic the alternatives they can imagine)’. 
social norm. In the strong sense used here, conventions of this kind are not self-enforcing, although some of them may be self-enforceable. At least for the individuals who internalize it, a conventional norm is indeed self-enforceable.

In order to understand why some conventions may not be moral norms, it is useful to highlight some conventions followed by self-interested agents in search of pecuniary gain who all accept the moral values underlying this type of behaviour, either in goods markets and in financial ones. These are at least some of the conventions with which innovators break in decisions about the level of production, prices or investment (in the sense of acquisition of newly produced capital goods) or some of the conventions with which speculators break in decisions about the purchase or sale of financial assets. The pursuit of profit is generally seen as morally acceptable in capitalist societies, and not all unconventional ways of seeking profit are considered as morally defective. The conventional way is thus not always a moral norm.

In order to understand why some conventions may not be not epistemic (or cognitive) norms, it is useful to point out that, in the case of conventional patterns of thought, epistemically legitimate is not always synonymous with right. Thus, while someone who thinks along the lines of a conventional model is necessarily in disagreement with a defender of a different model (one believes the other is wrong), one could still consider the other’s views as epistemically legitimate. This may happen, for example, when the evidence is too incomplete to allow for a rock-solid judgement. Among academic economists themselves respectful disagreement is not uncommon (although some academic conventions do have the character of social norms). In the economy, the innovator and the speculator act on the basis of an unconventional model that is not necessarily seen by others as less grounded on evidence.

If unconventional agents like some innovators and speculators flout such conventions mainly out of (narrowly defined) self-interest, and I believe that they often do, the difference between conventional and unconventional behaviour reflects a difference in animal spirits and/or in creativity (Dequech 2003b), rather than a difference in values – or rather than a difference in their capacity to act rationally, for that matter. In such cases, therefore, the conventions do not have the status of a social norm – nor of a decision-theoretic norm. If so, they may be normative in the sense of being value-laden, but not in the sense of being norms.

It must be noted, however, that for Schumpeter there is a ‘reaction of the social environment against one who wishes to do something new. ... [A]ny deviating conduct by a member of a social group is condemned, though in greatly varying degrees. ... Surmounting this opposition is always a special kind of task’ (1911: 86-87). More recently, this argument has been resumed by Young

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14 In contrast, some authors have referred to institutions and could thus refer also to conventions as self-enforcing in a weaker sense. For Aoki (2001) and Greif (2006), institutions are self-enforcing as long as there is no need for an enforcer from outside the group, like some legal authority. Informal social norms are self-enforcing for these authors. For further discussion and references on strong and weak self-enforceability and self-enforcingness, see Dequech (2006b).

15 By investment decision I do not mean only a quantitative decision to increase capacity (as in Keynes, 1936, with the hypothesis of a given technique), but also a qualitative decision as to which type of capital good must be bought – or produced by the investing firm itself. Implementing an innovation may require, or consist of, introducing a new type of capital good, made according to the specifications of the innovator.

16 I do not use the term ‘animal spirits’ in a sense that implies a different motivation from the search of pecuniary gain. The same applies to creativity, as exemplified by the innovative entrepreneur. A non-pecuniary motivation may exist (as Keynes and Schumpeter suggested), but even if it does not, the way to search for pecuniary gain under fundamental uncertainty depends on the strength and quality of spontaneous optimism, uncertainty aversion, and creativity (Dequech, 1999, 2003b).

17 On different meanings of the term ‘normative’ in economics and sociology, see Dequech (2006b).

18 See also Hayek (1960: 427, n. 9), citing A. W. Lewis.
Back Choi (1993: 9), Nicole Biggart and Thomas Beamish (2003: 452) and Richard Swedberg (2003: 21). The point being made here is not merely that innovators may be rewarded. After all, one could point out the coexistence of rewards and sanctions\footnote{Swedberg (2003: 21-22) recognizes the rewards while also emphasizing the sanctions. Choi (1993: 9) sees property rights as conveying the power ‘to surmount the envy barrier to innovation’. This could be part of an argument that rewards are needed to compensate for the sanctions.}. Both may indeed occur, perhaps especially in different forms, such as monetary rewards and non-monetary sanctions. I do not deny that the threat of sanctions against innovators may exist, but suggest that this is not necessarily true of all innovations. Thus, not all conventions with which innovators break are social norms.

In financial markets, speculators risk punishment (not necessarily in terms of money, but of reputation, which involves a different logic), if they make public verbal or written criticisms of the conventional model of interpretation. Even in this case, however, one should distinguish between two types of public criticism: criticizing the conventional model for not being optimistic enough is much less likely to lead to punishment than suggesting that it is too optimistic. Moreover, speculators may express their disagreement in a discrete way, by merely selling (or buying) stocks while the conventional model recommends the opposite.

In some cases, therefore, the normlike character of a convention depends not only on the characteristics of the convention itself, but also on how unconventional agents express their dissent. Some attention has to be paid, however, to the fact that people may follow a convention involving different logics of action at the same time. In such cases, it becomes more complicated to discuss whether the convention is also a social norm, because it becomes more complicated to discuss whether an unconventional agent shares the same values of the conformists. The values may be shared in respect to one logic, but not to another. The external analyst would need to specify to which logic he or she is referring.

Another important aspect to consider when discussing whether conventions are social norms is the scope of each convention, in the following sense. Intra-organizational conventions are shared by members of the same organization; interorganizational conventions are shared by members of different organizations and sometimes also by single individuals who operate in the same market (or, more generally, in the same area of social activity) as these different organizations, but do not act in this market on behalf of any collective organization (instead, they usually represent themselves or their families). The conventions without a normlike character that were highlighted in the previous paragraphs are interorganizational ones. Other interorganizational conventions may be norms. Intra-organizational conventions perhaps tend to be so. In particular, many, if not all, conventions within an organization have a moral legitimacy associated with the value of fairness.

The discussion of the normative character of conventions may become more complicated when breaking with an interorganizational convention also requires breaking with an intra-organizational one. In some cases, acting unconventionally may not risk sanctions outside an organization while the opposite is the case within it, or vice-versa.

Partly related to the intra- or interorganizational character of conventions is their link to contracts. Many intra-organizational conventions are shared by agents who have a contractual relationship, such as the employment contract. Some interorganizational conventions also have this characteristic; others do not. Among the latter are the conventions without a normlike character highlighted above: in general, there need be no contractual relationship between an innovator and his or her competitors in goods markets or between a speculator and other agents in financial markets.

2. The game-theoretical concept

In contemporary neoclassical economics, as well as in some branches of new institutional economics, a convention is defined using game theory. In what follows, I shall refer to a few
different versions of this game-theoretical approach, making first specific comments on them, and then some comments on the approach in general.

2.1. The starting point: Lewis

The origin of this game-theoretical approach to convention lies in the work of the philosopher David Lewis, a logician interested in language. In his turn, Lewis applied to conventions some lessons on game theory in a course with Thomas Schelling. Lewis (1969) defines a convention with reference to what would later be called coordination games. He presents several definitions of convention, gradually improving them. Particularly influential in the development of the game-theoretical approach to convention in economics is the following version:

'A regularity $R$ in the behavior of members of a population $P$ when they are agents in a recurrent situation $S$ is a convention if and only if it is true that, and it is common knowledge in $P$ that, in any instance of $S$ among members of $P$,

(1) everyone conforms to $R$;
(2) everyone expects everyone else to conform to $R$;
(3) everyone prefers to conform to $R$ on condition that the others do, since $S$ is a coordination problem and uniform conformity to $R$ is a coordination equilibrium in $S'$ (Lewis, 1969: 58).

This definition amends Lewis’s (1969: 42) first, 'rough' version by adding the reference to common knowledge. It can be compared with the broad definition proposed above in terms of at least three characteristics (see also the general comments on the game-theoretical approach below).

Firstly, although a convention is defined by Lewis in terms of a regularity of behaviour, the regularity itself is characterized in terms of beliefs (more precisely, a system of mutual expectations), among other things. There is, therefore, an association between a pattern of behaviour and a pattern of thought, as in my characterization of institutions in general, with conventions as a particular case. Indeed, in a later text, Lewis (1983: 164-65) refers to a convention as a regularity ‘in action or in action and belief’.

Secondly, condition (3) is a more restrictive version of characteristic (a) in my broad definition above, namely that a convention is followed at least in part because others follow it. Lewis’s restrictive definition requires everyone to conform to the convention when there is an expectation that others will do the same, while mine does not. His conventions are, therefore, decision-theoretic norms. It should be noted, however, that Lewis is not always so strict. His last definition, which is not the most influential among economists, allows for a few exceptions to each condition (Lewis, 1969: 78; also 1983: 165).20

Thirdly, Lewis’s convention is also arbitrary, as implied by his characterization of the situation as a coordination problem, which, as shown by Lewis’s larger discussion, could be more precisely called a pure coordination game. Lewis (1969: 70) explicitly states that ‘[a]ny convention is arbitrary because there is an alternative regularity that could have been our convention instead’. There is at least one alternative $R'$ that meets some of his conditions (Lewis, 1983: 163).

2.2. The game-theoretical concept in economics

Lewis’s work is seminal and his concept of convention is still approvingly cited by many economists, including in heterodox circles. Nevertheless, the development of the game-theoretical concept of convention in economics has moved away from Lewis in at least two aspects. First, the concept of convention has been applied to other types of games in addition to pure coordination ones. Second, the context of discussion has changed to evolutionary game theory.

As a matter of fact, a non-economist, Edna Ullmann-Margalit (1977), had already moved beyond Lewis, introducing the concept of social norms as solutions not only to pure coordination problems but also to prisoner’s dilemma problems. Harvey Leibenstein (1984: 76) translated these social norms into economic concepts.

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20 Lewis (1969: 76) argues that this makes his treatment more realistic. Perhaps this is the sense in which he believes this definition to be an improvement over the others. Also noteworthy is the fact that Lewis refers to his conventions as socially enforced (p. 99), but this aspect does not seem to follow directly from his definition and has not been influential among economists.
norms as economic conventions. New institutional economist Andrew Schotter also used game theory to broaden the scope of Lewis’s discussion, but he employed the term ‘institution’ to denote his solution concept. Schotter (1981: 11) distinguished institutions from conventions, by defining the latter as Lewis did and stating that they are self-enforcing (in his words, ‘self-policing’), while the former may not be so. Like Schotter, and unlike Leibenstein, most economists using a game-theoretical approach to conventions do not include under this label norms requiring sanctions.

Moving towards evolutionary game theory, Robert Sugden (1986: 32) defined a convention as ‘any stable equilibrium in a game that has two or more stable equilibria’. These equilibria are stable in the sense that it is in each individual’s interest to conform to the strategy representing the equilibrium if everyone else, or almost everyone else, does the same. Sugden also refers to a stable equilibrium as an evolutionarily stable strategy. This term, originated in biology, designates ‘a strategy (or a frequency distribution of strategies) that is restored after a small one-time shock to the system’ (Young, 1993: 60). In particular, such a strategy cannot be invaded by a group of mutants (agents adopting a different strategy), whose payoffs would be lower than those associated with the convention.

In common with Lewis, H. Peyton Young (1996: 105) has characterized a convention as ‘a pattern of behavior that is customary, expected and self-enforcing. Everyone conforms, everyone expects others to conform, and everyone has good reason to conform because conforming is in each person’s self-interest when everyone else plans to conform’.

In contrast with Lewis, Young’s conventional equilibrium results from a process of adaptation in which agents are not as knowledgeable and rational as in traditional game theory. This dispenses with Lewis’s requirement of common knowledge (Young, 1993: 77). In contrast with Sugden and others, Young adopts a stochastic concept of stability: ‘A stochastically stable distribution [of strategies] is a distribution that is restored repeatedly when the evolutionary process is constantly buffeted by small random shocks’ (1993: 60). Being much more resistant than others to repeated small random shocks to behaviour, evolutionarily stable strategies will be observed much more frequently in the long run (Young, 1993: 69).

In Young’s (1993) model, the players are drawn from a large population and have limited, relatively recent information about the history of how the game has been played. On the basis of such information and taking the environment to be stationary – or ‘given’, in Young’s (1996: 107) later term – each player makes a probabilistic prediction of how other players will behave and chooses a response. The payoffs may depend on who is playing but the strategies available to players are fixed (Young, 1996: 108). Players will usually, but not always, choose a best response to recent sample evidence (and to the anticipated play of others). They occasionally (a) experiment choosing randomly from nonoptimal responses from the set of available strategies or (b) make mistakes that are also nonoptimal. For Young it does not matter which of these two possibilities is actually the case, so he often uses the terms ‘mistake’ and ‘experimentation’ interchangeably. ‘If we assume that all mistakes are possible and that the mistake probabilities are time independent, then the process does have a unique stationary distribution. When the probability of mistakes is small, … this stationary distribution is concentrated around a particular convention’ (Young, 1993: 67).

The evolutionary game-theoretical approach is more concerned with dynamics than previous work in game theory, including Lewis’s. In this respect, Young (1998: 6), in particular, must be praised for pointing out that ‘the evolutionary dynamic never settles down completely: it is always in flux’. Moreover, in terms of the demands made on agents’ knowledge and reasoning abilities, the evolutionary game-theoretical approach is less restrictive than Lewis’s (as is behavioural game theory in general).

On the other hand, although Sugden and (implicitly, when referring to mistakes and experimentation) Young allow for exceptions to conformity, they have kept the part of Lewis’s

21 It will be seen below that Young implicitly relaxes this condition.
restrictive definition that states that conformity is in everybody’s interest when the others are expected to conform. In other words, they have kept decision-theoretic normativity as a defining characteristic of conventions. Also restrictive is the characterization of the payoff of unconventional invaders or mutants as suboptimal and necessarily lower than that of conventional players. Relatedly, although Young’s concept, like mine, is not restrictive in the sense that a convention may be self-enforcing without being self-perpetuating, his explanation for this possibility is more restrictive than mine, in two respects: it requires agents to adopt suboptimal responses, either by mistake or by experimentation; and it requires a minimum proportion of deviating individuals for a convention to be disrupted (a single individual would only be able to disrupt a convention in a game with sufficiently few people).

Going beyond Young, Samuel Bowles (2004: 410) states that nonbest responses need not be due to irrationality or oddity, but may merely represent ‘actions whose reasons are not explicitly modeled’. In addition to experimentation and error, he refers to ‘whim’ and to ‘intentional acts seeking to affect game outcomes but whose motivations are not captured by the ... game’. Bowles (2004: 370-71, 420-31) is particularly concerned with collective action by members of a disadvantaged group.

In terms of scope, the evolutionary game-theoretical approach has not restricted itself to games of pure coordination, dealing also with games in which there is conflict of interest. Even in the latter case the concept of convention has been used, with the pursuit of self-interest as one of its main aspects. Strictly, this means that following the convention is considered to be in the interest of each individual despite the conflict. This possibility only exists in cases of repeated play.

Moreover, Sugden (1986) argues that conventions in this type of game may also be norms, so that (narrowly defined) self-interest is not necessarily the only foundation of conventions. Even Young (1996: 121) has mentioned the possibility of conventions becoming norms (because of their stability).

Sugden (1986: 147-49) goes even further than saying that moral beliefs reinforce conventional equilibria. He applies the term convention also to what he calls ‘atypical cases’ in which a convention could not be sustained only by (narrowly defined) self-interest. He acknowledges, however, that this is not a strict application of his own concept of convention.

2.3. Some general comments on the game-theoretical concept

Game theory has mainly, although not exclusively, discussed conventions followed out of (narrowly defined) self-interest. This type of convention is also possible and important in the approach defended here. On the other hand, some important features distinguish this approach from game theory, implying that game theory is not the only or the best way to study conventions followed out of self-interest.

First, it highlights the possibility that self-interested agents flout the convention, while being no less rational than those conforming to it also out of self-interest. In particular, creativity may lead them to innovate, and there often is an incentive for people to continue trying to innovate. This possibility contrasts with the above-mentioned aspect of Lewis’s restrictive concept of convention that has been kept by several modern economists. Admittedly, there are game theorists who, unlike

Sugden in some cases renounces a strict application of this requirement (which, in his framework, unlike in mine, implies abandoning the idea of self-enforceability). See the references below to Sugden on conventions and norms.

While recognizing Bowles’s contribution, I stress below another possibility of intentional action that may not result from irrationality: the introduction of an innovation. This may reveal oddity, but in a positive sense, and should not be called a nonbest response. In fact, in some interesting regards this indicates important limitations of game theory in general, as discussed below.

For a different approach to self-enforcing conventions as norms of justice in games of partial conflict, see Vanderschraaf (1998).
Lewis and like Leibenstein, apply the concept of convention to games in which it may be interesting for someone to deviate from the conventions when everybody else conforms to it, but their approach has a twofold limitation. At least some of the situations discussed by these game theorists are one-shot games. In addition, these game theorists neglect creativity of the kind illustrated by innovation. More broadly, to the best of my knowledge creativity in this sense is excluded from the lexicon of game theory in general. In contrast, I stress the importance of the Schumpeterian entrepreneur, or, more generally, the innovative decision-maker in a firm. It is not in the interest of the innovator to conform when the others are expected to conform; on the contrary, the innovator expects to obtain an extraordinary gain exactly because the others are expected to continue their conventional practices. This is not limited to one-shot situations, as there may be a persistent incentive to deviate. Moreover, the innovator attempts to modify the environment and modifies the set of available strategies by adding a new, previously unimagined strategy that is expected to perform better than the pre-existing ones. Particularly in contrast with the evolutionary game-theoretical approach, an innovator is not someone who takes the environment as given and mistakenly or experimentally chooses a suboptimal strategy from a predetermined set of available strategies. In addition, an innovator would be an unconventional invader or mutant whose expected payoff is not lower than that of conventional play.

A second distinctive feature of the approach proposed here is the incorporation of fundamental uncertainty, created by the possibility of creativity and unpredictable structural changes. In contrast, game theory traditionally abstracts from fundamental uncertainty - see Shackle (1972: 422-26, also quoted by Hodgson 1988: 193) and, regarding the Bayesian foundations of game theory, Binmore (1987; 1993); other, related criticisms of this literature on conventions/institutions in game theory are made by Mirowski (1986). Although later developments in game theory have rendered this critical literature partly outdated, the criticisms that can be related to fundamental uncertainty are still pertinent.

Thus, while game theory may be quite useful for discussing some aspects of situations of interdependence, and for showing the limits of rationality in such situations, it is not so useful when interdependence is combined with the possibility of creativity.

It be should noted, however, that game theory has begun to incorporate recent developments in decision theory that go beyond the standard, weak notion of substantive uncertainty prevalent in neoclassical economics (e.g.: Dow and Werlang, 1994; Lo, 1996, 1999; Eichberger and Kelsey, 2000; Marinacci, 2000; Ma, 2000). Nevertheless, as argued in Dequech (2000), these developments have so far failed to adequately deal with the fundamental uncertainty associated, for instance, with the possibility of innovation. Also not explored so far is the impact of these developments for the discussion of conventions in a game-theoretical application.

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25 Sugden (1990) does use the term, but in a much weaker sense, referring to an act contrary to other players’ expectations.

26 This does not mean that the idea of an innovation cannot originate from mistakes, including mistakes made when trying to imitate others (as in Alchian, 1950).

27 Interestingly, the homepage of the Brookings-Johns Hopkins Center on Social and Economic Dynamics, co-directed by Peyton Young, describes that centre’s research as ‘innovative, unconventional’. While accepting the empirical validity of this description, I point out that this description (a) is an example of ordinary parlance with which my proposed concept is compatible and (b) cannot employ Young’s evolutionary game-theoretical concept of convention. As the contrast between Young’s mutant and the Schumpeterian entrepreneur shows, Young’s concept of convention (like game theory in general) excludes the possibility of innovative behaviour à la Schumpeter. Moreover, Young’s concept allows unconventional behaviour to exist only if it is suboptimal, since it is in people’s interest to conform when others are expected to conform. Surely Professor Young would not wish to imply that his research is suboptimal in comparison with existing alternatives.

28 These comments corroborate Coriat and Dosi’s (1998: 5-6) broad remark that evolutionary game theory places much less emphasis on novelty than other evolutionary approaches.
The criticisms directed so far against the game-theoretic treatment of conventions and self-interested behaviour are possibly compatible with an individualistic perspective. A third point of divergence between the game theoretic approach to conventions, at least as usually adopted in economics, and the one defended here is the latter’s rejection of an atomistic view of cognition, by allowing conventions to perform a fundamental cognitive role in the selection, organization, and interpretation of information.

3. Concluding remarks

This paper has attempted to show that game theory has important limitations, even as an approach to conventions followed out of, or sustained by, self-interest. In addition, the paper has attempted to contribute to the development of an alternative approach. This alternative approach should help us realize that conventions are very widespread in economic life and understand why conventions may persist for quite some time, even when they are neither decision-theoretic norms, nor social norms. At the same time, it should help us understand why conventions may change quite often, even when followed out of self-interest.

References


29 A partial exception is the recent work of Greif (2006).


