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Hayekian equilibrium and change

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Abstract What do we mean when we say action is possible in disequilibrium? If we adopt Hayek's approach to equilibrium, we must mean that we can act in a world where the plans that motivate and define those actions are not mutually compatible. This is hardly controversial. After all, the market process features rivalrous actions, that is, actions that are part of mutually inconsistent plans. Successful plans tend to displace unsuccessful ones. But, can we say, therefore, that, overall, plans tend to become more consistent so that there is a 'tendency' toward equilibrium? Is this important? I answer both in the negative and that the Hayekian definition requires too much. Plans are complex, multi-layered constructs. Overall 'plan consistency' is, therefore, either impossible or hopelessly imprecise. At some levels plans are and must be highly compatible, while at other levels (as part of the market process for example) they are and, if we are to have economic progress, they must be, incompatible.

Keywords: equilibrium, plan, coordination, change, Hayek, innovation

In this article I consider the implications of Hayekian equilibrium for action in time. If equilibrium is understood to be the consistency of actions and the plans on which they are based, then we are always in disequilibrium in the real world. This raises questions about action in disequilibrium: how is it possible and what do prices mean in disequilibrium? By using some of the insights from the literature on institutions and convergent processes we see how a closer examination, spelling out a greater degree of complexity detail for some familiar concepts like plans, knowledge and expectations, resolves these questions. This article is divided into two main parts. The first section explains what we mean by Hayekian equilibrium and what its implications are. The following section provides a different perspective to suggest that prediction and disequilibrium are not incompatible. Indeed, their coexistence, in the sense explained, is necessary for the growth and innovation that characterize and that we have come to expect from dynamic modern economies.

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WHAT DOES EQUILIBRIUM MEAN?

Equilibrium as plan consistency

In a lecture delivered in 1936, Hayek defined equilibrium as a situation in which 'the different plans which the individuals composing [a society] have made for action in time are mutually compatible' (Hayek 1937: 41). An important aspect of this approach is its move away from a definition based on the purely physical dimensions of equilibrium as a state of rest or balance of forces, to one firmly based in the human mind. Equilibrium is here conceived as a situation in which individual knowledge and expectations, and the actions based on these, are compatible with the 'data', where the 'data' for one individual include the actions of other individuals. Scratching the surface of any of the alternative definitions that could be offered indeed reveals that it is impossible to think of equilibrium in economics without bringing in the perceptions of individuals. After all, we are dealing with human actions and these are determined by the perceptions of the actors. So, in the case of the supply and demand of a single well-defined market, the price will not be observed to change when all individuals are fulfilling their mutually related plans to buy and sell, and where such plans are not fulfilled we may expect these plans to be revised.[1]

The volitional, intentional aspects of equilibrium are likewise obvious in all of the other approaches. This is widely recognized, though the formal technical treatments of modern economics are often apt to lose sight of it, as for example in the case of neo-Ricardian capital theory and general equilibrium theory. There is no doubt, however, that Hayek's insights have been accepted in principle and have been variously endorsed by a number of eminent neoclassical economists, for example:

> [Equilibrium refers to] those states in which the intended actions of rational economic agents are mutually consistent and can, therefore, be implemented.
>
> (Hahn 1984: 44)

> [Equilibrium is a] state where no economic agents have an incentive to change their behavior . . . the equality of demand and supply should not be taken as a definition of equilibrium, but rather as a consequence following from more primitive behavioral postulates.
>
> (Stiglitz 1987: 28)

Thus we shall say that an equilibrium situation is one in which individual plans are fully coordinated. Each plan can be successfully executed. Means are exactly matched to ends.

Implications of equilibrium

It will be immediately apparent that equilibrium *thus defined* is an extremely unlikely event. It is patently unrealistic. One might wonder at its widespread acceptance as a standard of reference. This raises the important question of the function of equilibrium constructs in economic theory. Obviously, theoretical constructs are, to a greater or lesser extent, unrealistic. They all abstract from reality in order to illuminate it. For example, one common use to which equilibrium constructs are put is the tracing of the (ultimate) consequences of any change while imagining all other possible relevant changes to be absent. In this way a general idea of cause and effect can be built up by isolating the effects of different causes.[2] The crucial question is: what are permissible abstractions, and what abstractions render a theoretical construct useless? When is the usefulness of the model compromised so that its results (the cause–effect connections it suggests) are no longer reliable guides to reality? This is an involved question that we shall not be able to answer here in any detail. We shall contend, however, and hopefully motivate in the course of our discussion, that theoretical constructs that abstract completely from the implications for human action of the passage of time and its implications for changes in knowledge, are not likely to be very helpful in understanding economic processes. While it is true that equilibrium 'is in the model and not in the world',[3] we shall want to build a bridge between the 'model' and the 'world' and maintain that timeless models cannot do this.

Hayek makes an important distinction between individual and system[4] equilibrium. 'I have long felt that the concept of equilibrium itself and the methods which we employ in pure analysis have a clear meaning only when confined to the analysis of the action of a single person and that we are really passing into a different sphere and silently introducing a new element of altogether different character when we apply it to the explanation of the interactions of a number of different individuals' (Hayek 1937: 35).[5] It is from a careful consideration of the meaning of individual equilibrium that a number of implications for our understanding of system equilibrium emerge. First, Hayek argues that the 'taughtological propositions of pure equilibrium analysis' are not directly applicable to the explanation of social relations. Examining individual equilibrium shows it to be equivalent to rational action. 'What is relevant [however] is not whether a person as such is or is not in equilibrium but which of his actions stand in equilibrium in so far as they can be understood as part of one plan' (ibid.: 36). Second, the role of the individual's knowledge and, therefore, the knowledge of all individuals is of crucial importance. 'It is important to remember that the so-called "data", from which we set out in this sort of analysis, are (apart from his tastes) all facts given to the person in question, the things as they are known to (or believed by) him to exist, and not, strictly speaking, objective facts' (ibid.: 36). So it is quite conceivable, and likely, that in some respects, different

individuals' 'knowledge' of the same circumstance will be not only different but inconsistent. And some types of knowledge are likely to be more reliable guides to action than others.

Thirdly, 'since equilibrium relations exist between the successive actions of a person only in so far as they are part of the execution of the same plan, any change in the relevant knowledge of the person, that is, any change which leads him to alter his plan, disrupts the equilibrium relations between his actions taken before and those taken after the change in his knowledge. In other words, the equilibrium relationship comprises only his actions during the period in which his anticipations prove correct. [And] since equilibrium is a relationship between actions, and since the actions of one person must necessarily take place successively in time, it is obvious that *the passage of time is essential to give the concept of equilibrium any meaning*' (ibid.: 36–7, italics added). So equilibrium is not only a relationship between individuals at a point of time, it is necessarily also a relationship between actions over time. For equilibrium to exist during a period of time it must exist at every point of time within that period. If equilibrium exists at a point of time, then individuals' plans are consistent with each other and with the technical facts of the world such that each plan can be successfully implemented. This means that in the absence of any change (meaning the arrival of new knowledge) equilibrium will exist at *every* point of time. This definition of equilibrium thus implies intertemporal equilibrium.[6]

Hayek on equilibrium tendencies

For Hayek equilibrium was never understood as a state that could ever actually be said to exist, although its logical existence is clearly implied. He was more concerned with the question of whether or not it could be shown or argued that a *tendency* toward equilibrium ('a greater degree of plan coordination') characterized the actual market process. For Hayek (and those who followed his lead) it was not a theoretical matter.

> We shall not get much further here unless we ask for the reasons for our concern with the admittedly fictitious state of equilibrium. Whatever may occasionally have been said by overpure economists, there seems to be no possible doubt that the only justification for this is the supposed existence of a tendency toward equilibrium. It is only by this assertion that such a tendency exists that economics ceases to be an exercise in pure logic and becomes an empirical science. . . .
>
> In the light of our analysis of the meaning of a state of equilibrium it should be easy to say what is the real content of the assertion that a tendency toward equilibrium exists. It can hardly mean anything but that, under certain conditions, the knowledge and intentions of the different

> members of society are supposed to come more and more into agreement or, ... that the expectations of the people and particularly of the entrepreneurs will become more and more correct. In this form the assertion of the existence of a tendency toward equilibrium is clearly an empirical proposition, that is, an assertion about what happens in the real world. ... And it gives our somewhat abstract statement a rather plausible common-sense meaning. The only trouble is that we are still pretty much in the dark about (a) the *conditions* under which this tendency is supposed to exist and (b) the nature of the *process* by which individual knowledge is changed.
>
> (Hayek 1937: 44–5)

This was a preoccupation of Hayek's throughout his career even as he moved beyond economics narrowly understood. Whether or not he was able to provide a satisfactory answer to items (a) and (b) in the quotation above is a matter of some debate (see for example Rizzo 1990 and 1992 and Lewin 1994).

Within the modern Austrian school this debate has been clear in discussions deriving from the points of view of Kirzner and Lachmann respectively. Hayekian equilibrium is a state of complete coordination of plans (and the expectations on which they depend). An equilibrating tendency is thus a tendency of markets to coordinate human affairs. By denying the existence of equilibrating tendencies, Kirzner worries, one may be led to deny the 'plausibility of possible systematic processes of market coordination' and in the extreme 'render economic science non-existent' (Kirzner 1994: 40–1). On the other hand, Lachmann worries that by affirming the existence of persistent equilibrating tendencies 'we are playing right into the hands of our opponents who merely have to point to obvious instances of malcoordination to win debating points' (Lachmann and White: 1979: 7). Further, 'the root of our difficulty lies in this: in a market ... all coordinating activity must engender some discoordination of existing relations' (Lachmann 1986: 11) and therefore must engender endogenous change. Those who take Lachmann's axiom seriously, that time and knowledge belong together – that the passage of time must imply a change of knowledge, can see no way to avoid the conclusion that change is endogenous and continuous, thus making any statement about equilibrating tendencies inherently suspect. At the heart of the problem is the 'autonomy of individual expectations' and the choices to which they lead. Lachmann's axiom follows from the inability to deny its implication that individual behavior cannot be predicted because future knowledge cannot be predicted (O'Driscoll and Rizzo 1996). Expectations relating to the choices of other individuals must be diverse and, therefore, are bound to be falsified. But if expectations are bound to be falsified, implying that prediction is impossible, how do we do economics? Indeed how do we act at all? Is life possible without equilibrium?[7]

EQUILIBRIUM AND EXPECTATIONS REEXAMINED – A DIFFERENT PERSPECTIVE

> [F]rom time to time it is probably necessary to detach oneself from the technicalities of the argument and to ask quite naively what it is all about.
> (Hayek 1937: 54)

The debate referred to above is in many ways related to the general problem in economics of dealing adequately with the phenomenon of time. It seems that every economist of note has, in one way or another, perceived some difficulty associated with accounting for the passage of time while maintaining equilibrium and has wrestled with it (Currie and Steedman 1990). On the one hand, there is the undeniable fact of human action in an ordered society. On the other hand, there are the undeniable facts of novelty and disequilibrium and the inability to foresee all consequences. All action is future-oriented, it rests on connecting present causes to future effects, which seems to imply successful prediction. How is one to reconcile these apparently irreconcilable perspectives?

Describing and understanding action

One possible resolution may lie in reexamining the concept of expectations and concepts related to it. I offer the following scheme which will include an articulation of the following concepts: *events/occurrences, laws of nature, social 'laws', acts/actions, plans, knowledge and expectations.*

We take note of the passage of time by recording *occurrences* or *events* that we categorize according to our understanding of them. Events that occur in nature, that do not involve humans, are understood according to what we think of as the *forces* (or *laws*) *of nature*. Events that occur in society, that relate to humans, are understood according to the intentions and meanings of the individuals involved. At one level it is possible to describe human events as part of events in nature, physiologically for example. So it is possible to examine human acts in terms of the biological processes, in the brain and in the rest of the body, that brought them about. But the nature of the understanding we achieve by this is of the same type as that of events in nature. To acquire an understanding of events as *human* or *social events* requires examining (inter)subjective intentions and meanings.[8] We may say that events in society are the results of *actions*. They involve human acts.[9] To satisfactorily describe an act, recourse must be had to motives, means and outcomes – even if the latter are unintended. Outcomes are connected to (understood in terms of) a multitude of actions, related and unrelated. This seems to me what we mean when we talk about equilibrium in terms of the consistency, compatibility and coordination of *plans*. Plans embody a number of related acts. They are related by *purpose*. Thus different acts may be *complementary*, when they work towards the same purpose, or *competitive*,

when they work for conflicting purposes, or they may be unrelated. The notion of plan, so widely used by economists, is in need of further examination.[10]

What do we mean by consistency of plans?

There are three important things to note about plans.

(i) Plans depend on different kinds of knowledge

As already indicated, a plan is defined by its purpose or set of purposes. Its formulation depends on its purpose and on the desires (*preferences*) and *knowledge* of the planner. This knowledge is an infinitely complex phenomenon[11] and operates at many levels. For the moment we note simply three types or 'levels'. The individual will have knowledge of those laws of nature to which we referred earlier – *knowledge type 1*. This knowledge will have been gained in a variety of ways according to the individual's perceptions and experience (and may be to some extent *a priori*). Secondly, the individual will have knowledge of the social world, 'social laws' – *knowledge type 2*. This knowledge will depend on the existence of, and the individual's perception and experience of, social *institutions*. By institutions we mean here those typical and stable features of the social world on which individuals come to rely. So they include rules of behavior, standard categories, habits, customs and the like. We will discuss this in greater detail momentarily. Thirdly, the individual will have knowledge of specific and unique events that have occurred (history) and in order to carry out the actions constituting the plan, the individual must form some mental picture of the specific possible consequences of those actions and decide which are more or less likely. To be sure, some actions will involve greater and lesser degrees of conscious anticipation, and some may be so habitual as to seem almost reflexive. Nevertheless, even these *implicitly* involve imagined consequences, as would presumably be brought to the fore upon interrogation. We may hesitate to group these anticipations or *expectations* in the category of knowledge, but we do so, as a third level of knowledge (*knowledge type 3*), in the conviction that expectations may be held with greater or lesser confidence. (In the case of the habitual actions referred to just now, we may imagine the relevant expectations to be held so confidently as to be indistinguishable from (tacit) knowledge as usually understood as some sort of absolute confidence.) Expectations are thus here considered to be a special aspect of knowledge.[12] Knowledge types 1 and 2 are knowledge of an abstract kind, knowledge of general principles (related to the natural world – apples fall from trees to the ground, exposure to bacteria can cause infection – or related to the social world – people stop at red lights, dollar notes are a generally accepted means

of payment), whereas knowledge type 3 – historical knowledge and expectations/anticipations – is knowledge of specific unique events.[13]

(ii) Plans cannot be completely specified, they cannot include a specification of everything that can happen (imagined or unimagined)

The notion of 'plan' in the literature is very vague. Lindahl (1929 and especially 1939b),[14] and Lachmann spent some time talking about aspects of individual plans. Of these Lindahl's formulation is the more developed.[15] He distinguishes, for example, between three types of actions that affect the plan's '*degree of definiteness*' (Lindahl 1939a: 45), thus conceiving of some flexibility in the execution of the plan. This means that even if some anticipations are not fulfilled, if the plan contains sufficient flexibility, that is, sufficient room for contingencies, it may not be disappointed and thus need not be revised or abandoned. It may be accommodated within equilibrium. Likewise Lachmann, in different (but similar) ways, attempted to account for plans that contained contingencies.[16] But neither of these authors, nor anyone else to my knowledge, has remedied the vagueness that continues to surround the concept. There is an aspect of paradox in this. It is because theorists have failed to make clear that *real-world plans* are necessarily vague and often only dimly perceived by the planners, that the plans in the theorists' discussion have assumed a specious, but unarticulated, defineness. They have fostered the (unconscious) impression that they are meant to depict detailed project-analysis-type means–ends schemes, even though such details are never provided, even by way of example.

The necessary vagueness of real-world plans is implied by the nature of time and the way in which we experience it, in short by Lachmann's axiom. As future knowledge cannot be gained before its time, and as plans must inevitably depend to some degree on future knowledge, many of the aspects of a plan must simply be unspecified. We do not plan in terms of 'micro' details, but rather in terms of 'macro' categories. We cannot experience future events before their time and the experience is never an exact correspondence of the anticipation, both because the difference is a matter of degree and because some of the aspects of the event *could not have been imagined.*[17]

(iii) Plans are multi-layered

An individual at any one time will have a very large number of plans by which he conducts his life. Each will relate to a different purpose and usually will have very different frames of reference including a different time frame. So for example, I may at a moment of time be acting *within* plans to teach my class (as planned) today, finish a first draft of this essay this week, fulfill the expectations of my children to help them with their homework this entire year and save enough money to see them through college over the next ten years.

Plans may be nested (within one another) or parallel. And while it might be possible ideally to conceive of all of an individual's plans as existing within one giant 'life plan', this, as we shall see, can hardly advance our understanding. Rather we should realize that although the plans may exist in a structure of sorts, one being related to another in terms of purposes and means, this relationship, this structure, is likely to be only dimly and partially perceived and is, moreover, likely to be ever changing as individual plans are adopted, revised and abandoned. So when we speak of plan coordination across individuals, and whether or not there is a necessary tendency for them to become more coordinated, our disagreement may be related to the fact that the concept of plan coordination has not been clearly understood. It may be that some *types of plans* do exhibit such a tendency while others do not; and that the functioning of the market system depends crucially on this difference. In particular, it may be, as we shall argue, that plans based heavily on knowledge types 1 and 2 are very likely to cohere and that the opposite is true for plans that depend heavily on knowledge type 3.

Consider the relationship between plans and expectations. Plans are based, to a greater or lesser extent, on expectations (knowledge type 3). Expectations are, of course, widely believed to influence actions, and the essential difference between theories is often to be found in the different way in which expectations are treated. While the rational expectations (RE) approach implicitly assumes that everyone has the same expectations, at the other extreme, Lachmann emphasizes the dire consequences of expectations that necessarily diverge. But we may now pause to ask: expectations of what? RE approaches relate primarily to prices (or prices indexes), they refer to individuals' expectations of prices. Lachmann is less specific except to say that they are bound to be disappointed, from which we should infer he is referring to expectations of the things about which individuals differ. Realizing that expectations, like the plans in which they are embodied, are *multi-dimensional* makes us realize that *the expectations concerning the vast majority of things (events) about which we have expectations will be fulfilled.* We may thus question whether Lachmann's statement that 'experience teaches us that in an uncertain world different men hold different expectations about the same future event' is universally true and realize that it depends crucially on the type of event in question. For a large number of events there is widespread agreement of expectations.

How are activities synchronized and coordinated?

We may be more specific. Expectations and plans are, for the most part, fulfilled because of the existence in the social world of shared categories and standards that facilitate the synchronization and coordination of activities. These operate to give individuals hard knowledge (type 2) of the actions of others on which these plans and expectations (type 3 knowledge) depend.

This is most obvious and most crucial with regard to the way in which we cope with time. Currie and Steedman have drawn our attention to a remarkable work by P. A. Sorokin originally published in 1943 (Currie and Steedman 1990: 201–3; Sorokin 1964). In this work Sorokin points out that the devices we use to organize and cope with time are cultural (rather than natural) in character. We invent (or more accurately we 'evolve') *cultural time units*. Thus Sorokin contrasts 'sociocultural time' with 'continuous, infinitely divisible, uniformly flowing, purely quantitative time of classical mechanics' (Currie and Steedman 1990: 201). Consider the week.

> Factually, our living time does not flow evenly, is discontinuous, and is cut into various qualitative links of different value. The first form of this qualitative division is given by our *week*. Mathematical or cosmic time flows evenly, and no weeks are given in it. Our time is broken into weeks and week links. We live week by week; we are paid and hired by the week; we compute time by weeks; . . . we walk and exercise or rest so many times a week. In brief, our life has a weekly rhythm. More than that: within a week, the days have a different physiognomy, structure, and tempo of activities. Sunday especially stands alone, being quite different from the weekdays as regards activities, occupations, sleep, recreation, meals, social enjoyments, dress, reading, even radio programs and newspapers . . . A week of any kind is a purely sociocultural creation, reflecting the rhythm of sociocultural life but not the revolution of the moon, sun, or other natural phenomena. Most human societies have some kind of week, and their very difference between weeks is evidence of their independence from astronomical phenomena. The constant feature of virtually all . . . is that they were always found to have been originally associated with the market. our week is not a natural time period but a reflection of the social rhythm of our life. It functions in hundreds of forms as an indivisible unit of time . . . Imagine for a moment that the week suddenly disappeared. *What havoc would be created in our time organization, in our behavior, in the coordination and synchronization of collective activities and social life, and especially in our time apprehension.*
>
> (Sorokin 1964: 190–3, italics added in the last sentence)

What is true of the week is equally true of other shared time unit categories, like days, months, seasons and years, even though these may have an original basis in astronomical regularities. In their evolved developed state they provide us with predictable social rhythms. And this is even more true of the division of days into hours, minutes and seconds. In our interactions we all mark time in the same way and with reference to the same clock so that we are able to synchronize (consciously and subconsciously, overtly and tacitly) most of our actions or, more accurately, our *activities* (referring to action types or repeated actions).

> The knowledge of the main kinds of sociocultural rhythms – no matter whether periodical or not – is by itself very important knowledge ... Stripped of their specific qualities, all rhythms and punctuations would disappear, and the whole sociocultural life would turn into a kind of gray flowing fog in which nothing would appear distinct.
>
> (ibid.: 201)

The synchronization of activities is most obvious in contracts, which often refer to units of time. For example, we rent space by the day, week, month or year. But it occurs in all spheres of life where contracts are implicit or non-existent. We expect people to work between the hours of 8 and 6 and not usually outside of that. We expect people to be asleep between midnight and daylight. The few exceptions give rise to disappointed expectations and discoordination. But the overwhelming conformity ensures routine expectation fulfillment. Knowledge of these time categories is a prerequisite for and gives rise to knowledge of people's typical activities.

This insight may be extended to other types of shared categories. For example we share categories for measuring space – distance (miles and kilometers), area (acres of land) and volume (gallons of gasoline); and weight (pounds of sugar), figuring accounts, classifying occupations (Ebeling 1986: 48), driving on the roads, walking along pathways, and innumerable other conventions, customs, habits and the like, that make our actions predictable to others. These institutionalized categories and modes of behavior (which we may designate as institutions broadly understood) are the cumulative unintended results of individual actions and they represent a real convergence of expectations. Starting out from a position of many different standards or modes of behavior that converge to one or a few, implies that individuals come to expect certain kinds of behavior, with a degree of confidence related to degree of conformity of the particular standard. These institutions

> enable each of us to rely on the actions of thousands of anonymous others about whose individual purposes and plans we can know nothing. They are the nodal points of society, *coordinating the actions of millions whom they relieve of the need to acquire and digest detailed knowledge about others and form detailed expectations about their further action.*
>
> (Lachmann 1971: 50, italics added)

Processes of institutional convergence and change

We have a fairly good idea of how social processes that converge work. A prototype case has been provided in the emergence of a single medium of exchange (Menger 1871: 248ff; Selgin 1988: Chapter 2; Horwitz 1993: Chapter 2). Money is the unintended result of individuals adopting one out of many goods as the preferred medium of exchange. Its spontaneous emergence

is facilitated by the property that the more people use it the greater its advantage for further use. It is a graphic case, but only one case, of similar processes where the advantages of the adoption of a particular standard, for example of a particular product or set of products to accomplish given tasks like playing video cassettes, word processing, software development, as well as geographical location, language, and many other things, depend positively on the extent to which it has already been adopted (Arthur 1994; Krugman 1991; Kirzner 1990; see also Horwitz 1993). In such processes, once a critical level of adoption has been achieved, adoption tends to be cumulative. Individuals are led by the clearly perceived advantages of adoption to follow suit and the process feeds on itself until it has become an institution. Not all institutions emerge in this way, but many do.

It should be clear that these convergent processes do not exist in isolation but are crucially related to each other. So, for example, the emergence of money depends on the prior existence of established practices of trade, in particular the tacit or conscious enforcement of contracts. The institution of repeat purchase tends to enforce certain practices of honest dealing. And the existence of money, of course, supports a number of dependent institutions, like financial accounting practices. There is, in short, an intricate *institutional structure*. There is an essential complementarity between enduring institutions (Horwitz 1994).[18] The market system is itself dependent on the existence of important aspects of the legal structure. This brings up the question of institutional change.

The designation 'institution' connotes an image of permanence, of reliability. The institutions we have been talking about exist as fixed points in the landscape of time within which individuals can make their choices in the knowledge (knowledge type 2) that they, the institutions, at least, will remain unchanged. We will look at this a little more closely in a moment. It is evident, however, that this permanence must be relative, for we have the fact of institutional change. Standards come and go. Categories change. Rules appropriate to one society often disappear as the society changes. Even language evolves. How does this affect the functioning of institutions as facilitators of coordination? The answer must be in the rapidity of change. A society in which everything changed rapidly would be one devoid of any perceptible order. History is possible only because the historian is able to know something about the enduring orientations inside people's minds. The historical context is defined by the *meaning* of the institutions of the society under examination. But, as the context changes, institutions may be seen at one point in time as fixed points, while at another as aspects of change. It depends on the purpose of the analysis and the time span involved. What is fixed and what evolves is itself a matter of context. There seems to be a continuing interaction between the foreground and the background and which is moving depends very much on which you have in focus, much like a three-dimensional

holographic picture. Commercial law is necessary for the conduct of economic life and indeed facilitates the emergence of unpredictable novelty in economic life. But economic (and technological) changes of certain types put a strain on aspects of the law that prompt it to change. For example, the emergence of electronic communications has suggested the acceptance of facsimile signatures and has raised difficult legal questions relating to copyright and privacy on the internet.

Chaos out of order

So convergence and permanence are relative phenomena. Nevertheless such permanence is necessary for the existence of and for our understanding of dynamic economic processes. The hectic procession of new products and productive processes, which is the result of the activities of a multitude of individuals organized as companies, operating within the constraints of contract law, and so on, some of whom succeed in their endeavors, many of whom do not (as defined by the ability to earn positive accounting profits), is dependent on these underlying institutions. While we cannot predict who will succeed and who will not, while we cannot predict which products will emerge and be popular, while we cannot foresee the nature of future technologies, we strongly believe that the process will be peaceful and will be orderly; we confidently expect those who are unsuccessful to accept their losses peacefully and perhaps try something else, those who lose their jobs to move on in the hope of greener pastures, and those who do succeed to continue to try to do so. The fruits of this dynamic process depend crucially on our willingness to accept the consequences of its unpredictability. That willingness is the vital predictable part. We have the emergence of 'chaos out of order'.[19]

The analogy with organized sports has been suggested by a number of theorists (for example, Hayek 1973: 115 and Loasby 1994: 32). The game is played according to certain fixed rules (although from time to time the rules 'evolve' to reflect new realities). The rules (both written and unwritten) are highly predictable. Given a hypothetical contingency we can predict its resolution. The actual outcomes are uncertain and infinitely variable. That is the point of playing the game. By 'outcome' we mean not only the score, but also the pattern of the game in its infinite detail, which is part of the attraction. If we cared only about the score it would be a simple betting game; we are also interested in seeing how it is played and what unexpected variations are around the corner to delight, intrigue, shock or disgust us. The game of life, and the game of economic life in particular, is like this in many respects. Most notably it depends on written and unwritten rules and on the resources (the abilities, the equipment and the experience) of the players. We hope our team will win, but we usually don't go to war if they don't. If we did, the game would not exist and we would not be able to enjoy it.

We cope with the complexity in the world by converging on institutions. Thus once the arrival of a new range of products, made possible by the development of a new technology, has been digested, new categories of classification tend to be developed, into which these products are grouped. The categories emerge spontaneously out of individual attempts to communicate the attributes of the new products. A good example is the products of the computer industry. A whole range of products exists, whose workings remain a mystery to the vast majority of people, but whose purposes needed to be explained. Laptops evolved into notebooks, microcomputers into desktops. At another level a series of technical standards and categories have been developed in order to cope with the complexity. The attributes of computer monitors include their refresh rate, their dot pitch as well as simply their screen size. All these shorthands provide the increasingly informed public with a way to tailor its expectations when choosing between products. They enhance predictability by enhancing the interpretability of information. But these relatively predictable elements change with time and it is no accident that conscious innovation involving product differentiation is often referred to using the phrase 'category killer'.

Novelty and equilibrium

About some events there is no predicting. These are the specifics of any given (future) historical situation. Lachmann's axiom implies the uniqueness of every experience. Perhaps it is better to say that each experience contains unique elements, although we are able in retrospect to describe it in terms of recognizable categories. Describing a situation is never the same as being there. Each moment is unique and therefore, cannot be *precisely* predicted. Thus plans are never coordinated in every detail. Such a situation is inconceivable; it is a world without time. In that sense we are never in equilibrium. Nevertheless, in peaceful, lawful, societies, behavior is *ordered.* Hayek, in his later work, spoke less of equilibrium and more of order. He quotes from 'a distinguished social anthropologist':

> that there is some order, consistency and constancy in social life is obvious. If there were not, none of us would be able to go about our affairs or satisfy our most elementary needs.
>
> (Evans-Prichard 1951: 49, quoted by Hayek 1973: 36)

> It is evident that there must be uniformities and regularities in social life, that society must have some sort of order, or its members could not live together. It is only because people know the kind of behaviour expected of them, and what kind of behaviour to expect from others, in the various situations of life, and coordinate their activities in submission to rules and under the guidance of values that each and all are able to go about their affairs. They can make predictions, anticipate events, and lead their lives

> in harmony with their fellows because every society has a form or pattern which allows us to speak of it as a system, or structure, within which, and in accordance with which, its members live their lives.
>
> (Evans-Prichard 1951: 19, quoted by Hayek 1973: 155n)

Thus,

> By 'order' we shall ... describe a state of affairs in which a multiplicity of elements of various kinds are so related to each other that we may learn from our acquaintance with some spatial or temporal part of the whole to form correct expectations concerning the rest, or at least expectations which have a good chance of proving correct.
>
> (Hayek 1973: 36, italics removed)

The (extended) order which is the society, is clearly a result of the component orders we have called institutions. And the latter indeed are the results of a process by which society has (without planning to do so) converged towards their adoption. They are 'spontaneous orders' and they represent equilibria of a sort, in that they are states of convergence (rest) around which expectations are formed and conform. In this sense, we may say that the social process is composed of equilibrating, disequilibrating and non-equilibrating subprocesses. Economic growth, the arrival of new and better products and better methods of production, is the result of unpredictable, disequilibrating and non-equilibrating processes. There is no tendency for expectations to cohere in these processes. They are 'non-expectable', the results of events that could not have been expected. The degree of predictability of any event is related then to the extent to which it tends to exhibit repeatable, typical or recognizable characteristics. Many routine events fall within the 'very predictable' range. However, in the realm of productive activity, in modern economies, many events fall very definitely outside of this range. Methods of production, consumer goods and services embody and depend on new knowledge to a high degree and their emergence is intimately related to and crucially dependent on the divergence of expectations.

Predictability in one sphere is thus the necessary ingredient for coping with its absence (novelty) in another sphere.[20] The amazingly wide range of products and the persistent improvement in methods of production (in terms of reducing opportunity costs) are the results of a multitude of unintentional experimentations. Of the outcomes that we observe in the market system, we cannot say they are the most 'efficient' or the 'best' of any we could have had, and they are not an equilibrium in any Hayekian sense. But to the extent that we judge them to be better than many alternatives, to the extent that we judge progress to be occurring in that our lives are made more convenient and more exciting, we must recognize these outcomes to be the beneficial result of the kaleidic changes of the modern world.

Prices in disequilibrium

The prices which economic agents observe and to which they respond are not equilibrium prices. That is, they are not prices that reflect an underlying compatibility of the plans of the various economic actors in the market. If expectations *were* consistent across individuals, in the sense that they were all destined to be fulfilled, then prices would reflect the unanimous judgments of individuals of the values of the goods traded; they would also accurately reflect the tradeoffs involved in trading one good for another or refusing to do so. In this sense the prices would lend a degree of objective expression to the subjective, non-comparable valuations of individuals. While subjective valuations are not observable and there is no way of knowing subjective value scales, in an equilibrium situation prices provide hard information about what individuals are prepared to do and what various goods and services are 'worth' to them. In this context, the exercises of modern welfare economics, employed in the service of normative investigations of alternative policy scenarios or institutional structures, make some sense. It is possible then to use price as a 'proxy' for a measure of 'utility' reflecting social losses and gains in some indirect sense.

In a disequilibrium situation, however, this is obviously no longer possible. If expectations across individuals differ and are inconsistent, then prices can no longer be used to reflect a unanimous judgment of value. The theorems of welfare economics no longer apply and, as is widely acknowledged albeit ignored, notions of 'economic efficiency' have no unambiguous meaning. One might wonder then what it is that prices actually do in disequilibrium.

It should be clear that a price is a social institution. When a price is established between a buyer and a seller there is a shared understanding of what it is and what it means. In the first instance, the price is an expression simply of the 'terms of trade'; you give me this and I will give you that. It is a general shorthand description for expected action, action that involves hypothetical yet-to-be-expressed details. For example, an advertised general price is an offer to do business that says, I will trade an unspecified amount of this for so many dollars per unit. And though the quantities acceptable may not be unlimited, there is usually understood to be an acceptable trading range. So price is first, a statement of mutual expectations and obligations involving real things.

Secondly, prices enable individual calculation. Prices make budgets possible. In this regard the role of prices in monetary economies depends crucially on the existence of money as a universal medium of exchange and therefore unit of calculation (and one presumes, if exchanges are recorded, a unit of account). Since money is universal purchasing power it facilitates production and exchange over time. Prices play a pivotal role in these production and exchange activities. Without market prices calculation would not be possible (Mises 1981). There would be no way for an individual to

estimate what someone might be willing to exchange for various items. The prices involved in any budget calculation are either an expression of past transactions that actually occurred or they are expected prices of hypothetical trades that might occur in the future. It depends on whether one is doing accounting (attempting a judgment of past action) or budgeting for future action. That is, past prices express past trading achievements, while expected prices express perceived potential future trading achievements. Either way, and connecting the two, prices (thirdly) enable trading decisions. If expected prices bore no relationship to the actual prices that materialized they would serve no purpose. Indeed there must be a close relationship, close enough to yield a positive net value to the traders involved on both sides of the market if there is to be a continuing market. So enduring trade in something is evidence that expectations have not been disappointed to the extent that trading is no longer worthwhile.

Changes in prices (actual and/or expected) thus induce budgetary adjustments. They enhance or restrict the value of a budget and produce the familiar individual demand and supply responses. And price discrepancies (if noticed) provoke arbitrage activities that if unimpeded would continue until they were removed, until one price only were established. But, price discrepancies are often in the eyes of the (entrepreneurial) beholder, especially such discrepancies as refer to a comparison between present and future prices. Some arbitrage (for example, production) 'opportunities' may be inconsistent with others and may not succeed. Once again then we affirm the impossibility of deriving the necessity of converging expectations and prices in the market process.

An individual budget has meaning only in terms of the prices that the trader faces (now and in the future) and his subjective scale of values. So just as with other institutions, the institution of price *qua* price must exhibit some permanence if it is to serve its purpose. Individuals understand what a price, any price, is; they understand prices as a phenomenon. Individual prices are instances of price as an institution. And although they do not reflect equilibrium values, because they are contextually meaningful they motivate and facilitate economic activity.

CONCLUSION: PREDICTABILITY TOGETHER WITH DISEQUILIBRIUM

Hayek's notion of equilibrium as perfect plan coordination is limited because plans can never be completely specific. Thus complete plan coordination *ex ante* is not even logically possible. In a way, perhaps ironically, Hayek's own extensive work on the importance of tacit knowledge and the inherent limits of perception and articulation (for example, 1945, 1967) point in this direction.

Thus we may conclude our examination of equilibrium by saying that the market process in general is not equilibrating. There is no tendency for

expectations in general to become more coordinated. Expectations operate at many different levels, however, and are reflective of different types of knowledge of which we have identified three broad categories. At most of these levels, for most types of actions, there is a tendency towards coherence. We tend to cohere around certain rules of conduct, standards, categories and other institutional phenomena, and most of our expectations are thus fulfilled. We have predictability together with disequilibrium.

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NOTES

1 It is possible to conceive of a situation of 'statistical' equilibrium where mutually offsetting individual errors are such as to leave the price unchanged. In such a situation, though individual plans are not mutually compatible, we have equilibrium as a kind of balance of forces. Individuals are right 'on average'. Hayek discusses this case in passing (Hayek 1937: 43n). In a way this anticipates aspects of the Rational Expectations literature developed since the 1970s. As we shall be concerned with equilibrium in terms of its implications for individual perceptions we shall not consider this case in any more detail. A sufficient, though not necessary, condition for price stability in the partial equilibrium static (non-growth) case, is the compatibility of plans to buy and sell.

2 Machlup identifies four basic steps in equilibrium analysis: *(1) the initial position – everything could go on as it is; (2) a disequilibrating change; (3) adjusting changes; (4) final position – new equilibrium.* Comparing (4) with (1) establishes cause and effect (see the discussion in Machlup 1958: 47ff).

3 This phrase is from O'Driscoll and Rizzo (1996: 24). See generally Machlup (1958).

4 I mean by 'system' a higher level than individual equilibrium whether it be the entire economic system or a subsystem of it (for example, an isolated market). As will become clear from the text, the crucial distinction is between equilibrium as it applies to an individual mind and as it applies to the interaction between two or more minds.

5 Lachmann follows Hayek on this: 'The notion of general equilibrium is to be abandoned, but that of *individual equilibrium* is to be retained at all costs. It is simply tantamount to *rational action*. Without it we should lose our "sense of direction"' (Lachmann 1976: 131).

6 See also Hicks (1965: 24).

7 For an in-depth examination of this debate see Karen Vaughn (1992 and 1994,

Chapter 7). The debate continues, though in muted terms since Lachmann's death in 1990. Kirzner has attempted to restate and refine his position (1992) and Mario Rizzo has provided a further critique (Rizzo 1996). For a recent summary of Kirzner's position see Kirzner (1997).

8 Whilst differing from his approach in some respects, this echoes Mises's insistence on 'methodological dualism' (see for example Mises 1957, Chapter 1). Mises's approach to this can be described as somewhat 'pragmatic'. 'What the sciences of human action must reject is not determinism but the positivistic and panphysicalistic distortion of determinism. They stress the fact that ideas determine human action and that at least in the present state of human science it is impossible to reduce the emergence and transformation of ideas to physical, chemical or biological factors. It is this impossibility that constitutes the autonomy of the sciences of human action' (ibid.: 93). The ultimate givens in social science are the ideas of individuals, including their value judgments of value. There is no accounting for these in terms of more ultimate (physical) causes. 'Saying that judgments of value are ultimately given facts means that the human mind is unable to trace them back to those facts and happenings with which the natural sciences deal' (ibid.: 69). See also Hayek (1952). We should also note Mises's recognition that *all action* is essentially entrepreneurial because of the uncertainty of the future. See Mises (1966: 105).

9 'Act. n. ... 1. A thing done; a. Deed b. An operation of the mind.' *The New Shorter Oxford English Dictionary.*

10 An anonymous referee points out that an important distinction must be made between the plans of a given individual and the plans made by different individuals. A question arises whether an individual is always aware of the complementary or contradictory nature of his plans. Does the harboring of plans contradictory in their likely outcomes imply irrationality or just ignorance? Presumably a 'rational' individual would not knowingly adopt contradictory plans. For groups of individuals, contradictions are inevitable in market economies. These contradictions, and also some complementarities, are mostly unknowable to individuals *ex ante* and are only revealed (if at all) *ex post* with the unfolding of the market process.

11 I am painfully aware that much of this treads in territory that is the domain of the sophisticated philosopher. I make no claim to expertise in the field of epistemology and ask the expert's indulgence on the finer points of knowledge acquisition and the controversies that surround them.

12 Though I must emphatically absolve him of any responsibility for error, I owe the working out of this formulation to Israel Kirzner, who provoked with a question about the relationship between knowledge and expectations.

13 This discussion is, in many ways, similar to (perhaps the same as) O'Driscoll and Rizzo's distinction between typical and unique elements in any situation and between pattern and detail prediction (1996: 76–91). And, once again, there are close similarities to and differences from Mises. Mises was concerned with the sources of knowledge. I am less so. So his distinction is twofold, first on the basis of whether or not knowledge can be considered *a priori*, second whether or not it yields certain (unambiguous, eternal) knowledge. My scheme is elaborated very specifically in the service of trying to describe how action is possible in disequilibrium (with reference to a Hayekian equilibrium of consistency of plans). So I distinguish between different types of knowledge, not according to their sources, but according to their degree of certitude, and secondly according to their subject matter (human or natural). In this latter regard my methodological dualism is not that different from Mises's. So I lump together knowledge that is

(or might be) *a priori* with that gained by experience, but distinguish it according to whether it is about the social or the natural world. Mises would put mathematics in praxeology together with economics, whereas I put mathematics in natural (non-human) science. Mises's thymology (the study of human history) seems to use my knowledge types 2 and 3 involving both specific social events and their interpretation through 'social laws' (Mises 1957: 264ff).

14 See also Currie and Steedman (1990, Chapters 4 and 5).

15 'It can hardly be pretended that every individual has a clear conception of the economic actions that he is going to perform in a future period. Nevertheless, in the greater number of cases it will certainly be found that underlying such actions there are habits and persistent tendencies which have a definite and calculable character comparable to . . . explicit plans . . . we may accordingly without danger proceed to generalize our notion of "plans", so that they will include such actions. Plans are thus the explicit expression of the economic motive of man, as they become evident in his economic actions' (Lindahl 1939a: 93).

16 See Lachmann (1978: 4, 53; 1971: 40) and Lewin (1994: 247–50).

17 'No matter how I try to imagine in detail what is going to happen to me, still how inadequate, how abstract and stilted is the thing I have imagined in comparison to what actually happens! . . . For example, I am to be present at a gathering; I know what people I shall find there, around what table, in what order, to discuss what problem. But let them come, be seated and chat as I expected, let them say what I was sure they would say: the whole gives me an impression at once novel and unique . . . Gone is the image I had conceived of it, a mere prearrangeable juxtaposition of things already known!' (Bergson 1965: 91, quoted in Rizzo 1994: 117n).

18 'Company Law, as it has emerged in the Western world in the course of time, is a delicate web within which many interests, some conflicting, some complementary, have been woven into a pattern of harmony' (Lachmann 1979: 254).

19 With apologies to Progogine and Stengers (1984). The market process is not chaotic in the colloquial sense, but it is complex and unpredictable. This complexity and unpredictability emerge and are accommodated by the underlying institutional order.

20 William Butos and Roger Koppl have recently examined Hayek's view of expectations. They argue that 'the orderliness of market processes and outcomes, and hence the realization and coordination of individual plans, are dependent on the social environment in which individuals function' (1993: 303). This social environment is part of our knowledge type 2. Expectations are, in their view, 'filtered' through the framework provided by this knowledge.

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